



## ANALYTICAL REPORT

Lab Number:	L2505757
Client:	Governor Wentworth Regional School Dist. PO Box 190 140 Pine Hill Rd. Wolfeboro Falls, NH 03896
ATTN:	Kathy O'Blenes
Phone:	(603) 569-1658
Project Name:	TURF FIELD TESTING
Project Number:	Not Specified
Report Date:	02/20/25

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508-822-9300 (Fax) 508-822-3288 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
**Report Date:** 02/20/25

<b>Lab Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2505757-01	1 FIBERS	SOLID	Not Specified	01/31/25 09:30	02/03/25

**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

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### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Pace Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Pace's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Pace Project Manager and made arrangements for Pace to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

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**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

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### Case Narrative (continued)

Perfluorinated Alkyl Acids by 1633

L2505757-01R: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

L2505757-01R: The sample was re-analyzed due to QC failures in the original analysis. The results of the re-analysis are reported.

The WG2031466-3 LCS recovery associated with L2505757-01R is above the acceptance criteria for 2h,2h,3h,3h-perfluorooctanoic acid (5:3ftca) (218%); however, the associated sample is non-detect to the reporting limit for this target analyte. The results of the original analysis are reported.

The Extracted Internal Standard recovery for the WG2031466-3 LCS, associated with L2505757-01R, is outside the acceptance criteria for perfluoro[13c5]pentanoic acid (m5pfpea) (23%) and 2,3,3,3-tetrafluoro-2-[1,1,2,2,3,3,3-heptafluoropropoxy]-13c3-propanoic acid (m3hfpo-da) (33%) ; however, all associated target analytes are within overall LCS criteria; therefore, no further action was taken.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Ashley Leitao

Title: Technical Director/Representative

Date: 02/20/25

# ORGANICS

# SEMIVOLATILES

**Project Name:** TURF FIELD TESTING**Lab Number:** L2505757**Project Number:** Not Specified**Report Date:** 02/20/25**SAMPLE RESULTS**

Lab ID: L2505757-01 R

Date Collected: 01/31/25 09:30

Client ID: 1 FIBERS

Date Received: 02/03/25

Sample Location: Not Specified

Field Prep: Not Specified

Sample Depth:

Matrix: Solid

Extraction Method: EPA 1633

Analytical Method: 145,1633

Extraction Date: 02/18/25 20:30

Analytical Date: 02/20/25 11:30

Cleanup Method: EPA 1633

Analyst: AC

Cleanup Date: 02/19/25

Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab</b>						
Perfluorobutanoic Acid (PFBA)	ND		ng/g	3.77	--	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	1.89	--	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.943	--	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	3.77	--	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.943	--	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.943	--	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.943	--	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.943	--	1
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.943	--	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	3.77	--	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.943	--	1
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.943	--	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.943	--	1
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.943	--	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	3.77	--	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.943	--	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.943	--	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.943	--	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.943	--	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.943	--	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.943	--	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.943	--	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.943	--	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.943	--	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	3.77	--	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	3.77	--	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.943	--	1

**Project Name:** TURF FIELD TESTING**Lab Number:** L2505757**Project Number:** Not Specified**Report Date:** 02/20/25**SAMPLE RESULTS**

Lab ID: L2505757-01 R

Date Collected: 01/31/25 09:30

Client ID: 1 FIBERS

Date Received: 02/03/25

Sample Location: Not Specified

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	3.77	--	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	3.77	--	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.943	--	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.943	--	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	9.43	--	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	9.43	--	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	1.89	--	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	1.89	--	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/g	1.89	--	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	1.89	--	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	4.72	--	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	23.6	--	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	23.6	--	1

**Project Name:** TURF FIELD TESTING**Lab Number:** L2505757**Project Number:** Not Specified**Report Date:** 02/20/25**SAMPLE RESULTS**

Lab ID: L2505757-01 R

Date Collected: 01/31/25 09:30

Client ID: 1 FIBERS

Date Received: 02/03/25

Sample Location: Not Specified

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	65		8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	112		35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	107		40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	114		40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	113		40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	109		40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	106		40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	121		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	130		40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	125		40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	103		40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	110		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	114		40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	113		40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	119		40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	104		40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	132		40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	117		40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	107		20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	103		40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	110		10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	107		10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	112		20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	114		15-130

**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
**Report Date:** 02/20/25

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 145,1633  
Analytical Date: 02/19/25 16:21  
Analyst: AC

