October 14th, 2022
August 4th, 2023 update
March 4th, 2024 update
Mar 19th, 2025 update

Black Earth Compost LLC
Gloucester, MA, 01930

Report of Annual PFAS Analysis

2025 Update -

Please see table at the end of this report for our 2025 results. We are happy to again report that PFAS levels continue to be low and consistent.

2024 Update -

Please see the table at the end of this report for our 2024 results. We are happy to again report that PFAS levels continue to be low and consistent. Results from 2 farms show no PFAS buildup after applying Black Earth Compost for 5 to 10 years in a row.

2023 Update -

Please see the table at the end of this report for our 2023 results. Levels of all regulated PFAS are down, most all below even the detection limit. Levels of unregulated PFAS are also down. We are happy to see our levels are both consistent and remain in the low range. We are even happier to see levels going down which we attribute to more audits of our feedstocks that check products are certified compostable.

Original Report -

Black Earth Compost is taking a proactive approach to investigating the issue of PFAS in our world and as it relates to our composts and soils. We have been voluntarily analyzing and reporting our results and have worked with a consultant to put together this document. In it we provide data from our latest round of PFAS testing from our 3 compost sites (see Table 2) and compare it to Massachusetts limits for human safety defined by the state as: children inhaling and playing in the soil (see Table 1). The good news is our compost and soil blends are safe by these strict standards.

Additional research with our consultant found studies describing background levels of PFAS in the environment (see Table 3). Some PFAS can be detected in most soils and homes because they have been heavily used by society since the 1950's. For comparison, we then collected publicly available data from high-profile PFAS contamination that occurred on Maine farms and in central Massachusetts at a compost facility which made news this summer (see Table 4).

Finally, we show data that the levels of PFAS, taken by the US Center for Disease Control, in blood serum has dropped significantly since 2001 (see Table 5). This may indicate that we may be past peak exposure to the PFAS that are of most concern and are highly regulated.

There is much fear associated with PFAS, but it is important to remember that we have been living with them for over 70 years. More importantly we have been depending on them every minute of every day to create the modern lifestyle we enjoy and depend on. Any transition away needs to be orderly and phased and not have impossible expectations of getting back to a zero PFAS world.

Background Information

PFAS, or per- and poly-fluoroalkyl substances have been widely used since the 1950s and are now ubiquitous in the environment. The reason for their popularity and utility is the molecules are able to provide simultaneous grease and water resistance while also being resistant to degradation by life and heat. Due to their use in Teflon cooking ware, Gore-Tex containing outdoor gear, stain-resistant furniture, stain-resistant carpeting, food packaging, mascara, school floor waxes, firefighting foam, and scores of other widely used products, we are all exposed to PFAS daily. Fortunately, due to the apparent toxicity of some PFAS compounds, many of the compounds are already being phased out of production, and our exposure to these have been decreasing (see Table 5 for the reduction in the US population's blood serum

level of PFAS compounds in the last two decades). PFAS compounds last a very long time in the world, so that even with this reduction, background levels still persist and in some media, such as household dust, levels are quite high (see Table 4). Due to this we still see them in our daily lives for many years to come.

It is important to realize that PFAS exists in our world in a range from high concentrations to low concentrations. On the high end of the spectrum, there has been extensive media coverage recently related to Towns that have high levels of PFAS that are a concern (see Table 4). These sites have been taking ingredients that are high in PFAS such as paper mill waste. On the other end of the spectrum, studies have found low levels of PFAS in rain water which means that all environmental media (soils, plants, animals, fresh water, salt water, etc.) will show detectable amounts. This is shown to be true in studies that analyze for PFAS across forest, rural and urban soils in Maine and Vermont (see Table 3). It's important to realize that low levels exist in most environmental media, including composts, and generally are not a concern to human health.

2022 Results

Black Earth Compost tests well below the limits set for human safety by the state of Massachusetts, the US EPA and the Canadian government. For the 6 PFAS compounds that are common and considered harmful, they are either **not detected** or are at least **180 fold below** the human safety limits set by the state. For example, the threshold for PFOA is 300 ug/kg (300 parts per billion); the PFOA level in our compost tests 1.6 ug/kg on average (see Table 2).

Massachusetts bases its human safety thresholds around a worst case scenario of soil being used at a daycare where children will be exposed to it through play and inhalation. The state then adds safety factors on top of that threshold to account for persons who may react differently or are particularly frail.

Black Earth Compost used in a soil directly on top of a drinking water supply does not contain enough concerning PFAS to accumulate to threatening levels. It is important to remember that compost is only applied to soil as an amendment, making up a fraction of the overall soil mass. To test this theory, we analyzed a farm soil that had used our compost about 10 times over 8 years (see Table 2). Levels of PFAS in this soil are still below the strict state thresholds to protect drinking water. On top of that, the levels found are lower than or in the range of background soil levels found at uncontaminated sites in Maine and Vermont (see Table 3).

There are 28 other PFAS molecules that EPA regularly advises testing for. 25 out of 28 of those are not detectable in Black Earth Compost or soil blends. The 3 that we do find are in low concentrations and are generally used on food and food packaging and thus people are already regularly exposed to them at higher concentrations on their food. These compounds are typically not regulated by states or countries because their toxicity is lower than those 6 PFAS that are near-universally regulated. Where safety standards do exist, Black Earth Compost is well below those thresholds as well. For example, the threshold for PFHxA is 800 ug/kg in Canada (one of the few countries to even regulate it) and our compost tests at 25 ug/kg; Threshold for PFBA in Canada is 114,000 ug/kg and our compost tests at 2.9 ug/kg.

Reducing PFAS impact - Getting to zero PFAS

Society will never get to zero PFAS. They have been heavily used in modern society in suburbs, cities, processed food supply chain and the single-use packaging culture. As we wean ourselves off of them and lower demand, manufacturers will respond and slowly start to produce less each day. When those production levels drop, PFAS will slowly disperse into the environment adding to the background 'chemical noise' found all over the Earth. Over 100's or 1000's of years that background amount will continue to decrease until it is only found in sedimentary rocks from our era. This is how persistent pollutants work.

Some people are demanding that <u>all</u> traces of PFAS be cleaned up and our world be set back to <u>zero</u> PFAS. That is impossible because PFAS is already in rain water from the Northern Hemisphere's continents down to Antarctica (Cousins et al.)[1]. Reducing the manufacturing of PFAS is a smart first step. This stops new PFAS from entering into the environment and allows what is here to slowly disperse. Realistically though, a wind down of these PFAS containing products is going to take 10 to 20 years. On top of that, there may not be a replacement for many uses of PFAS. The reason they harm living beings

and that they persist in the environment may be the same reason they provide the beneficial properties we want. Therefore, part of the solution is to lower our expectations of what we ask from consumer products.

Compostable Packaging

Black Earth Compost requires that any food packaging that you place in our bins is certified compostable. We only allow the following certifications because they have PFAS standards.

- Biodegradable Product Institute (BPI)
- Compost Manufacturer's Alliance (CMA)
- TUV Austria/OK Compost
- EN 13432 or EN 14995

Legislative and Personal Actions

Black Earth Compost supports the following actions in government, schools, businesses and people…

- Legislative and Executive branch of government
  - The question of how to handle PFAS needs to be dealt with at the Executive level rather than legislative, judicial or with regulators. These later groups often have strict mandates that may prevent decision making where there are difficult tradeoffs for all decision pathways. There are too many complexities, PFAS is too pervasive and deeply integrated into modern living; Therefore Executive level thought, research and decision is required.
  - Scenario 1 – Mandate phase out of all PFAS from consumer food products and food packaging.
  - Scenario 2 – Require that if PFAS are to be used on consumer food and food packaging that they are first approved by FDA.
  - Either scenario should likely be phased in on a 5 year time frame in order to prevent shock to the supply chains. Going zero tolerance does not work for something that is used every minute of every day by people.
  - Regulate the term 'compostable' and 'biodegradable'. These terms are used very loosely on consumer single use items. Two side by side products at a supermarket can say 'compostable', but one likely has PFAS and the other does not because it is certified compostable.
- Restaurants and Cafeterias
  - For single use plastic to-go items, first try to utilize PLA (polylactic acid) based items that are certified compostable (BPI, CMA, TUV, or the European compostable standards, see above). PLA doesn't need a PFAS coating and can be cheaper. If you do use paper or fiber-based containers (trays, plates, wrappers, etc.), ensure that they are certified compostable by our standards in order to avoid PFAS (see above)
- Schools
  - Consider whether daily or weekly waxing of your hallways and floors is necessary. Determine if there are non-PFAS containing alternatives to the wax and wax strippers.
  - If you choose to use single use trays to serve lunches, ensure they are certified compostable. If you find an affordable certified 5-compartment trays, contact Black Earth so we can share it. We have a New England distributor who wants to carry affordable trays and can buy in bulk.
- Consumers
  - Ask that single-use food packaging that you consume be certified compostable by BPI, CMA, TUV or European standards (the ASTM 6400, developed by the American Society for Testing and Materials, does not consider anything regarding PFAS; nor does Forest Stewardship Council certification have anything to do with PFAS). So whether you are into composting or

not, if you are against PFAS then you should be buying single use products that are certified by BPI, CMA, TUV or the European standards. https://blackearthcompost.com/compostables/

- Consider consuming less greasy food. Not only is the greasy food likely bad for your health, but the PFAS needed to contain it in its bag or box is likely bad for you too.
- Consume less total number of products.
- Consume more simply. Do you need that stylish waterproof jacket? Or will a poncho and boiled-wool tunic work?

