

ANALYTICAL REPORT

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Laboratory Job ID: 200-58366-1
Client Project/Site: Dunn Landfill - PFAS

For:
Waste Connections, Inc.
209 Partition Street Extension
Rensselaer, New York 12144

Attn: Joel Falbo



Authorized for release by:
5/19/2021 3:26:53 PM

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Job ID: 200-58366-1

Laboratory: Eurofins TestAmerica, Burlington

Narrative

**Job Narrative
200-58366-1**

Comments

No additional comments.

Receipt

The samples were received on 5/7/2021 11:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.3° C.

LCMS

Method 537 (modified): Method 537 (modified): The "I" qualifier associated with sample (CCV 200-166895/13) is applied because the transition mass ratio for the indicated analyte(s) was outside of the established ratio limits. The qualitative identification has some degree of uncertainty, however analyst judgment was used to positively identify the analyte(s).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



Detection Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-11S

Lab Sample ID: 200-58366-1

No Detections.

Client Sample ID: MW-6S

Lab Sample ID: 200-58366-2

No Detections.

Client Sample ID: MW-7S

Lab Sample ID: 200-58366-3

No Detections.

Client Sample ID: MW-8S

Lab Sample ID: 200-58366-4

No Detections.

Client Sample ID: MW-10S

Lab Sample ID: 200-58366-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	2.2		1.9		ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-12S

Lab Sample ID: 200-58366-6

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-11S

Lab Sample ID: 200-58366-1

Date Collected: 05/04/21 14:40

Matrix: Water

Date Received: 05/07/21 11:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.8		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8		ng/L		05/13/21 13:47	05/14/21 15:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8		ng/L		05/13/21 13:47	05/14/21 15:36	1
6:2 FTS	ND		4.8		ng/L		05/13/21 13:47	05/14/21 15:36	1
8:2 FTS	ND		1.9		ng/L		05/13/21 13:47	05/14/21 15:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	95		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C4 PFHpA	97		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C4 PFOA	87		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C4 PFOS	89		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C5 PFNA	97		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C4 PFBA	66		25 - 150				05/13/21 13:47	05/14/21 15:36	1
13C2 PFHxA	95		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C2 PFDA	103		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C2 PFUnA	77		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C2 PFDoA	69		50 - 150				05/13/21 13:47	05/14/21 15:36	1
13C8 FOSA	77		25 - 150				05/13/21 13:47	05/14/21 15:36	1
13C5 PFPeA	90		25 - 150				05/13/21 13:47	05/14/21 15:36	1
13C2 PFTeDA	61		50 - 150				05/13/21 13:47	05/14/21 15:36	1
d3-NMeFOSAA	76		50 - 150				05/13/21 13:47	05/14/21 15:36	1
d5-NEtFOSAA	76		50 - 150				05/13/21 13:47	05/14/21 15:36	1
M2-6:2 FTS	94		25 - 150				05/13/21 13:47	05/14/21 15:36	1
M2-8:2 FTS	116		25 - 150				05/13/21 13:47	05/14/21 15:36	1
13C3 PFBS	86		50 - 150				05/13/21 13:47	05/14/21 15:36	1

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Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-6S

Lab Sample ID: 200-58366-2

Date Collected: 05/05/21 08:05

Matrix: Water

Date Received: 05/07/21 11:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.1		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.1		ng/L		05/17/21 12:48	05/18/21 01:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.1		ng/L		05/17/21 12:48	05/18/21 01:05	1
6:2 FTS	ND		5.1		ng/L		05/17/21 12:48	05/18/21 01:05	1
8:2 FTS	ND		2.0		ng/L		05/17/21 12:48	05/18/21 01:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	93		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C4 PFHpA	92		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C4 PFOA	89		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C4 PFOS	85		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C5 PFNA	89		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C4 PFBA	64		25 - 150				05/17/21 12:48	05/18/21 01:05	1
13C2 PFHxA	91		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C2 PFDA	83		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C2 PFUnA	76		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C2 PFDoA	66		50 - 150				05/17/21 12:48	05/18/21 01:05	1
13C8 FOSA	80		25 - 150				05/17/21 12:48	05/18/21 01:05	1
13C5 PFPeA	88		25 - 150				05/17/21 12:48	05/18/21 01:05	1
13C2 PFTeDA	74		50 - 150				05/17/21 12:48	05/18/21 01:05	1
d3-NMeFOSAA	76		50 - 150				05/17/21 12:48	05/18/21 01:05	1
d5-NEtFOSAA	73		50 - 150				05/17/21 12:48	05/18/21 01:05	1
M2-6:2 FTS	87		25 - 150				05/17/21 12:48	05/18/21 01:05	1
M2-8:2 FTS	93		25 - 150				05/17/21 12:48	05/18/21 01:05	1
13C3 PFBS	90		50 - 150				05/17/21 12:48	05/18/21 01:05	1