Extraction Method: EPA 1633  
Extraction Date: 02/18/25 20:30  
Cleanup Method: EPA 1633  
Cleanup Date: 02/19/25

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2031466-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/g	0.800	--
Perfluoropentanoic Acid (PFPeA)	ND		ng/g	0.400	--
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/g	0.800	--
Perfluorohexanoic Acid (PFHxA)	ND		ng/g	0.200	--
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/g	0.200	--
Perfluoroheptanoic Acid (PFHpA)	ND		ng/g	0.200	--
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/g	0.200	--
Perfluorooctanoic Acid (PFOA)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/g	0.800	--
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/g	0.200	--
Perfluorononanoic Acid (PFNA)	ND		ng/g	0.200	--
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/g	0.200	--
Perfluorodecanoic Acid (PFDA)	ND		ng/g	0.200	--
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/g	0.800	--
Perfluorononanesulfonic Acid (PFNS)	ND		ng/g	0.200	--
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/g	0.200	--
Perfluoroundecanoic Acid (PFUnA)	ND		ng/g	0.200	--
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/g	0.200	--
Perfluorooctanesulfonamide (PFOSA)	ND		ng/g	0.200	--
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/g	0.200	--
Perfluorododecanoic Acid (PFDoA)	ND		ng/g	0.200	--
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/g	0.200	--
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/g	0.200	--
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/g	0.800	--
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/g	0.800	--
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/g	0.200	--

**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
**Report Date:** 02/20/25

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 145,1633  
Analytical Date: 02/19/25 16:21  
Analyst: AC

Extraction Method: EPA 1633  
Extraction Date: 02/18/25 20:30  
Cleanup Method: EPA 1633  
Cleanup Date: 02/19/25

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2031466-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/g	0.800	--
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/g	0.800	--
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/g	0.200	--
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/g	0.200	--
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/g	2.00	--
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/g	2.00	--
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/g	0.400	--
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/g	0.400	--
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/g	0.400	--
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/g	0.400	--
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/g	1.00	--
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/g	5.00	--
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/g	5.00	--

**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
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### Method Blank Analysis Batch Quality Control

Analytical Method: 145,1633  
Analytical Date: 02/19/25 16:21  
Analyst: AC

Extraction Method: EPA 1633  
Extraction Date: 02/18/25 20:30  
Cleanup Method: EPA 1633  
Cleanup Date: 02/19/25

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01 Batch: WG2031466-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	91		8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	115		35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	107		40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	114		40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	103		40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	101		40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	104		40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	109		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	125		40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	108		40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	97		40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	103		40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	119		40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	105		40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	104		40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	107		40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	124		40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	112		40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	98		20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	101		40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	101		10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	101		10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	107		20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	102		15-130

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: TURF FIELD TESTING

Lab Number: L2505757

Project Number: Not Specified

Report Date: 02/20/25

Parameter	Low Level LCS	Qual	Low Level LCSD	Qual	%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery		%Recovery					
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2031466-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	105		-		70-140	-		30
Perfluoropentanoic Acid (PFPeA)	97		-		60-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	100		-		65-145	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	103		-		60-150	-		30
Perfluorohexanoic Acid (PFHxA)	100		-		65-140	-		30
Perfluoropentanesulfonic Acid (PFPeS)	106		-		55-160	-		30
Perfluoroheptanoic Acid (PFHpA)	92		-		65-145	-		30
Perfluorohexanesulfonic Acid (PFHxS)	109		-		60-150	-		30
Perfluorooctanoic Acid (PFOA)	114		-		70-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	111		-		55-200	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	108		-		65-155	-		30
Perfluorononanoic Acid (PFNA)	109		-		70-155	-		30
Perfluorooctanesulfonic Acid (PFOS)	100		-		65-160	-		30
Perfluorodecanoic Acid (PFDA)	116		-		70-155	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	97		-		70-150	-		30
Perfluorononanesulfonic Acid (PFNS)	104		-		55-140	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	98		-		65-155	-		30
Perfluoroundecanoic Acid (PFUnA)	103		-		70-155	-		30
Perfluorodecanesulfonic Acid (PFDS)	109		-		40-155	-		30
Perfluorooctanesulfonamide (PFOSA)	96		-		70-140	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	86		-		65-165	-		30