-Andrew Brousseau
Compost Operations/Managing Partner
Black Earth Compost

		PFAS Regulated by MA						PFAS Monitored by EPA			
		PFHpA	PFHxS	PFOA	PFNA	PFOS	PFDA	25 other PFAS*	PFBA	PFPeA	PFHxA
Table 1		**STATE AND INTERNATIONAL REGULATIONS**									
		no std = no regulation/standard; measured in ng/g; dry weight basis (parts per billion)									
Massachusetts Soil Standard - Skin Contact and Inhalation	Soil	300	300	300	300	300	300	*no std*	*no std*	*no std*	*no std*
Federal - EPA - Skin Contact	Soil	*no std*	1,300	190	190	190	*no std*	*no std*	*no std*	*no std*	*no std*
Canada - Human Contact Safety	Soil	800	2,300	700	80	2,000	*no std*	*no std*	114,000	800	800
Massachusetts Soil Standard - Over drinking water source	Soil	0.50	0.30	0.72	0.32	2.00	0.30	*no std*	*no std*	*no std*	*no std*
Federal - EPA - Over drinking water source	Soil	*no std*	0.17	0.92	0.25	0.04	*no std*	*no std*	*no std*	*no std*	*no std*

Table 2		**BLACK EARTH COMPOST - 2022 + 2023 RESULTS**									
		detc = not detected in this soil at the minimum detection limit; measured in ng/g; dry weight basis (parts per billi									
Manchester site 2022	Compost	*no detc*	*no detc*	1	*no detc*	*no detc*	*no detc*	*no detc*	4	7	26
Manchester Site 2023	Compost	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	3	1	2	9
Manchesterr Site 2024	Compost	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	1	2	9
Manchesterr Site 2025	Compost	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	2
Manchester site 2022	Soil Blend	*no detc*	*no detc*	1	*no detc*	*no detc*	*no detc*	*no detc*	2	4	15
Manchester site 2025	Raw Loam	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	3
Groton site 2022	Compost	*no detc*	*no detc*	*no detc*	*no detc*	1	*no detc*	*no detc*	3	7	34
Groton site 2023	Compost	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	1	6
Groton site 2024	Compost	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	3	5	16
Groton site 2025	Compost	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	2	4	20
Framingham 2022	Compost	*no detc*	*no detc*	3	*no detc*	*no detc*	2	*no detc*	3	9	11
Framingham 2023	Compost	*no detc*	*no detc*	2	*no detc*	*no detc*	*no detc*	2	2	2	15
Framingham 2024	Compost	*no detc*	*no detc*	2	*no detc*	*no detc*	*no detc*	*no detc*	2	*no detc*	11
Framingham 2025	Compost	*no detc*	*no detc*		*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	3.5	21
Farm 1 soil with long term Black Earth Compost use 2022	Soil	*no detc*	*no detc*	0.5	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	1	1
Farm 2 soil with long term Black Earth Compost use 2023	Soil	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*	*no detc*

Table 3		**BACKGROUND LEVELS**									
		no data = not analyzed for this PFAS; measured in ng/g; dry weight basis (parts per billion)									
Vermont State Soil Background	Soil	0.19	0.12	0.39	0.16	0.68	0.095	*no data*	*no data*	*no data*	0.23
Maine State Soil Background	Soil	0.085	*min*	0.394	0.145	0.275	0.078	*no data*	0.137	0.098	0.219
Maine State Soil Background (urban)	Soil	*no data*	*no data*	*no data*	*min*	1.17	0.094	*no data*	*no data*	*no data*	*no data*
US Household Dust (2001)	Dust	50	46	142	8	201	7	*no data*	*no data*	*no data*	54

Table 4		**PFAS IN THE NEWS**									
		no data = not analyzed for this PFAS; measured in ng/g; dry weight basis (parts per billion)									
(Max concentration) Contaminated Soils - Fairfield Ctr, ME	Soil	*no data*	*no data*	64	62	1,020	134	*no data*	*no data*	*no data*	*no data*
Mass Natural Compost - Westminster, MA	Compost	5	0.3	13	4	26	9	*no data*	*no data*	*no data*	12
(Max concentration) Mass Natural Compost - Westminster, MA	Compost	7	0.5	26	9	62	18	*no data*	*no data*	*no data*	33

Table 5		**PFAS IN HUMANS**									
		no data = not analyzed for this PFAS; measured in ug/L (parts per billion)									
US population 1999-2000	Blood	*no data*	2.13	5.21	0.551	30.40	*no data*	*no data*	*no data*	*no data*	*no data*
US population 2017-2018	Blood	*no data*	1.08	1.42	0.411	4.25	0.193	*no data*	*no data*	*no data*	*no data*

Notes:

no detc' does not mean no PFAS, it just means it was not detected above the test's threshold

All data based on median levels unless otherwise noted

no std = no standard

no detc = below limit of detection (not detected)

no data = Not Tested

min = detected on less than 10% of samples (only applicable in background level testing)

* Black Earth Compost was analyzed for 25 other PFAS and does not contain the following: PFBS, F53B Major, F53B Minor, ADONA, HFPO-DA, 8:2FTS A, PFDA, PFDoA, PFEESA, PFHpS, N-EtFOSAA, N-MeFOSAA, PFTA, PFTrDA, 4:2FTS A, PFDS, FOSA, PFNS, FHxSA, FBSA, PFMPA, 6:2 FTS A, PFPeS, PFUnA, nor NFDHA.

VT soil background levels from Zhu et al. 2019. *PFAS Background in Vermont Shallow Soils*

ME soil background levels from Sanborn Head. 2022. *Background levels of PFAS and PAHs in Maine Shallow Soils; study report.*

US household dust levels from Strynar and Lindstrom. 2008. *Perfluorinated compounds in house dust from Ohio and North Carolina, USA.*

Contaminated soils in Maine from Maine Department of Environmental Protection testing results summary

Mass Natural compost results from Tighe&Bond report to Massachusetts Department of Environmental Protection, September 16, 2002

Black Earth testing results from BE sampling utulized Pace Analytical labs

Blood serum levels from US Center for Disease Control (CDC). *National Report on Human Exposure to Environmental Chemicals*

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Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

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

SOP-466 PFAS

Qualifications:

MS-22

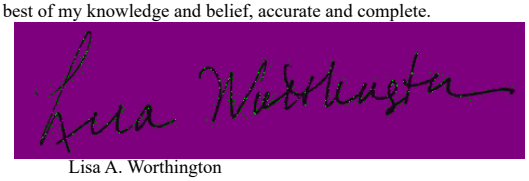
Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

Analyte & Samples(s) Qualified:

Perfluorohexanoic acid (PFHxA)

25C0401-01[Soil - Manchester], B400668-MSD1

The results of analyses reported only relate to samples submitted to Pace Analytical Services, LLC - East Longmeadow, Ma, 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.



Lisa A. Worthington
Technical Representative

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: Soil - Manchester | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-01

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorobutanesulfonic acid (PFBS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoropentanoic acid (PFPeA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorohexanoic acid (PFHxA)	2.4	0.73	µg/kg dry	1	MS-22	SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
11Cl-PF3OUdS (F53B Major)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
9Cl-PF3ONS (F53B Minor)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorodecanoic acid (PFDA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorododecanoic acid (PFDoA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
N-EtFOSAA (NEtFOSAA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
N-MeFOSAA (NMeFOSAA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorotetradecanoic acid (PFTA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorotridecanoic acid (PFTrDA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorodecanesulfonic acid (PFDS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorooctanesulfonamide (FOSA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorononanesulfonic acid (PFNS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoroundecanoic acid (PFUnA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluoroheptanoic acid (PFHpA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorooctanoic acid (PFOA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorooctanesulfonic acid (PFOS)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB
Perfluorononanoic acid (PFNA)	ND	0.73	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:45	AB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: Soil - Manchester | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	58.2		% Wt	1		SM 2540G	3/10/25	3/10/25 21:07	DMB

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Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: Compost - Manchester | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-02

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorobutanesulfonic acid (PFBS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoropentanoic acid (PFPeA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorohexanoic acid (PFHxA)	2.1	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
11Cl-PF3OUdS (F53B Major)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
9Cl-PF3ONS (F53B Minor)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorodecanoic acid (PFDA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorododecanoic acid (PFDoA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
N-EtFOSAA (NEtFOSAA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
N-MeFOSAA (NMeFOSAA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorotetradecanoic acid (PFTA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorotridecanoic acid (PFTrDA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorodecanesulfonic acid (PFDS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorooctanesulfonamide (FOSA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorononanesulfonic acid (PFNS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoroundecanoic acid (PFUnA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluoroheptanoic acid (PFHpA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorooctanoic acid (PFOA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorooctanesulfonic acid (PFOS)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB
Perfluorononanoic acid (PFNA)	ND	1.0	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:52	AB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: Compost - Manchester | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	41.6		% Wt	1		SM 2540G	3/10/25	3/10/25 21:07	DMB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: FRAMINGHAM | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-03

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorobutanesulfonic acid (PFBS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoropentanoic acid (PFPeA)	3.5	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorohexanoic acid (PFHxA)	21	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
11Cl-PF3OUdS (F53B Major)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
9Cl-PF3ONS (F53B Minor)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorodecanoic acid (PFDA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorododecanoic acid (PFDoA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
N-EtFOSAA (NEtFOSAA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
N-MeFOSAA (NMeFOSAA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorotetradecanoic acid (PFTA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorotridecanoic acid (PFTrDA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorodecanesulfonic acid (PFDS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorooctanesulfonamide (FOSA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorononanesulfonic acid (PFNS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoroundecanoic acid (PFUnA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluoroheptanoic acid (PFHpA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorooctanoic acid (PFOA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorooctanesulfonic acid (PFOS)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB
Perfluorononanoic acid (PFNA)	ND	1.2	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 15:59	AB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: FRAMINGHAM | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	38.2		% Wt	1		SM 2540G	3/10/25	3/10/25 21:07	DMB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: GROTON | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-04

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	1.5	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorobutanesulfonic acid (PFBS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoropentanoic acid (PFPeA)	3.9	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorohexanoic acid (PFHxA)	20	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
11Cl-PF3OUdS (F53B Major)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
9Cl-PF3ONS (F53B Minor)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorodecanoic acid (PFDA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorododecanoic acid (PFDoA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
N-EtFOSAA (NEtFOSAA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
N-MeFOSAA (NMeFOSAA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorotetradecanoic acid (PFTA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorotridecanoic acid (PFTrDA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorodecanesulfonic acid (PFDS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorooctanesulfonamide (FOSA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorononanesulfonic acid (PFNS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoroundecanoic acid (PFUnA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluoroheptanoic acid (PFHpA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorooctanoic acid (PFOA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorooctanesulfonic acid (PFOS)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB
Perfluorononanoic acid (PFNA)	ND	1.1	µg/kg dry	1		SOP-466 PFAS	3/13/25	3/17/25 16:06	AB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: GROTON | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	41.6		% Wt	1		SM 2540G	3/10/25	3/10/25 21:07	DMB