Eurofins TestAmerica, Burlington

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-7S

Lab Sample ID: 200-58366-3

Date Collected: 05/05/21 08:30

Matrix: Water

Date Received: 05/07/21 11:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.1		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluoropentanoic acid (PFPeA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorohexanoic acid (PFHxA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorooctanoic acid (PFOA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.1		ng/L		05/17/21 12:48	05/18/21 01:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.1		ng/L		05/17/21 12:48	05/18/21 01:13	1
6:2 FTS	ND		4.1		ng/L		05/17/21 12:48	05/18/21 01:13	1
8:2 FTS	ND		1.6		ng/L		05/17/21 12:48	05/18/21 01:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	75		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C4 PFHpA	76		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C4 PFOA	77		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C4 PFOS	66		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C5 PFNA	74		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C4 PFBA	76		25 - 150				05/17/21 12:48	05/18/21 01:13	1
13C2 PFHxA	82		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C2 PFDA	59		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C2 PFUnA	53		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C2 PFDoA	57		50 - 150				05/17/21 12:48	05/18/21 01:13	1
13C8 FOSA	55		25 - 150				05/17/21 12:48	05/18/21 01:13	1
13C5 PFPeA	86		25 - 150				05/17/21 12:48	05/18/21 01:13	1
13C2 PFTeDA	71		50 - 150				05/17/21 12:48	05/18/21 01:13	1
d3-NMeFOSAA	55		50 - 150				05/17/21 12:48	05/18/21 01:13	1
d5-NEtFOSAA	72		50 - 150				05/17/21 12:48	05/18/21 01:13	1
M2-6:2 FTS	77		25 - 150				05/17/21 12:48	05/18/21 01:13	1
M2-8:2 FTS	75		25 - 150				05/17/21 12:48	05/18/21 01:13	1
13C3 PFBS	75		50 - 150				05/17/21 12:48	05/18/21 01:13	1

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-8S

Lab Sample ID: 200-58366-4

Date Collected: 05/05/21 07:50

Matrix: Water

Date Received: 05/07/21 11:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.4		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluoropentanoic acid (PFPeA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorohexanoic acid (PFHxA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorooctanoic acid (PFOA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorononanoic acid (PFNA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorodecanoic acid (PFDA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorododecanoic acid (PFDoA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.4		ng/L		05/17/21 12:48	05/18/21 01:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.4		ng/L		05/17/21 12:48	05/18/21 01:21	1
6:2 FTS	ND		4.4		ng/L		05/17/21 12:48	05/18/21 01:21	1
8:2 FTS	ND		1.7		ng/L		05/17/21 12:48	05/18/21 01:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	90		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C4 PFHpA	89		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C4 PFOA	84		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C4 PFOS	80		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C5 PFNA	85		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C4 PFBA	67		25 - 150				05/17/21 12:48	05/18/21 01:21	1
13C2 PFHxA	86		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C2 PFDA	71		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C2 PFUnA	66		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C2 PFDoA	60		50 - 150				05/17/21 12:48	05/18/21 01:21	1
13C8 FOSA	71		25 - 150				05/17/21 12:48	05/18/21 01:21	1
13C5 PFPeA	85		25 - 150				05/17/21 12:48	05/18/21 01:21	1
13C2 PFTeDA	68		50 - 150				05/17/21 12:48	05/18/21 01:21	1
d3-NMeFOSAA	58		50 - 150				05/17/21 12:48	05/18/21 01:21	1
d5-NEtFOSAA	69		50 - 150				05/17/21 12:48	05/18/21 01:21	1
M2-6:2 FTS	85		25 - 150				05/17/21 12:48	05/18/21 01:21	1
M2-8:2 FTS	71		25 - 150				05/17/21 12:48	05/18/21 01:21	1
13C3 PFBS	86		50 - 150				05/17/21 12:48	05/18/21 01:21	1