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: TURF FIELD TESTING

Lab Number: L2505757

Project Number: Not Specified

Report Date: 02/20/25

Parameter	Low Level LCS	Qual	Low Level LCSD	Qual	%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery		%Recovery					
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2031466-2 LOW LEVEL								
Perfluorododecanoic Acid (PFDoA)	99		-		70-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	99		-		65-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	112		-		65-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	104		-		70-145	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	89		-		70-160	-		30
Perfluorododecanesulfonic Acid (PFDoS)	108		-		25-160	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	116		-		70-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	110		-		45-160	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	102		-		70-155	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	103		-		70-140	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	98		-		70-140	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	98		-		70-135	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	107		-		30-140	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	100		-		60-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	106		-		70-140	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	115		-		60-155	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	88		-		45-130	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	125		-		60-130	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	95		-		60-150	-		30

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: TURF FIELD TESTING

Lab Number: L2505757

Project Number: Not Specified

Report Date: 02/20/25

Parameter	Low Level LCS		Low Level LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2031466-2 LOW LEVEL								

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	48				8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	86				35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	98				40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	97				40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	96				40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	119				40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	99				40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	110				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	106				40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	112				40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	103				40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	101				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	102				40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	106				40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	105				40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	108				40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	133				40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	105				40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	93				20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	87				40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	107				10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	106				10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	108				20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	107				15-130

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** TURF FIELD TESTING

**Lab Number:** L2505757

**Project Number:** Not Specified

**Report Date:** 02/20/25

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2031466-3								
Perfluorobutanoic Acid (PFBA)	104		-		70-140	-		30
Perfluoropentanoic Acid (PFPeA)	110		-		60-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	100		-		65-145	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	109		-		60-150	-		30
Perfluorohexanoic Acid (PFHxA)	96		-		65-140	-		30
Perfluoropentanesulfonic Acid (PFPeS)	108		-		55-160	-		30
Perfluoroheptanoic Acid (PFHpA)	96		-		65-145	-		30
Perfluorohexanesulfonic Acid (PFHxS)	106		-		60-150	-		30
Perfluorooctanoic Acid (PFOA)	106		-		70-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	112		-		55-200	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	105		-		65-155	-		30
Perfluorononanoic Acid (PFNA)	111		-		70-155	-		30
Perfluorooctanesulfonic Acid (PFOS)	100		-		65-160	-		30
Perfluorodecanoic Acid (PFDA)	111		-		70-155	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	108		-		70-150	-		30
Perfluorononanesulfonic Acid (PFNS)	104		-		55-140	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	106		-		65-155	-		30
Perfluoroundecanoic Acid (PFUnA)	111		-		70-155	-		30
Perfluorodecanesulfonic Acid (PFDS)	106		-		40-155	-		30
Perfluorooctanesulfonamide (PFOSA)	103		-		70-140	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	106		-		65-165	-		30

### Lab Control Sample Analysis Batch Quality Control

Project Name: TURF FIELD TESTING

Lab Number: L2505757

Project Number: Not Specified

Report Date: 02/20/25

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2031466-3								
Perfluorododecanoic Acid (PFDoA)	105		-		70-150	-		30
Perfluorotridecanoic Acid (PFTrDA)	104		-		65-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	115		-		65-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	111		-		70-145	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	84		-		70-160	-		30
Perfluorododecanesulfonic Acid (PFDoS)	108		-		25-160	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	110		-		70-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	107		-		45-160	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	103		-		70-155	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	98		-		70-140	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	102		-		70-140	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	103		-		70-135	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	107		-		30-140	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	113		-		60-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	107		-		70-140	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	88		-		60-155	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	96		-		45-130	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	218	Q	-		60-130	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	99		-		60-150	-		30

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: TURF FIELD TESTING

Lab Number: L2505757

Project Number: Not Specified

Report Date: 02/20/25

Parameter	LCS		LCSD		%Recovery		RPD	RPD	
	%Recovery	Qual	%Recovery	Qual	Limits	Qual		Limits	
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01 Batch: WG2031466-3									

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	13				8-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	23	Q			35-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	48				40-135
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	49				40-165
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	42				40-130
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	95				40-130
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	99				40-130
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	108				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	109				40-215
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	106				40-130
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	106				40-130
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	110				40-130
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	104				40-275
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	101				40-135
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	109				40-130
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	105				40-130
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	116				40-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	109				40-130
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	96				20-130
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	33	Q			40-130
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	102				10-130
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	103				10-130
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	104				20-130
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	105				15-130

**Project Name:** TURF FIELD TESTING**Lab Number:** L2505757**Project Number:** Not Specified**Report Date:** 02/20/25**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information****Cooler**                      **Custody Seal**