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: MA | Sample Description: | Work Order: 25C0401

Date Received: 3/7/2025

Field Sample #: FRB | Sampled: 3/6/2025 00:00

Sample ID: 25C0401-05

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L	1		SOP-454 PFAS	3/13/25	3/17/25 16:35	AB

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Sample Extraction Data

Prep Method:% Solids **Analytical Method:SM 2540G**

Lab Number [Field ID]	Batch	Date
25C0401-01 [Soil - Manchester]	B400519	03/10/25
25C0401-02 [Compost - Manchester]	B400519	03/10/25
25C0401-03 [FRAMINGHAM]	B400519	03/10/25
25C0401-04 [GROTON]	B400519	03/10/25

Prep Method:SOP 454-PFAAS **Analytical Method:SOP-454 PFAS**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
25C0401-05 [FRB]	B400665	260	1.00	03/13/25

Prep Method:SOP 466-PFAAS **Analytical Method:SOP-466 PFAS**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
25C0401-01 [Soil - Manchester]	B400668	5.81	5.00	03/13/25
25C0401-02 [Compost - Manchester]	B400668	5.75	5.00	03/13/25
25C0401-03 [FRAMINGHAM]	B400668	5.59	5.00	03/13/25
25C0401-04 [GROTON]	B400668	5.51	5.00	03/13/25

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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 B400665 - SOP 454-PFAAS										
Blank (B400665-BLK1)				Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluorobutanoic acid (PFBA)	ND	1.9	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	1.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	1.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	1.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	1.9	ng/L							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	1.9	ng/L							
Perfluorodecanoic acid (PFDA)	ND	1.9	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	1.9	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	1.9	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	1.9	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	1.9	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	ng/L							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	1.9	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	ng/L							
Perfluorooctanesulfonamide (FOSA)	ND	1.9	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	ng/L							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	1.9	ng/L							
Perfluoro-1-butanesulfonamide (FBSA)	ND	1.9	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	ng/L							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	1.9	ng/L							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	1.9	ng/L							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	1.9	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	ng/L							
Perfluorooctanoic acid (PFOA)	ND	1.9	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	ng/L							
Perfluorononanoic acid (PFNA)	ND	1.9	ng/L							
LCS (B400665-BS1)				Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluorobutanoic acid (PFBA)	9.59	1.9	ng/L	9.500		101	73-129			
Perfluorobutanesulfonic acid (PFBS)	10.4	1.9	ng/L	9.500		109	72-130			
Perfluoropentanoic acid (PFPeA)	9.60	1.9	ng/L	9.500		101	72-129			
Perfluorohexanoic acid (PFHxA)	9.46	1.9	ng/L	9.500		99.6	72-129			
11Cl-PF3OUdS (F53B Major)	8.03	1.9	ng/L	9.500		84.6	35.6-144			
9Cl-PF3ONS (F53B Minor)	9.58	1.9	ng/L	9.500		101	51-130			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.11	1.9	ng/L	9.500		95.9	57.1-131			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.15	1.9	ng/L	9.500		85.8	47.6-152			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	9.55	1.9	ng/L	9.500		100	67-138			
Perfluorodecanoic acid (PFDA)	9.12	1.9	ng/L	9.500		96.0	71-129			
Perfluorododecanoic acid (PFDoA)	8.64	1.9	ng/L	9.500		91.0	72-134			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	9.77	1.9	ng/L	9.500		103	62.3-144			

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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 B400665 - SOP 454-PFAAS										
LCS (B400665-BS1)				Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluoroheptanesulfonic acid (PFHpS)	9.34	1.9	ng/L	9.500		98.4	69-134			
N-EtFOSAA (NEtFOSAA)	10.0	1.9	ng/L	9.500		106	61-135			
N-MeFOSAA (NMeFOSAA)	9.42	1.9	ng/L	9.500		99.1	65-136			
Perfluorotetradecanoic acid (PFTA)	9.05	1.9	ng/L	9.500		95.3	71-132			
Perfluorotridecanoic acid (PFTrDA)	8.12	1.9	ng/L	9.500		85.4	65-144			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	10.9	1.9	ng/L	9.500		114	63-143			
Perfluorodecanesulfonic acid (PFDS)	9.41	1.9	ng/L	9.500		99.0	53-142			
Perfluorooctanesulfonamide (FOSA)	9.39	1.9	ng/L	9.500		98.8	67-137			
Perfluorononanesulfonic acid (PFNS)	8.82	1.9	ng/L	9.500		92.9	69-127			
Perfluoro-1-hexanesulfonamide (FHxSA)	8.51	1.9	ng/L	9.500		89.6	35-131			
Perfluoro-1-butanesulfonamide (FBSA)	8.10	1.9	ng/L	9.500		85.3	53.1-125			
Perfluorohexanesulfonic acid (PFHxS)	10.0	1.9	ng/L	9.500		106	68-131			
Perfluoro-4-oxapentanoic acid (PFMPA)	9.82	1.9	ng/L	9.500		103	62.3-138			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.53	1.9	ng/L	9.500		100	60.1-138			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	12.1	1.9	ng/L	9.500		128	64-140			
Perfluoropentanesulfonic acid (PFPeS)	9.37	1.9	ng/L	9.500		98.7	71-127			
Perfluoroundecanoic acid (PFUnA)	9.41	1.9	ng/L	9.500		99.1	69-133			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.6	1.9	ng/L	9.500		111	58.2-144			
Perfluoroheptanoic acid (PFHpA)	8.24	1.9	ng/L	9.500		86.7	72-130			
Perfluorooctanoic acid (PFOA)	8.16	1.9	ng/L	9.500		85.9	71-133			
Perfluorooctanesulfonic acid (PFOS)	8.56	1.9	ng/L	9.500		90.1	65-140			
Perfluorononanoic acid (PFNA)	10.1	1.9	ng/L	9.500		106	69-130			
LCS Dup (B400665-BSD1)				Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluorobutanoic acid (PFBA)	8.82	1.9	ng/L	9.411		93.7	73-129	8.38	30	
Perfluorobutanesulfonic acid (PFBS)	9.36	1.9	ng/L	9.411		99.4	72-130	10.4	30	
Perfluoropentanoic acid (PFPeA)	8.86	1.9	ng/L	9.411		94.2	72-129	7.97	30	
Perfluorohexanoic acid (PFHxA)	8.53	1.9	ng/L	9.411		90.7	72-129	10.3	30	
11Cl-PF3OUdS (F53B Major)	8.82	1.9	ng/L	9.411		93.8	35.6-144	9.37	30.4	
9Cl-PF3ONS (F53B Minor)	9.64	1.9	ng/L	9.411		102	51-130	0.674	27.1	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.45	1.9	ng/L	9.411		89.8	57.1-131	7.59	20.6	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.18	1.9	ng/L	9.411		86.9	47.6-152	0.325	30.8	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	8.95	1.9	ng/L	9.411		95.1	67-138	6.46	30	
Perfluorodecanoic acid (PFDA)	8.99	1.9	ng/L	9.411		95.5	71-129	1.48	30	
Perfluorododecanoic acid (PFDoA)	7.32	1.9	ng/L	9.411		77.8	72-134	16.5	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	8.82	1.9	ng/L	9.411		93.8	62.3-144	10.2	19.9	
Perfluoroheptanesulfonic acid (PFHpS)	8.64	1.9	ng/L	9.411		91.8	69-134	7.82	30	
N-EtFOSAA (NEtFOSAA)	9.63	1.9	ng/L	9.411		102	61-135	4.12	30	
N-MeFOSAA (NMeFOSAA)	8.62	1.9	ng/L	9.411		91.6	65-136	8.84	30	
Perfluorotetradecanoic acid (PFTA)	8.37	1.9	ng/L	9.411		89.0	71-132	7.80	30	
Perfluorotridecanoic acid (PFTrDA)	7.52	1.9	ng/L	9.411		79.9	65-144	7.61	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	9.68	1.9	ng/L	9.411		103	63-143	11.5	30	
Perfluorodecanesulfonic acid (PFDS)	8.25	1.9	ng/L	9.411		87.6	53-142	13.2	30	
Perfluorooctanesulfonamide (FOSA)	8.55	1.9	ng/L	9.411		90.9	67-137	9.28	30	
Perfluorononanesulfonic acid (PFNS)	10.5	1.9	ng/L	9.411		111	69-127	17.1	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	7.55	1.9	ng/L	9.411		80.2	35-131	12.0	25.1	
Perfluoro-1-butanesulfonamide (FBSA)	7.29	1.9	ng/L	9.411		77.5	53.1-125	10.5	22.5	
Perfluorohexanesulfonic acid (PFHxS)	9.48	1.9	ng/L	9.411		101	68-131	5.77	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	9.04	1.9	ng/L	9.411		96.1	62.3-138	8.27	20.6	
Perfluoro-5-oxahexanoic acid (PFMBA)	8.77	1.9	ng/L	9.411		93.2	60.1-138	8.26	20.4	