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-10S

Lab Sample ID: 200-58366-5

Date Collected: 05/05/21 08:55

Matrix: Water

Date Received: 05/07/21 11:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.7		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluoropentanoic acid (PFPeA)	2.2		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7		ng/L		05/17/21 12:48	05/18/21 01:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7		ng/L		05/17/21 12:48	05/18/21 01:30	1
6:2 FTS	ND		4.7		ng/L		05/17/21 12:48	05/18/21 01:30	1
8:2 FTS	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:30	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	79		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C4 PFHpA	85		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C4 PFOA	83		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C4 PFOS	81		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C5 PFNA	81		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C4 PFBA	73		25 - 150	05/17/21 12:48	05/18/21 01:30	1
13C2 PFHxA	94		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C2 PFDA	81		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C2 PFUnA	78		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C2 PFDoA	74		50 - 150	05/17/21 12:48	05/18/21 01:30	1
13C8 FOSA	74		25 - 150	05/17/21 12:48	05/18/21 01:30	1
13C5 PFPeA	113		25 - 150	05/17/21 12:48	05/18/21 01:30	1
13C2 PFTeDA	81		50 - 150	05/17/21 12:48	05/18/21 01:30	1
d3-NMeFOSAA	67		50 - 150	05/17/21 12:48	05/18/21 01:30	1
d5-NEtFOSAA	77		50 - 150	05/17/21 12:48	05/18/21 01:30	1
M2-6:2 FTS	96		25 - 150	05/17/21 12:48	05/18/21 01:30	1
M2-8:2 FTS	90		25 - 150	05/17/21 12:48	05/18/21 01:30	1
13C3 PFBS	86		50 - 150	05/17/21 12:48	05/18/21 01:30	1

Eurofins TestAmerica, Burlington

Client Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-12S

Lab Sample ID: 200-58366-6

Date Collected: 05/05/21 09:15

Matrix: Water

Date Received: 05/07/21 11:00

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.8		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8		ng/L		05/17/21 12:48	05/18/21 01:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8		ng/L		05/17/21 12:48	05/18/21 01:38	1
6:2 FTS	ND		4.8		ng/L		05/17/21 12:48	05/18/21 01:38	1
8:2 FTS	ND		1.9		ng/L		05/17/21 12:48	05/18/21 01:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
18O2 PFHxS	77		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C4 PFHpA	79		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C4 PFOA	74		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C4 PFOS	64		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C5 PFNA	66		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C4 PFBA	75		25 - 150				05/17/21 12:48	05/18/21 01:38	1
13C2 PFHxA	80		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C2 PFDA	62		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C2 PFUnA	60		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C2 PFDoA	61		50 - 150				05/17/21 12:48	05/18/21 01:38	1
13C8 FOSA	60		25 - 150				05/17/21 12:48	05/18/21 01:38	1
13C5 PFPeA	77		25 - 150				05/17/21 12:48	05/18/21 01:38	1
13C2 PFTeDA	68		50 - 150				05/17/21 12:48	05/18/21 01:38	1
d3-NMeFOSAA	60		50 - 150				05/17/21 12:48	05/18/21 01:38	1
d5-NEtFOSAA	63		50 - 150				05/17/21 12:48	05/18/21 01:38	1
M2-6:2 FTS	74		25 - 150				05/17/21 12:48	05/18/21 01:38	1
M2-8:2 FTS	59		25 - 150				05/17/21 12:48	05/18/21 01:38	1
13C3 PFBS	79		50 - 150				05/17/21 12:48	05/18/21 01:38	1