A                                      Absent

**Container Information****Container ID**    **Container Type**

L2505757-01A    Plastic 8oz unpreserved

<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
A	NA		5.9	Y	Absent		A2-1633(90)

## PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
<b>PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)</b>		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA/PFTeDA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
<b>PERFLUOROALKYL SULFONIC ACIDS (PFSAs)</b>		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
<b>FLUOROTELOMERS</b>		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
<b>PERFLUOROALKANE SULFONAMIDES (FASAs)</b>		
Perfluorooctanesulfonamide	FOSA/PFOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
<b>PERFLUOROALKANE SULFONYL SUBSTANCES</b>		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
<b>PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS</b>		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
<b>CHLORO-PERFLUOROALKYL SULFONIC ACIDS</b>		
11-Chloroeicosafuoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
<b>PERFLUOROETHER SULFONIC ACIDS (PFESAs)</b>		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEEA	113507-82-7
<b>PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)</b>		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

**Project Name:** TURF FIELD TESTING

**Project Number:**

Serial\_No:02202514:45  
**Lab Number:** L2505757

**Report Date:** 02/20/25

### PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
**Report Date:** 02/20/25

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: Data Usability Report



**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
**Report Date:** 02/20/25

#### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

#### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Chlordane:** The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Gasoline Range Organics (GRO):** Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

#### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

Report Format: Data Usability Report



**Project Name:** TURF FIELD TESTING  
**Project Number:** Not Specified

**Lab Number:** L2505757  
**Report Date:** 02/20/25

**Data Qualifiers**

- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

**Project Name:** TURF FIELD TESTING

**Lab Number:** L2505757

**Project Number:** Not Specified

**Report Date:** 02/20/25

## REFERENCES

- 145 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. EPA Method 1633, EPA 821-R-24-001, January 2024.

## LIMITATION OF LIABILITIES

Pace Analytical Services performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Pace Analytical Services shall be to re-perform the work at it's own expense. In no event shall Pace Analytical Services be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Pace Analytical Services.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



**Pace Analytical Services LLC**

ID No.:17873

Facility: **Northeast**

Revision 27

Department: **Quality Assurance**

Published Date: 01/24/2025

Title: **Certificate/Approval Program Summary**

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**Certification Information**

The following analytes are not included in our Primary NELAP Scope of Accreditation:

**Westborough Facility – 8 Walkup Dr. Westborough, MA 01581****EPA 624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 625.1:** alpha-Terpineol**EPA 8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270E:** NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.**Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048****SM 2540D:** TSS.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**MADEP-APH.****Nonpotable Water:** EPA RSK-175 Dissolved Gases**Biological Tissue Matrix:** EPA 3050B**Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048****EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Nonpotable Water:** EPA RSK-175 Dissolved Gases

The following test method is not included in our New Jersey Secondary NELAP Scope of Accreditation:

**Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048****Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (via Alpha SOP 23528)**

The following analytes are included in our Massachusetts DEP Scope of Accreditation

**Westborough Facility – 8 Walkup Dr. Westborough, MA 01581****Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,****EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**Ammonia-N, **LCHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,****SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables).**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.****Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.**EPA 522, EPA 537.1.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

**Pace Analytical Services LLC**

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**Certification IDs:****Westborough Facility – 8 Walkup Dr. Westborough, MA 01581**

CT PH-0826, IL 200077, IN C-MA-03, KY JY98045, ME MA00086, MD 348, MA M-MA086, NH 2064, NJ MA935, NY 11148, NC (DW) 25700, NC (NPW/SCM) 666, OR MA-1316, PA 68-03671, RI LAO00065, TX T104704476, VT VT-0935, VA 460195

**Mansfield Facility – 320 Forbes Blvd. Mansfield, MA 02048**

CT PH-0825, ANAB/DoD L2474, IL 200081, IN C-MA-04, KY KY98046, LA 3090, ME MA00030, MI 9110, MN 025-999-495, NH 2062, NJ MA015, NY 11627, NC (NPW/SCM) 685, OR MA-0262, PA 68-02089, RI LAO00299, TX T-104704419, VT VT-0015, VA 460194, WA C954

**Mansfield Facility – 120 Forbes Blvd. Mansfield, MA 02048**

ANAB/DoD L2474, ME MA01156, MN 025-999-498, NH 2249, NJ MA025, NY 12191, OR 4203, TX T104704583, VA 460311, WA C1104.

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For a complete listing of analytes and methods, please contact your Project Manager.