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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 B400665 - SOP 454-PFAAS										
LCS Dup (B400665-BSD1)				Prepared: 03/13/25 Analyzed: 03/17/25						
6:2 Fluorotelomersulfonic acid (6:2FTS A)	9.90	1.9	ng/L	9.411		105	64-140	20.2	30	
Perfluoropentanesulfonic acid (PFPeS)	8.73	1.9	ng/L	9.411		92.8	71-127	7.05	30	
Perfluoroundecanoic acid (PFUnA)	7.81	1.9	ng/L	9.411		83.0	69-133	18.5	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	9.42	1.9	ng/L	9.411		100	58.2-144	11.7	21.9	
Perfluoroheptanoic acid (PFHpA)	7.56	1.9	ng/L	9.411		80.4	72-130	8.49	30	
Perfluorooctanoic acid (PFOA)	7.56	1.9	ng/L	9.411		80.3	71-133	7.73	30	
Perfluorooctanesulfonic acid (PFOS)	8.49	1.9	ng/L	9.411		90.2	65-140	0.896	30	
Perfluorononanoic acid (PFNA)	8.82	1.9	ng/L	9.411		93.7	69-130	13.6	30	
Batch B400668 - SOP 466-PFAAS										
Blank (B400668-BLK1)				Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluorobutanoic acid (PFBA)	ND	0.43	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	0.43	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	0.43	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	0.43	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	0.43	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	0.43	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.43	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.43	µg/kg wet							
8:2 Fluorotelomersulfonic acid (8:2FTS A)	ND	0.43	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	0.43	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	0.43	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.43	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.43	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	0.43	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	0.43	µg/kg wet							
Perfluorotetradecanoic acid (PFTA)	ND	0.43	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	0.43	µg/kg wet							
4:2 Fluorotelomersulfonic acid (4:2FTS A)	ND	0.43	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	0.43	µg/kg wet							
Perfluorooctanesulfonamide (FOSA)	ND	0.43	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	0.43	µg/kg wet							
Perfluoro-1-hexanesulfonamide (FHxSA)	ND	0.43	µg/kg wet							
Perfluoro-1-butanesulfonamide (FBSA)	ND	0.43	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.43	µg/kg wet							
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	0.43	µg/kg wet							
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	0.43	µg/kg wet							
6:2 Fluorotelomersulfonic acid (6:2FTS A)	ND	0.43	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.43	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	0.43	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.43	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	0.43	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	0.43	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	0.43	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	0.43	µg/kg wet							

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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 B400668 - SOP 466-PFAAS										
LCS (B400668-BS1)				Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluorobutanoic acid (PFBA)	1.99	0.43	µg/kg wet	2.149		92.6	71-135			
Perfluorobutanesulfonic acid (PFBS)	2.11	0.43	µg/kg wet	2.149		98.4	72-128			
Perfluoropentanoic acid (PFPeA)	1.96	0.43	µg/kg wet	2.149		91.1	69-132			
Perfluorohexanoic acid (PFHxA)	1.92	0.43	µg/kg wet	2.149		89.2	70-132			
11Cl-PF3OUdS (F53B Major)	1.80	0.43	µg/kg wet	2.149		84.0	52.3-130			
9Cl-PF3ONS (F53B Minor)	2.04	0.43	µg/kg wet	2.149		95.1	52.6-118			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.79	0.43	µg/kg wet	2.149		83.5	53.3-122			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	1.95	0.43	µg/kg wet	2.149		90.7	51.8-132			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	2.00	0.43	µg/kg wet	2.149		93.0	65-137			
Perfluorodecanoic acid (PFDA)	1.92	0.43	µg/kg wet	2.149		89.4	69-133			
Perfluorododecanoic acid (PFDoA)	1.74	0.43	µg/kg wet	2.149		81.0	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	1.97	0.43	µg/kg wet	2.149		91.9	64.6-131			
Perfluoroheptanesulfonic acid (PFHpS)	1.79	0.43	µg/kg wet	2.149		83.3	70-132			
N-EtFOSAA (NEtFOSAA)	1.99	0.43	µg/kg wet	2.149		92.5	61-139			
N-MeFOSAA (NMeFOSAA)	1.93	0.43	µg/kg wet	2.149		89.6	63-144			
Perfluorotetradecanoic acid (PFTA)	1.89	0.43	µg/kg wet	2.149		87.8	69-133			
Perfluorotridecanoic acid (PFTrDA)	1.78	0.43	µg/kg wet	2.149		82.8	66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	2.24	0.43	µg/kg wet	2.149		104	62-145			
Perfluorodecanesulfonic acid (PFDS)	2.21	0.43	µg/kg wet	2.149		103	59-134			
Perfluorooctanesulfonamide (FOSA)	1.84	0.43	µg/kg wet	2.149		85.8	67-137			
Perfluorononanesulfonic acid (PFNS)	2.04	0.43	µg/kg wet	2.149		95.0	69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	1.32	0.43	µg/kg wet	2.149		61.5	53.9-112			
Perfluoro-1-butanesulfonamide (FBSA)	1.78	0.43	µg/kg wet	2.149		82.7	55-115			
Perfluorohexanesulfonic acid (PFHxS)	2.10	0.43	µg/kg wet	2.149		97.7	67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	2.02	0.43	µg/kg wet	2.149		94.0	63.5-122			
Perfluoro-5-oxahexanoic acid (PFMBA)	1.97	0.43	µg/kg wet	2.149		91.5	58.1-123			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	2.04	0.43	µg/kg wet	2.149		94.7	64-140			
Perfluoropentanesulfonic acid (PFPeS)	1.94	0.43	µg/kg wet	2.149		90.4	73-123			
Perfluoroundecanoic acid (PFUnA)	1.91	0.43	µg/kg wet	2.149		88.8	64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.12	0.43	µg/kg wet	2.149		98.5	64.4-129			
Perfluoroheptanoic acid (PFHpA)	1.72	0.43	µg/kg wet	2.149		79.9	71-131			
Perfluorooctanoic acid (PFOA)	1.69	0.43	µg/kg wet	2.149		78.5	69-133			
Perfluorooctanesulfonic acid (PFOS)	1.83	0.43	µg/kg wet	2.149		85.2	68-136			
Perfluorononanoic acid (PFNA)	2.07	0.43	µg/kg wet	2.149		96.3	72-129			
Matrix Spike (B400668-MS1)	**Source: 25C0401-01**			Prepared: 03/13/25 Analyzed: 03/17/25						
Perfluorobutanoic acid (PFBA)	3.69	0.73	µg/kg dry	3.690	ND	100	71-135			
Perfluorobutanesulfonic acid (PFBS)	3.66	0.73	µg/kg dry	3.690	ND	99.1	72-128			
Perfluoropentanoic acid (PFPeA)	4.04	0.73	µg/kg dry	3.690	0.322	101	69-132			
Perfluorohexanoic acid (PFHxA)	5.73	0.73	µg/kg dry	3.690	2.42	89.5	70-132			
11Cl-PF3OUdS (F53B Major)	3.57	0.73	µg/kg dry	3.690	ND	96.6	44.1-148			
9Cl-PF3ONS (F53B Minor)	3.75	0.73	µg/kg dry	3.690	ND	102	52.9-128			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.13	0.73	µg/kg dry	3.690	ND	84.9	56.7-129			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	3.55	0.73	µg/kg dry	3.690	ND	96.2	54.4-144			
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.44	0.73	µg/kg dry	3.690	ND	93.2	65-137			
Perfluorodecanoic acid (PFDA)	3.72	0.73	µg/kg dry	3.690	ND	101	69-133			
Perfluorododecanoic acid (PFDoA)	2.76	0.73	µg/kg dry	3.690	ND	74.7	69-135			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.42	0.73	µg/kg dry	3.690	ND	92.6	63.9-142			