Isotope Dilution Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFHxS (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFOS (50-150)	PFNA (50-150)	PFBA (25-150)	PFHxA (50-150)	PFDA (50-150)
200-58366-1	MW-11S	95	97	87	89	97	66	95	103
200-58366-2	MW-6S	93	92	89	85	89	64	91	83
200-58366-3	MW-7S	75	76	77	66	74	76	82	59
200-58366-4	MW-8S	90	89	84	80	85	67	86	71
200-58366-5	MW-10S	79	85	83	81	81	73	94	81
200-58366-6	MW-12S	77	79	74	64	66	75	80	62
LCS 200-166858/2-A	Lab Control Sample	88	92	88	89	91	89	90	82
LCS 200-166936/2-A	Lab Control Sample	92	90	91	96	93	90	88	87
MB 200-166858/1-A	Method Blank	87	89	90	89	91	92	88	85
MB 200-166936/1-A	Method Blank	87	89	87	93	92	89	88	84

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PfUnA (50-150)	PfDoA (50-150)	PfOSA (25-150)	PfPeA (25-150)	PfTDA (50-150)	d3NMfOS (50-150)	d5NEfOS (50-150)	M262fTS (25-150)
200-58366-1	MW-11S	77	69	77	90	61	76	76	94
200-58366-2	MW-6S	76	66	80	88	74	76	73	87
200-58366-3	MW-7S	53	57	55	86	71	55	72	77
200-58366-4	MW-8S	66	60	71	85	68	58	69	85
200-58366-5	MW-10S	78	74	74	113	81	67	77	96
200-58366-6	MW-12S	60	61	60	77	68	60	63	74
LCS 200-166858/2-A	Lab Control Sample	84	70	69	84	69	78	76	88
LCS 200-166936/2-A	Lab Control Sample	84	70	63	89	73	84	81	86
MB 200-166858/1-A	Method Blank	80	63	66	88	54	76	71	97
MB 200-166936/1-A	Method Blank	83	73	59	84	71	74	81	90

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M282fTS (25-150)	C3PFBS (50-150)
200-58366-1	MW-11S	116	86
200-58366-2	MW-6S	93	90
200-58366-3	MW-7S	75	75
200-58366-4	MW-8S	71	86
200-58366-5	MW-10S	90	86
200-58366-6	MW-12S	59	79
LCS 200-166858/2-A	Lab Control Sample	90	83
LCS 200-166936/2-A	Lab Control Sample	93	87
MB 200-166858/1-A	Method Blank	91	89
MB 200-166936/1-A	Method Blank	95	89

Surrogate Legend

- PFHxS = 18O2 PFHxS
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFOS = 13C4 PFOS
- PFNA = 13C5 PFNA
- PFBA = 13C4 PFBA
- PFHxA = 13C2 PFHxA
- PFDA = 13C2 PFDA
- PfUnA = 13C2 PFUnA
- PfDoA = 13C2 PfDoA
- PfOSA = 13C8 FOSA

Isotope Dilution Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

PFPeA = 13C5 PFPeA
PFTDA = 13C2 PFTeDA
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
C3PFBS = 13C3 PFBS

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QC Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-166858/1-A
Matrix: Water
Analysis Batch: 166895

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 166858

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
6:2 FTS	ND		5.0		ng/L		05/13/21 13:47	05/14/21 13:15	1
8:2 FTS	ND		2.0		ng/L		05/13/21 13:47	05/14/21 13:15	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
18O2 PFHxS	87		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C4 PFHpA	89		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C4 PFOA	90		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C4 PFOS	89		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C5 PFNA	91		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C4 PFBA	92		25 - 150	05/13/21 13:47	05/14/21 13:15	1
13C2 PFHxA	88		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C2 PFDA	85		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C2 PFUnA	80		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C2 PFDoA	63		50 - 150	05/13/21 13:47	05/14/21 13:15	1
13C8 FOSA	66		25 - 150	05/13/21 13:47	05/14/21 13:15	1
13C5 PFPeA	88		25 - 150	05/13/21 13:47	05/14/21 13:15	1
13C2 PFTeDA	54		50 - 150	05/13/21 13:47	05/14/21 13:15	1
d3-NMeFOSAA	76		50 - 150	05/13/21 13:47	05/14/21 13:15	1
d5-NEtFOSAA	71		50 - 150	05/13/21 13:47	05/14/21 13:15	1
M2-6:2 FTS	97		25 - 150	05/13/21 13:47	05/14/21 13:15	1
M2-8:2 FTS	91		25 - 150	05/13/21 13:47	05/14/21 13:15	1
13C3 PFBS	89		50 - 150	05/13/21 13:47	05/14/21 13:15	1

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QC Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-166858/2-A
Matrix: Water
Analysis Batch: 166895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166858

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	42.9		ng/L		107	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	43.4		ng/L		108	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	41.3		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)	40.0	42.5		ng/L		106	70 - 130
Perfluorooctanoic acid (PFOA)	40.0	43.8		ng/L		109	70 - 130
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	40.0	45.0		ng/L		112	70 - 130
Perfluoroundecanoic acid (PFUnA)	40.0	43.0		ng/L		107	70 - 130
Perfluorododecanoic acid (PFDoA)	40.0	42.9		ng/L		107	70 - 130
Perfluorotridecanoic acid (PFTriA)	40.0	37.9		ng/L		95	70 - 130
Perfluorotetradecanoic acid (PFTeA)	40.0	44.2		ng/L		111	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	38.7		ng/L		109	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	39.9		ng/L		110	70 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.6		ng/L		109	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	40.6		ng/L		109	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	37.4		ng/L		97	50 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	44.0		ng/L		110	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	42.5		ng/L		106	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	45.7		ng/L		114	70 - 130
6:2 FTS	37.9	40.3		ng/L		106	50 - 150
8:2 FTS	38.3	37.8		ng/L		99	50 - 150

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
18O2 PFHxS	88		50 - 150
13C4 PFHpA	92		50 - 150
13C4 PFOA	88		50 - 150
13C4 PFOS	89		50 - 150
13C5 PFNA	91		50 - 150
13C4 PFBA	89		25 - 150
13C2 PFHxA	90		50 - 150
13C2 PFDA	82		50 - 150
13C2 PFUnA	84		50 - 150
13C2 PFDoA	70		50 - 150
13C8 FOSA	69		25 - 150
13C5 PFPeA	84		25 - 150
13C2 PFTeDA	69		50 - 150
d3-NMeFOSAA	78		50 - 150
d5-NEtFOSAA	76		50 - 150
M2-6:2 FTS	88		25 - 150

Eurofins TestAmerica, Burlington

QC Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-166858/2-A
Matrix: Water
Analysis Batch: 166895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166858

<i>Isotope Dilution</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
M2-8:2 FTS	90		25 - 150
13C3 PFBS	83		50 - 150

Lab Sample ID: MB 200-166936/1-A
Matrix: Water
Analysis Batch: 166951

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 166936

<i>Analyte</i>	<i>MB MB</i>		<i>RL</i>	<i>MDL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>Result</i>	<i>Qualifier</i>							
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
6:2 FTS	ND		5.0		ng/L		05/17/21 12:47	05/18/21 00:48	1
8:2 FTS	ND		2.0		ng/L		05/17/21 12:47	05/18/21 00:48	1

<i>Isotope Dilution</i>	<i>MB MB</i>		<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
	<i>%Recovery</i>	<i>Qualifier</i>				
18O2 PFHxS	87		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C4 PFHpA	89		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C4 PFOA	87		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C4 PFOS	93		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C5 PFNA	92		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C4 PFBA	89		25 - 150	05/17/21 12:47	05/18/21 00:48	1
13C2 PFHxA	88		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C2 PFDA	84		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C2 PFUnA	83		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C2 PFDoA	73		50 - 150	05/17/21 12:47	05/18/21 00:48	1
13C8 FOSA	59		25 - 150	05/17/21 12:47	05/18/21 00:48	1
13C5 PFPeA	84		25 - 150	05/17/21 12:47	05/18/21 00:48	1
13C2 PFTeDA	71		50 - 150	05/17/21 12:47	05/18/21 00:48	1
d3-NMeFOSAA	74		50 - 150	05/17/21 12:47	05/18/21 00:48	1
d5-NEtFOSAA	81		50 - 150	05/17/21 12:47	05/18/21 00:48	1
M2-6:2 FTS	90		25 - 150	05/17/21 12:47	05/18/21 00:48	1