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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 B400668 - SOP 466-PFAAS											
Matrix Spike (B400668-MS1)	**Source: 25C0401-01**			Prepared: 03/13/25 Analyzed: 03/17/25							
Perfluoroheptanesulfonic acid (PFHpS)	3.51	0.73	µg/kg dry	3.690	ND	95.1		70-132			
N-EtFOSAA (NEtFOSAA)	3.50	0.73	µg/kg dry	3.690	ND	94.8		61-139			
N-MeFOSAA (NMeFOSAA)	3.65	0.73	µg/kg dry	3.690	ND	98.9		63-144			
Perfluorotetradecanoic acid (PFTA)	3.00	0.73	µg/kg dry	3.690	ND	81.3		69-133			
Perfluorotridecanoic acid (PFTrDA)	2.73	0.73	µg/kg dry	3.690	ND	73.9		66-139			
4:2 Fluorotelomersulfonic acid (4:2FTS A)	3.88	0.73	µg/kg dry	3.690	ND	105		62-145			
Perfluorodecanesulfonic acid (PFDS)	3.53	0.73	µg/kg dry	3.690	ND	95.7		59-134			
Perfluorooctanesulfonamide (FOSA)	3.39	0.73	µg/kg dry	3.690	ND	91.9		67-137			
Perfluorononanesulfonic acid (PFNS)	3.31	0.73	µg/kg dry	3.690	ND	89.6		69-125			
Perfluoro-1-hexanesulfonamide (FHxSA)	2.24	0.73	µg/kg dry	3.690	ND	60.7		45.5-128			
Perfluoro-1-butanesulfonamide (FBSA)	3.00	0.73	µg/kg dry	3.690	ND	81.2		49.3-130			
Perfluorohexanesulfonic acid (PFHxS)	3.69	0.73	µg/kg dry	3.690	ND	100		67-130			
Perfluoro-4-oxapentanoic acid (PFMPA)	3.66	0.73	µg/kg dry	3.690	ND	99.3		61.2-137			
Perfluoro-5-oxahexanoic acid (PFMBA)	3.49	0.73	µg/kg dry	3.690	ND	94.6		54.3-136			
6:2 Fluorotelomersulfonic acid (6:2FTS A)	3.77	0.73	µg/kg dry	3.690	0.664	84.1		64-140			
Perfluoropentanesulfonic acid (PFPeS)	3.31	0.73	µg/kg dry	3.690	ND	89.7		73-123			
Perfluoroundecanoic acid (PFUnA)	3.20	0.73	µg/kg dry	3.690	ND	86.7		64-136			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.74	0.73	µg/kg dry	3.690	ND	101		58.5-146			
Perfluoroheptanoic acid (PFHpA)	3.17	0.73	µg/kg dry	3.690	ND	85.8		71-131			
Perfluorooctanoic acid (PFOA)	3.25	0.73	µg/kg dry	3.690	0.399	77.3		69-133			
Perfluorooctanesulfonic acid (PFOS)	4.46	0.73	µg/kg dry	3.690	0.662	103		68-136			
Perfluorononanoic acid (PFNA)	3.64	0.73	µg/kg dry	3.690	ND	98.5		72-129			
Matrix Spike Dup (B400668-MSD1)	**Source: 25C0401-01**			Prepared: 03/13/25 Analyzed: 03/17/25							
Perfluorobutanoic acid (PFBA)	4.59	0.73	µg/kg dry	3.690	ND	124		71-135	21.6	30	
Perfluorobutanesulfonic acid (PFBS)	4.33	0.73	µg/kg dry	3.690	ND	117		72-128	16.9	30	
Perfluoropentanoic acid (PFPeA)	4.73	0.73	µg/kg dry	3.690	0.322	120		69-132	15.9	30	
Perfluorohexanoic acid (PFHxA)	7.60	0.73	µg/kg dry	3.690	2.42	**140**	*	70-132	28.2	30	MS-22
11Cl-PF3OUdS (F53B Major)	3.82	0.73	µg/kg dry	3.690	ND	103		44.1-148	6.86	48.5	
9Cl-PF3ONS (F53B Minor)	3.92	0.73	µg/kg dry	3.690	ND	106		52.9-128	4.23	31.8	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.62	0.73	µg/kg dry	3.690	ND	98.0		56.7-129	14.4	29.1	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	4.61	0.73	µg/kg dry	3.690	ND	125		54.4-144	26.0	40.9	
8:2 Fluorotelomersulfonic acid (8:2FTS A)	3.63	0.73	µg/kg dry	3.690	ND	98.2		65-137	5.27	30	
Perfluorodecanoic acid (PFDA)	4.21	0.73	µg/kg dry	3.690	ND	114		69-133	12.4	30	
Perfluorododecanoic acid (PFDoA)	3.47	0.73	µg/kg dry	3.690	ND	94.0		69-135	23.0	30	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.90	0.73	µg/kg dry	3.690	ND	106		63.9-142	13.2	31.7	
Perfluoroheptanesulfonic acid (PFHpS)	3.89	0.73	µg/kg dry	3.690	ND	105		70-132	10.2	30	
N-EtFOSAA (NEtFOSAA)	4.07	0.73	µg/kg dry	3.690	ND	110		61-139	15.1	30	
N-MeFOSAA (NMeFOSAA)	3.96	0.73	µg/kg dry	3.690	ND	107		63-144	8.06	30	
Perfluorotetradecanoic acid (PFTA)	3.86	0.73	µg/kg dry	3.690	ND	105		69-133	25.1	30	
Perfluorotridecanoic acid (PFTrDA)	3.39	0.73	µg/kg dry	3.690	ND	91.9		66-139	21.7	30	
4:2 Fluorotelomersulfonic acid (4:2FTS A)	4.39	0.73	µg/kg dry	3.690	ND	119		62-145	12.3	30	
Perfluorodecanesulfonic acid (PFDS)	4.23	0.73	µg/kg dry	3.690	ND	115		59-134	18.1	30	
Perfluorooctanesulfonamide (FOSA)	3.90	0.73	µg/kg dry	3.690	ND	106		67-137	13.8	30	
Perfluorononanesulfonic acid (PFNS)	3.76	0.73	µg/kg dry	3.690	ND	102		69-125	12.8	30	
Perfluoro-1-hexanesulfonamide (FHxSA)	2.71	0.73	µg/kg dry	3.690	ND	73.3		45.5-128	18.8	37.9	
Perfluoro-1-butanesulfonamide (FBSA)	3.37	0.73	µg/kg dry	3.690	ND	91.2		49.3-130	11.7	38.7	
Perfluorohexanesulfonic acid (PFHxS)	4.32	0.73	µg/kg dry	3.690	ND	117		67-130	15.6	30	
Perfluoro-4-oxapentanoic acid (PFMPA)	4.46	0.73	µg/kg dry	3.690	ND	121		61.2-137	19.5	30.6	
Perfluoro-5-oxahexanoic acid (PFMBA)	4.06	0.73	µg/kg dry	3.690	ND	110		54.3-136	15.1	30.7	

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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 B400668 - SOP 466-PFAAS										
Matrix Spike Dup (B400668-MSD1)		**Source: 25C0401-01**		Prepared: 03/13/25 Analyzed: 03/17/25						
6:2 Fluorotelomersulfonic acid (6:2FTS A)	4.62	0.73	µg/kg dry	3.690	0.664	107	64-140	20.3	30	
Perfluoropentanesulfonic acid (PFPeS)	4.17	0.73	µg/kg dry	3.690	ND	113	73-123	23.0	30	
Perfluoroundecanoic acid (PFUnA)	4.02	0.73	µg/kg dry	3.690	ND	109	64-136	22.8	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.26	0.73	µg/kg dry	3.690	ND	115	58.5-146	12.8	31.9	
Perfluoroheptanoic acid (PFHpA)	3.88	0.73	µg/kg dry	3.690	ND	105	71-131	20.4	30	
Perfluorooctanoic acid (PFOA)	3.86	0.73	µg/kg dry	3.690	0.399	93.8	69-133	17.0	30	
Perfluorooctanesulfonic acid (PFOS)	4.86	0.73	µg/kg dry	3.690	0.662	114	68-136	8.47	30	
Perfluorononanoic acid (PFNA)	4.24	0.73	µg/kg dry	3.690	ND	115	72-129	15.3	30	

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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.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Soil - Manchester (25C0401-01)			Lab File ID: 25C0401-01.d			Analyzed: 03/17/25 15:45			
M8FOSA	362583.1	4.062817	408,379.00	4.054817	89	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	176555.7	2.704533	211,656.00	2.704533	83	50 - 150	0.0000	+/-0.50	
M2PFTA	1364189	4.43665	1,552,788.00	4.43665	88	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	202799.6	3.9012	187,008.00	3.9012	108	50 - 150	0.0000	+/-0.50	
MPFBA	606589.3	1.167617	680,542.00	1.1593	89	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	130433.7	3.005417	142,569.00	3.005417	91	50 - 150	0.0000	+/-0.50	
M6PFDA	831253.9	3.9017	857,383.00	3.893733	97	50 - 150	0.0080	+/-0.50	
M3PFBS	185991.4	2.063317	203,352.00	2.0716	91	50 - 150	-0.0083	+/-0.50	
M7PFUnA	923936.6	4.05225	897,692.00	4.05225	103	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	127833.4	3.5438	125,830.00	3.5438	102	50 - 150	0.0000	+/-0.50	
M5PFPeA	577245.9	1.88415	604,094.00	1.88415	96	50 - 150	0.0000	+/-0.50	
M5PFHxA	1201151	2.790217	1,251,444.00	2.790217	96	50 - 150	0.0000	+/-0.50	
M3PFHxS	142590.1	3.32695	152,170.00	3.31875	94	50 - 150	0.0082	+/-0.50	
M4PFHpA	1391548	3.303683	1,444,256.00	3.295667	96	50 - 150	0.0080	+/-0.50	
M8PFOA	1142864	3.5603	1,185,482.00	3.552317	96	50 - 150	0.0080	+/-0.50	
M8PFOS	135020.9	3.7427	147,374.00	3.734467	92	50 - 150	0.0082	+/-0.50	
M9PFNA	818848.7	3.7437	809,201.00	3.7355	101	50 - 150	0.0082	+/-0.50	
MPFDoA	963592.6	4.195416	1,017,074.00	4.18735	95	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	245036.5	4.059717	235,398.00	4.059717	104	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	282531.1	3.98015	277,634.00	3.98015	102	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Compost - Manchester (25C0401-02)			Lab File ID: 25C0401-02.d			Analyzed: 03/17/25 15:52			
M8FOSA	421682.6	4.054817	408,379.00	4.054817	103	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	203978.7	2.696317	211,656.00	2.704533	96	50 - 150	-0.0082	+/-0.50	
M2PFTA	1421027	4.43665	1,552,788.00	4.43665	92	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	202605	3.9012	187,008.00	3.9012	108	50 - 150	0.0000	+/-0.50	
MPFBA	711405.3	1.1593	680,542.00	1.1593	105	50 - 150	0.0000	+/-0.50	
M3HFPO-DA	143033.8	3.005417	142,569.00	3.005417	100	50 - 150	0.0000	+/-0.50	
M6PFDA	922004.8	3.9017	857,383.00	3.893733	108	50 - 150	0.0080	+/-0.50	
M3PFBS	215275.6	2.063317	203,352.00	2.0716	106	50 - 150	-0.0083	+/-0.50	
M7PFUnA	968875.9	4.05225	897,692.00	4.05225	108	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	146942.3	3.5438	125,830.00	3.5438	117	50 - 150	0.0000	+/-0.50	
M5PFPeA	666768.3	1.88415	604,094.00	1.88415	110	50 - 150	0.0000	+/-0.50	
M5PFHxA	1380755	2.790217	1,251,444.00	2.790217	110	50 - 150	0.0000	+/-0.50	
M3PFHxS	163009.7	3.32695	152,170.00	3.31875	107	50 - 150	0.0082	+/-0.50	
M4PFHpA	1609456	3.295667	1,444,256.00	3.295667	111	50 - 150	0.0000	+/-0.50	
M8PFOA	1277485	3.560283	1,185,482.00	3.552317	108	50 - 150	0.0080	+/-0.50	
M8PFOS	153430.4	3.7427	147,374.00	3.734467	104	50 - 150	0.0082	+/-0.50	
M9PFNA	913458.9	3.7437	809,201.00	3.7355	113	50 - 150	0.0082	+/-0.50	
MPFDoA	1003912	4.195416	1,017,074.00	4.18735	99	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	248909.5	4.059717	235,398.00	4.059717	106	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	301310.8	3.98015	277,634.00	3.98015	109	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
FRAMINGHAM (25C0401-03)			Lab File ID: 25C0401-03.d			Analyzed: 03/17/25 15:59			
M8FOSA	417414.2	4.062817	408,379.00	4.054817	102	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	214779.9	2.704533	211,656.00	2.704533	101	50 - 150	0.0000	+/-0.50	
M2PFTA	1423785	4.43665	1,552,788.00	4.43665	92	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	231651	3.9012	187,008.00	3.9012	124	50 - 150	0.0000	+/-0.50	
MPFBA	539687.8	1.167617	680,542.00	1.1593	79	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	112281.3	3.005417	142,569.00	3.005417	79	50 - 150	0.0000	+/-0.50	
M6PFDA	923090.5	3.9017	857,383.00	3.893733	108	50 - 150	0.0080	+/-0.50	
M3PFBS	196947.7	2.063317	203,352.00	2.0716	97	50 - 150	-0.0083	+/-0.50	
M7PFUnA	1006041	4.05225	897,692.00	4.05225	112	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	163829.2	3.5438	125,830.00	3.5438	130	50 - 150	0.0000	+/-0.50	
M5PFPeA	597962.3	1.88415	604,094.00	1.88415	99	50 - 150	0.0000	+/-0.50	
M5PFHxA	1255170	2.790217	1,251,444.00	2.790217	100	50 - 150	0.0000	+/-0.50	
M3PFHxS	156612.9	3.32695	152,170.00	3.31875	103	50 - 150	0.0082	+/-0.50	
M4PFHpA	1452022	3.295667	1,444,256.00	3.295667	101	50 - 150	0.0000	+/-0.50	
M8PFOA	1207745	3.5603	1,185,482.00	3.552317	102	50 - 150	0.0080	+/-0.50	
M8PFOS	140773.6	3.7427	147,374.00	3.734467	96	50 - 150	0.0082	+/-0.50	
M9PFNA	858109.2	3.7437	809,201.00	3.7355	106	50 - 150	0.0082	+/-0.50	
MPFDoA	1023557	4.195416	1,017,074.00	4.18735	101	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	269871.2	4.059717	235,398.00	4.059717	115	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	320766.1	3.98015	277,634.00	3.98015	116	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
GROTON (25C0401-04)			Lab File ID: 25C0401-04.d			Analyzed: 03/17/25 16:06			
M8FOSA	393664.8	4.062817	408,379.00	4.054817	96	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	166253.3	2.704533	211,656.00	2.704533	79	50 - 150	0.0000	+/-0.50	
M2PFTA	1345470	4.43665	1,552,788.00	4.43665	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	187044.7	3.9012	187,008.00	3.9012	100	50 - 150	0.0000	+/-0.50	
MPFBA	558379.6	1.167617	680,542.00	1.1593	82	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	133198.2	3.005417	142,569.00	3.005417	93	50 - 150	0.0000	+/-0.50	
M6PFDA	842866	3.9017	857,383.00	3.893733	98	50 - 150	0.0080	+/-0.50	
M3PFBS	200300	2.063317	203,352.00	2.0716	98	50 - 150	-0.0083	+/-0.50	
M7PFUnA	932302.4	4.05225	897,692.00	4.05225	104	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	138586.8	3.5438	125,830.00	3.5438	110	50 - 150	0.0000	+/-0.50	
M5PFPeA	610359.4	1.88415	604,094.00	1.88415	101	50 - 150	0.0000	+/-0.50	
M5PFHxA	1281315	2.790217	1,251,444.00	2.790217	102	50 - 150	0.0000	+/-0.50	
M3PFHxS	155609.4	3.32695	152,170.00	3.31875	102	50 - 150	0.0082	+/-0.50	
M4PFHpA	1499202	3.295667	1,444,256.00	3.295667	104	50 - 150	0.0000	+/-0.50	
M8PFOA	1195329	3.5603	1,185,482.00	3.552317	101	50 - 150	0.0080	+/-0.50	
M8PFOS	137292.9	3.7427	147,374.00	3.734467	93	50 - 150	0.0082	+/-0.50	
M9PFNA	854309.1	3.7437	809,201.00	3.7355	106	50 - 150	0.0082	+/-0.50	
MPFDoA	964596.8	4.195416	1,017,074.00	4.18735	95	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	217489	4.059717	235,398.00	4.059717	92	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	255083	3.98015	277,634.00	3.98015	92	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
FRB (25C0401-05)			Lab File ID: 25C0401-05.d			Analyzed: 03/17/25 16:35			
M8FOSA	386719.9	4.062817	408,379.00	4.054817	95	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	184183.3	2.704533	211,656.00	2.704533	87	50 - 150	0.0000	+/-0.50	
M2PFTA	1624815	4.43665	1,552,788.00	4.43665	105	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	184639.5	3.9012	187,008.00	3.9012	99	50 - 150	0.0000	+/-0.50	
MPFBA	740534.5	1.167617	680,542.00	1.1593	109	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	201029.3	3.005417	142,569.00	3.005417	141	50 - 150	0.0000	+/-0.50	
M6PFDA	1001750	3.9017	857,383.00	3.893733	117	50 - 150	0.0080	+/-0.50	
M3PFBS	206677.6	2.0716	203,352.00	2.0716	102	50 - 150	0.0000	+/-0.50	
M7PFUnA	1128783	4.05225	897,692.00	4.05225	126	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	149852.8	3.5438	125,830.00	3.5438	119	50 - 150	0.0000	+/-0.50	
M5PFPeA	657127.3	1.88415	604,094.00	1.88415	109	50 - 150	0.0000	+/-0.50	
M5PFHxA	1376937	2.790217	1,251,444.00	2.790217	110	50 - 150	0.0000	+/-0.50	
M3PFHxS	162554.6	3.32695	152,170.00	3.31875	107	50 - 150	0.0082	+/-0.50	
M4PFHpA	1551817	3.295667	1,444,256.00	3.295667	107	50 - 150	0.0000	+/-0.50	
M8PFOA	1310557	3.5603	1,185,482.00	3.552317	111	50 - 150	0.0080	+/-0.50	
M8PFOS	146010.6	3.7427	147,374.00	3.734467	99	50 - 150	0.0082	+/-0.50	
M9PFNA	963435.7	3.7437	809,201.00	3.7355	119	50 - 150	0.0082	+/-0.50	
MPFDoA	1132439	4.195416	1,017,074.00	4.18735	111	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	247790.5	4.059717	235,398.00	4.059717	105	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	298419	3.98015	277,634.00	3.98015	107	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B400665-BLK1)			Lab File ID: B400665-BLK1.d			Analyzed: 03/17/25 16:28			
M8FOSA	393421.5	4.054817	408,379.00	4.054817	96	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	179328.4	2.704533	211,656.00	2.704533	85	50 - 150	0.0000	+/-0.50	
M2PFTA	1442285	4.43665	1,552,788.00	4.43665	93	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	157560.9	3.9012	187,008.00	3.9012	84	50 - 150	0.0000	+/-0.50	
MPFBA	738525.8	1.167617	680,542.00	1.1593	109	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	181096.7	3.0054	142,569.00	3.005417	127	50 - 150	0.0000	+/-0.50	
M6PFDA	991683.4	3.9017	857,383.00	3.893733	116	50 - 150	0.0080	+/-0.50	
M3PFBS	209713.8	2.0716	203,352.00	2.0716	103	50 - 150	0.0000	+/-0.50	
M7PFUnA	932496.6	4.05225	897,692.00	4.05225	104	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	125045.5	3.5438	125,830.00	3.5438	99	50 - 150	0.0000	+/-0.50	
M5PFPeA	664432.4	1.88415	604,094.00	1.88415	110	50 - 150	0.0000	+/-0.50	
M5PFHxA	1379785	2.790217	1,251,444.00	2.790217	110	50 - 150	0.0000	+/-0.50	
M3PFHxS	161732.4	3.32695	152,170.00	3.31875	106	50 - 150	0.0082	+/-0.50	
M4PFHpA	1598989	3.295667	1,444,256.00	3.295667	111	50 - 150	0.0000	+/-0.50	
M8PFOA	1312854	3.552317	1,185,482.00	3.552317	111	50 - 150	0.0000	+/-0.50	
M8PFOS	145288.5	3.7427	147,374.00	3.734467	99	50 - 150	0.0082	+/-0.50	
M9PFNA	913990.8	3.7437	809,201.00	3.7355	113	50 - 150	0.0082	+/-0.50	
MPFDoA	1032501	4.195416	1,017,074.00	4.18735	102	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	219874.7	4.059717	235,398.00	4.059717	93	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	267866.6	3.98015	277,634.00	3.98015	96	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B400665-BS1)			Lab File ID: B400665-BS1.d			Analyzed: 03/17/25 16:13			
M8FOSA	375254.1	4.054817	408,379.00	4.054817	92	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	173681	2.704533	211,656.00	2.704533	82	50 - 150	0.0000	+/-0.50	
M2PFTA	1417303	4.43665	1,552,788.00	4.43665	91	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	160183.7	3.9012	187,008.00	3.9012	86	50 - 150	0.0000	+/-0.50	
MPFBA	692420.6	1.167617	680,542.00	1.1593	102	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	161815.4	3.005417	142,569.00	3.005417	113	50 - 150	0.0000	+/-0.50	
M6PFDA	936504	3.9017	857,383.00	3.893733	109	50 - 150	0.0080	+/-0.50	
M3PFBS	197346.3	2.063317	203,352.00	2.0716	97	50 - 150	-0.0083	+/-0.50	
M7PFUnA	938157.6	4.05225	897,692.00	4.05225	105	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	101897.9	3.5438	125,830.00	3.5438	81	50 - 150	0.0000	+/-0.50	
M5PFPeA	628405.1	1.88415	604,094.00	1.88415	104	50 - 150	0.0000	+/-0.50	
M5PFHxA	1304254	2.790217	1,251,444.00	2.790217	104	50 - 150	0.0000	+/-0.50	
M3PFHxS	152638.6	3.32695	152,170.00	3.31875	100	50 - 150	0.0082	+/-0.50	
M4PFHpA	1491372	3.295667	1,444,256.00	3.295667	103	50 - 150	0.0000	+/-0.50	
M8PFOA	1202397	3.552317	1,185,482.00	3.552317	101	50 - 150	0.0000	+/-0.50	
M8PFOS	145743	3.734467	147,374.00	3.734467	99	50 - 150	0.0000	+/-0.50	
M9PFNA	843195.4	3.7355	809,201.00	3.7355	104	50 - 150	0.0000	+/-0.50	
MPFDoA	988418.8	4.195416	1,017,074.00	4.18735	97	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	218384	4.059717	235,398.00	4.059717	93	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	265932.4	3.98015	277,634.00	3.98015	96	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-454 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS Dup (B400665-BSD1)			Lab File ID: B400665-BSD1.d			Analyzed: 03/17/25 16:21			
M8FOSA	425428.9	4.054817	408,379.00	4.054817	104	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	193323.8	2.704533	211,656.00	2.704533	91	50 - 150	0.0000	+/-0.50	
M2PFTA	1597400	4.43665	1,552,788.00	4.43665	103	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	156095.2	3.89325	187,008.00	3.9012	83	50 - 150	-0.0079	+/-0.50	
MPFBA	759304.8	1.167617	680,542.00	1.1593	112	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	172051.7	3.005417	142,569.00	3.005417	121	50 - 150	0.0000	+/-0.50	
M6PFDA	980439.3	3.893733	857,383.00	3.893733	114	50 - 150	0.0000	+/-0.50	
M3PFBS	221243.6	2.0716	203,352.00	2.0716	109	50 - 150	0.0000	+/-0.50	
M7PFUnA	1032496	4.05225	897,692.00	4.05225	115	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	110496.4	3.5438	125,830.00	3.5438	88	50 - 150	0.0000	+/-0.50	
M5PFPeA	684338.3	1.88415	604,094.00	1.88415	113	50 - 150	0.0000	+/-0.50	
M5PFHxA	1436667	2.790217	1,251,444.00	2.790217	115	50 - 150	0.0000	+/-0.50	
M3PFHxS	168993	3.32695	152,170.00	3.31875	111	50 - 150	0.0082	+/-0.50	
M4PFHpA	1660310	3.295667	1,444,256.00	3.295667	115	50 - 150	0.0000	+/-0.50	
M8PFOA	1347781	3.552317	1,185,482.00	3.552317	114	50 - 150	0.0000	+/-0.50	
M8PFOS	152189.4	3.734467	147,374.00	3.734467	103	50 - 150	0.0000	+/-0.50	
M9PFNA	952553.1	3.7355	809,201.00	3.7355	118	50 - 150	0.0000	+/-0.50	
MPFDoA	1132374	4.18735	1,017,074.00	4.18735	111	50 - 150	0.0000	+/-0.50	
D5-NEtFOSAA	227344.8	4.059717	235,398.00	4.059717	97	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	290566.8	3.98015	277,634.00	3.98015	105	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Blank (B400668-BLK1)			Lab File ID: B400668-BLK1.d			Analyzed: 03/17/25 15:09			
M8FOSA	405556.2	4.054817	408,379.00	4.054817	99	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	203826.2	2.704533	211,656.00	2.704533	96	50 - 150	0.0000	+/-0.50	
M2PFTA	1425107	4.43665	1,552,788.00	4.43665	92	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	165136.4	3.9012	187,008.00	3.9012	88	50 - 150	0.0000	+/-0.50	
MPFBA	676920.2	1.167617	680,542.00	1.1593	99	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	144438.1	3.0054	142,569.00	3.005417	101	50 - 150	0.0000	+/-0.50	
M6PFDA	844848.6	3.9017	857,383.00	3.893733	99	50 - 150	0.0080	+/-0.50	
M3PFBS	192478.5	2.0716	203,352.00	2.0716	95	50 - 150	0.0000	+/-0.50	
M7PFUnA	946858.2	4.05225	897,692.00	4.05225	105	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	125412.9	3.5438	125,830.00	3.5438	100	50 - 150	0.0000	+/-0.50	
M5PFPeA	599871.1	1.88415	604,094.00	1.88415	99	50 - 150	0.0000	+/-0.50	
M5PFHxA	1237632	2.790217	1,251,444.00	2.790217	99	50 - 150	0.0000	+/-0.50	
M3PFHxS	145695.4	3.32695	152,170.00	3.31875	96	50 - 150	0.0082	+/-0.50	
M4PFHpA	1401176	3.295667	1,444,256.00	3.295667	97	50 - 150	0.0000	+/-0.50	
M8PFOA	1141815	3.5523	1,185,482.00	3.552317	96	50 - 150	0.0000	+/-0.50	
M8PFOS	134372.2	3.734467	147,374.00	3.734467	91	50 - 150	0.0000	+/-0.50	
M9PFNA	836050.7	3.7355	809,201.00	3.7355	103	50 - 150	0.0000	+/-0.50	
MPFDoA	1036972	4.195416	1,017,074.00	4.18735	102	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	203865	4.059717	235,398.00	4.059717	87	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	262242.4	3.98015	277,634.00	3.98015	94	50 - 150	0.0000	+/-0.50	

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
LCS (B400668-BS1)			Lab File ID: B400668-BS1.d			Analyzed: 03/17/25 15:01			
M8FOSA	373914.6	4.054817	408,379.00	4.054817	92	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	184288.6	2.71275	211,656.00	2.704533	87	50 - 150	0.0082	+/-0.50	
M2PFTA	1356748	4.43665	1,552,788.00	4.43665	87	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	265268.3	3.9012	187,008.00	3.9012	142	50 - 150	0.0000	+/-0.50	
MPFBA	641897.8	1.167617	680,542.00	1.1593	94	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	100915.8	3.005417	142,569.00	3.005417	71	50 - 150	0.0000	+/-0.50	
M6PFDA	886202.3	3.9017	857,383.00	3.893733	103	50 - 150	0.0080	+/-0.50	
M3PFBS	176094	2.079883	203,352.00	2.0716	87	50 - 150	0.0083	+/-0.50	
M7PFUnA	902758.6	4.05225	897,692.00	4.05225	101	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	121014.3	3.5438	125,830.00	3.5438	96	50 - 150	0.0000	+/-0.50	
M5PFPeA	573960.6	1.892433	604,094.00	1.88415	95	50 - 150	0.0083	+/-0.50	
M5PFHxA	1174870	2.7984	1,251,444.00	2.790217	94	50 - 150	0.0082	+/-0.50	
M3PFHxS	133597.4	3.32695	152,170.00	3.31875	88	50 - 150	0.0082	+/-0.50	
M4PFHpA	1374548	3.303683	1,444,256.00	3.295667	95	50 - 150	0.0080	+/-0.50	
M8PFOA	1101764	3.552317	1,185,482.00	3.552317	93	50 - 150	0.0000	+/-0.50	
M8PFOS	128146.7	3.734467	147,374.00	3.734467	87	50 - 150	0.0000	+/-0.50	
M9PFNA	758169.4	3.7437	809,201.00	3.7355	94	50 - 150	0.0082	+/-0.50	
MPFDoA	954576.9	4.195416	1,017,074.00	4.18735	94	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	224554.8	4.059717	235,398.00	4.059717	95	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	268254.6	3.98015	277,634.00	3.98015	97	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike (B400668-MS1)			Lab File ID: B400668-MS1.d			Analyzed: 03/17/25 15:16			
M8FOSA	391059	4.062817	408,379.00	4.054817	96	50 - 150	0.0080	+/-0.50	
M2-4:2FTS	187365.9	2.704533	211,656.00	2.704533	89	50 - 150	0.0000	+/-0.50	
M2PFTA	1592318	4.43665	1,552,788.00	4.43665	103	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	200602.6	3.9012	187,008.00	3.9012	107	50 - 150	0.0000	+/-0.50	
MPFBA	649574.5	1.167617	680,542.00	1.1593	95	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	123113.4	3.005417	142,569.00	3.005417	86	50 - 150	0.0000	+/-0.50	
M6PFDA	881795.9	3.9017	857,383.00	3.893733	103	50 - 150	0.0080	+/-0.50	
M3PFBS	196227.5	2.0716	203,352.00	2.0716	96	50 - 150	0.0000	+/-0.50	
M7PFUnA	1000520	4.05225	897,692.00	4.05225	111	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	149207.9	3.5438	125,830.00	3.5438	119	50 - 150	0.0000	+/-0.50	
M5PFPeA	613402.4	1.88415	604,094.00	1.88415	102	50 - 150	0.0000	+/-0.50	
M5PFHxA	1272632	2.7984	1,251,444.00	2.790217	102	50 - 150	0.0082	+/-0.50	
M3PFHxS	151645	3.32695	152,170.00	3.31875	100	50 - 150	0.0082	+/-0.50	
M4PFHpA	1465824	3.303683	1,444,256.00	3.295667	101	50 - 150	0.0080	+/-0.50	
M8PFOA	1202913	3.5603	1,185,482.00	3.552317	101	50 - 150	0.0080	+/-0.50	
M8PFOS	134390.2	3.7427	147,374.00	3.734467	91	50 - 150	0.0082	+/-0.50	
M9PFNA	872401.5	3.7437	809,201.00	3.7355	108	50 - 150	0.0082	+/-0.50	
MPFDoA	1125972	4.195416	1,017,074.00	4.18735	111	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	264379.7	4.059717	235,398.00	4.059717	112	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	288861.9	3.98015	277,634.00	3.98015	104	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

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INTERNAL STANDARD AREA AND RT SUMMARY

SOP-466 PFAS

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Matrix Spike Dup (B400668-MSD1)			Lab File ID: B400668-MSD1.d			Analyzed: 03/17/25 15:23			
M8FOSA	368188	4.054817	408,379.00	4.054817	90	50 - 150	0.0000	+/-0.50	
M2-4:2FTS	195231.7	2.704533	211,656.00	2.704533	92	50 - 150	0.0000	+/-0.50	
M2PFTA	1412511	4.43665	1,552,788.00	4.43665	91	50 - 150	0.0000	+/-0.50	
M2-8:2FTS	224210.6	3.9012	187,008.00	3.9012	120	50 - 150	0.0000	+/-0.50	
MPFBA	591418.9	1.167617	680,542.00	1.1593	87	50 - 150	0.0083	+/-0.50	
M3HFPO-DA	115097.4	3.005417	142,569.00	3.005417	81	50 - 150	0.0000	+/-0.50	
M6PFDA	842474.3	3.9017	857,383.00	3.893733	98	50 - 150	0.0080	+/-0.50	
M3PFBS	187550.3	2.0716	203,352.00	2.0716	92	50 - 150	0.0000	+/-0.50	
M7PFUnA	933587.7	4.05225	897,692.00	4.05225	104	50 - 150	0.0000	+/-0.50	
M2-6:2FTS	153876	3.5438	125,830.00	3.5438	122	50 - 150	0.0000	+/-0.50	
M5PFPeA	580498.6	1.88415	604,094.00	1.88415	96	50 - 150	0.0000	+/-0.50	
M5PFHxA	1211485	2.790217	1,251,444.00	2.790217	97	50 - 150	0.0000	+/-0.50	
M3PFHxS	138230.9	3.32695	152,170.00	3.31875	91	50 - 150	0.0082	+/-0.50	
M4PFHpA	1399203	3.295667	1,444,256.00	3.295667	97	50 - 150	0.0000	+/-0.50	
M8PFOA	1134755	3.5603	1,185,482.00	3.552317	96	50 - 150	0.0080	+/-0.50	
M8PFOS	140647.9	3.734467	147,374.00	3.734467	95	50 - 150	0.0000	+/-0.50	
M9PFNA	836565.8	3.7437	809,201.00	3.7355	103	50 - 150	0.0082	+/-0.50	
MPFDoA	989090.2	4.195416	1,017,074.00	4.18735	97	50 - 150	0.0081	+/-0.50	
D5-NEtFOSAA	254024.9	4.059717	235,398.00	4.059717	108	50 - 150	0.0000	+/-0.50	
D3-NMeFOSAA	301462.3	3.98015	277,634.00	3.98015	109	50 - 150	0.0000	+/-0.50	

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-454 PFAS in Water	
Perfluorobutanoic acid (PFBA)	NH-P,PA,NY
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA,NY
Perfluoropentanoic acid (PFPeA)	NH-P,PA,NY
Perfluorohexanoic acid (PFHxA)	NH-P,PA,NY
11Cl-PF3OUdS (F53B Major)	NH-P,PA,NY
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA,NY
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA,NY
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA
Perfluorodecanoic acid (PFDA)	NH-P,PA,NY
Perfluorododecanoic acid (PFDoA)	NH-P,PA,NY
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA,NY
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA,NY
N-EtFOSAA (NEtFOSAA)	NH-P,PA,NY
N-MeFOSAA (NMeFOSAA)	NH-P,PA,NY
Perfluorotetradecanoic acid (PFTA)	NH-P,PA,NY
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA,NY
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA,NY
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanesulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA,NY
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA,NY
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA,NY
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA,NY
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA,NY
Perfluoroundecanoic acid (PFUnA)	NH-P,PA,NY
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA,NY
Perfluorooctanoic acid (PFOA)	NH-P,PA,NY
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA,NY
Perfluorononanoic acid (PFNA)	NH-P,PA,NY
SOP-466 PFAS in Soil	
Perfluorobutanoic acid (PFBA)	NH-P,PA,NY
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA
Perfluoropentanoic acid (PFPeA)	NH-P,PA,NY
Perfluorohexanoic acid (PFHxA)	NH-P,PA,NY
11Cl-PF3OUdS (F53B Major)	NH-P,PA
9Cl-PF3ONS (F53B Minor)	NH-P,PA
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA
8:2 Fluorotelomersulfonic acid (8:2FTS A)	NH-P,PA,NY
Perfluorodecanoic acid (PFDA)	NH-P,PA,NY
Perfluorododecanoic acid (PFDoA)	NH-P,PA,NY

Pace Analytical Services, LLC - East Longmeadow, Ma

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SOP-466 PFAS in Soil	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA
N-EtFOSAA (NEtFOSAA)	NH-P,PA,NY
N-MeFOSAA (NMeFOSAA)	NH-P,PA
Perfluorotetradecanoic acid (PFTA)	NH-P,PA,NY
Perfluorotridecanoic acid (PFTrDA)	NH-P,PA,NY
4:2 Fluorotelomersulfonic acid (4:2FTS A)	NH-P,PA
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA
Perfluorooctanesulfonamide (FOSA)	NH-P,PA
Perfluorononanesulfonic acid (PFNS)	NH-P,PA
Perfluoro-1-hexanesulfonamide (FHxSA)	NH-P,PA
Perfluoro-1-butanesulfonamide (FBSA)	NH-P,PA
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA
Perfluoro-4-oxapentanoic acid (PFMPA)	NH-P,PA
Perfluoro-5-oxahexanoic acid (PFMBA)	NH-P,PA
6:2 Fluorotelomersulfonic acid (6:2FTS A)	NH-P,PA
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA
Perfluoroundecanoic acid (PFUnA)	NH-P,PA,NY
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA
Perfluoroheptanoic acid (PFHpA)	NH-P,PA,NY
Perfluorooctanoic acid (PFOA)	NH-P,PA,NY
Perfluorooctanesulfonic acid (PFOS)	NH-P,PA,NY
Perfluorononanoic acid (PFNA)	NH-P,PA,NY

Pace Analytical Services, LLC - East Longmeadow, Ma, operates under the following certifications and accreditations:

Code	Description	Number	Expires
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2025
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025

25C0401 WAS

Pace Analytical®

Phone: 413-525-2332
Fax: 413-525-6405
Access COC's and Support Requests

http://www.pacelabs.com

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Doc # 381 Rev 5_07/13/2021

Page _____ of _____

Company Name:	Black Earth Compost
Address:	2 Hillside Rd. Gloucester Ma 01930
Phone:	(917) 833-5435
Project Name:	
Project Location:	
Project Number:	
Project Manager:	SYED DONer
Pace Quote Name/Number:	
Invoice Recipient:	syed@blackearthcompost.com
Sampled By:	SYED DONer

Requested Turnaround Time
7-Day ☐ 10-Day ☐
PFAS 10-Day (std) ☒ Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☒ EXCEL ☒
Other:
CLP Like Data Pkg Required: ☐
Email To:
Fax To #:

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

PCB ONLY
SOXHLET ☐
NON SOXHLET ☐

ANALYSIS REQUESTED

Pace Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	COMP/GRAB	[1]Matrix Code	Conc Code	VIALS	GLASS	PLASTIC	BACTERIA	ENCORE	PFAS
	Soil - Manchester	3/6			S							X
	Compost - Manchester	"			O							X
	FRAMINGHAM	"			O							X
	GROTON	"			O							X
	FRB	"										X

[2] Preservation Code
Courier Use Only
Total Number Of:
VIALS_____
GLASS_____
PLASTIC_____
BACTERIA_____
ENCORE_____

Glassware in the fridge? Y / N
Glassware in freezer? Y / N
Prepackaged Cooler? Y / N

*Pace Analytical is not responsible for missing samples from prepacked coolers

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define) Compost

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

Relinquished by: (signature)	Date/Time: 3/7/25 2:15pm
Received by: (signature) PACE	Date/Time: 3-7-25 1416
Relinquished by: (signature) PACE	Date/Time: 3-7-25 1645
Received by: (signature)	Date/Time: 3-7-25 1620
Relinquished by: (signature)	Date/Time: 3-7-25 1645
Received by: (signature)	Date/Time: 3-7-25 2045
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Client Comments:

Detection Limit Requirements
MA
CT
Other:

Special Requirements
☐ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

NELAC and AIHA-LAP, LLC Accredited

Project Entity
Government ☐ Municipality ☐ MWRA ☐ WRTA ☐
Federal ☐ 21 J ☐ School ☐
City ☐ Brownfield ☐ MBTA ☐

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

Lab Comments:

Disclaimer: Pace Analytical 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 wha analyses the laboratory will perform. Any missing information is not the laboratory's responsibility. Pac Analytical values your partnership on each project and will try to assist with missing information, but wi not be held accountable.

Table of Contents

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist
	Effective Date: 06/11/2024

Log In Back-Sheet

Client Black Earth Compost

Project N/A

MCP/RCP Required N/A

Deliverable Package Requirement N/A

Location N/A

PWSID# (When Applicable) N/A

Arrival Method:

Courier ☒ Fed Ex ☐ Walk In ☐ Other ☐

Received By / Date / Time STM3/7/25 2045

Back-Sheet By / Date / Time STM3/7/25 2140

Temperature Method Gun #8

WV samples: Yes (see note*) / (No) (follow normal procedure)

Temp ✓ < 6° C Actual Temperature 5.0

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

Login Sample Receipt Checklist – (Rejection Criteria Listing – Using Acceptance Policy) Any False statement will be brought to the attention of the Client – True or False

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐

COC Included: (Check all included)

Client ☒ Analysis ☒ Sampler Name ☒

Project ☒ IDs ☒ Collection Date/Time ☒

All Samples Proper pH: (N/A) ☐ ☐

Additional Container Notes

Note: West Virginia requires all samples to have their temperature taken. Note any outliers.

Pace	DC#_Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist
	Effective Date: 06/11/2024

Sample																					
16oz Amb/Clear																					
8oz Amb/Clear																					
4oz Amb/Clear																					
2oz Amb/Clear																					
Unpreserved																					
HCL																					
Sulfuric																					
Sulfuric																					
Phosphoric																					
HCl																					
Unpreserved																					
Unpreserved																					
Sulfuric																					
Unpreserved																					
Sulfuric																					
Unpreserved																					
Trizma																					
Sulfuric																					
Nitric																					
NaOH																					
Ammonium Acetate																					
NaOH/Zinc																					
Unpreserved																					
HCl																					
MeOH																					
D.I. Water																					
BiSulfate																					
Col/Bact																					
Other																					

Soils Jars	(Circle Amb/Clear)	
Ambers	1 Liter	Unpreserved, HCL, Sulfuric
	250ml	Sulfuric, Phosphoric
	100ml	HCl
	1 Liter	Unpreserved, Sulfuric
	500ml	Unpreserved, Sulfuric
Plastics	250ml	Unpreserved, Trizma, Sulfuric, Nitric, NaOH, Ammonium Acetate, NaOH/Zinc
VOA Vials		Unpreserved, HCl, MeOH, D.I. Water, BiSulfate
Other / Fill in		Col/Bact, Other