Eurofins TestAmerica, Burlington

QC Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-166936/1-A
Matrix: Water
Analysis Batch: 166951

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 166936

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
M2-8:2 FTS	95		25 - 150	05/17/21 12:47	05/18/21 00:48	1
13C3 PFBS	89		50 - 150	05/17/21 12:47	05/18/21 00:48	1

Lab Sample ID: LCS 200-166936/2-A
Matrix: Water
Analysis Batch: 166951

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 166936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
							Limits
Perfluorobutanoic acid (PFBA)	40.0	46.9		ng/L		117	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	45.4		ng/L		113	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	46.3		ng/L		116	70 - 130
Perfluoroheptanoic acid (PFHpA)	40.0	47.4		ng/L		118	70 - 130
Perfluorooctanoic acid (PFOA)	40.0	43.9		ng/L		110	70 - 130
Perfluorononanoic acid (PFNA)	40.0	43.5		ng/L		109	70 - 130
Perfluorodecanoic acid (PFDA)	40.0	47.4		ng/L		118	70 - 130
Perfluoroundecanoic acid (PFUnA)	40.0	46.6		ng/L		116	70 - 130
Perfluorododecanoic acid (PFDoA)	40.0	48.4		ng/L		121	70 - 130
Perfluorotridecanoic acid (PFTriA)	40.0	44.3		ng/L		111	70 - 130
Perfluorotetradecanoic acid (PFTeA)	40.0	47.8		ng/L		119	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	41.5		ng/L		117	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	41.1		ng/L		113	70 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	41.7		ng/L		109	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	43.6		ng/L		118	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	39.3		ng/L		102	50 - 150
Perfluorooctanesulfonamide (FOSA)	40.0	47.7		ng/L		119	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	44.8		ng/L		112	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	43.8		ng/L		109	70 - 130
6:2 FTS	37.9	43.3		ng/L		114	50 - 150
8:2 FTS	38.3	42.1		ng/L		110	50 - 150

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
18O2 PFHxS	92		50 - 150
13C4 PFHpA	90		50 - 150
13C4 PFOA	91		50 - 150
13C4 PFOS	96		50 - 150
13C5 PFNA	93		50 - 150
13C4 PFBA	90		25 - 150
13C2 PFHxA	88		50 - 150
13C2 PFDA	87		50 - 150
13C2 PFUnA	84		50 - 150

Eurofins TestAmerica, Burlington

QC Sample Results

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-166936/2-A

Matrix: Water

Analysis Batch: 166951

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 166936

<i>Isotope Dilution</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 PFDoA	70		50 - 150
13C8 FOSA	63		25 - 150
13C5 PFPeA	89		25 - 150
13C2 PFTeDA	73		50 - 150
d3-NMeFOSAA	84		50 - 150
d5-NEtFOSAA	81		50 - 150
M2-6:2 FTS	86		25 - 150
M2-8:2 FTS	93		25 - 150
13C3 PFBS	87		50 - 150

QC Association Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

LCMS

Prep Batch: 166858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-58366-1	MW-11S	Total/NA	Water	3535	
MB 200-166858/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-166858/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 166895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-58366-1	MW-11S	Total/NA	Water	537 (modified)	166858
MB 200-166858/1-A	Method Blank	Total/NA	Water	537 (modified)	166858
LCS 200-166858/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	166858

Prep Batch: 166936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-58366-2	MW-6S	Total/NA	Water	3535	
200-58366-3	MW-7S	Total/NA	Water	3535	
200-58366-4	MW-8S	Total/NA	Water	3535	
200-58366-5	MW-10S	Total/NA	Water	3535	
200-58366-6	MW-12S	Total/NA	Water	3535	
MB 200-166936/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-166936/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 166951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-58366-2	MW-6S	Total/NA	Water	537 (modified)	166936
200-58366-3	MW-7S	Total/NA	Water	537 (modified)	166936
200-58366-4	MW-8S	Total/NA	Water	537 (modified)	166936
200-58366-5	MW-10S	Total/NA	Water	537 (modified)	166936
200-58366-6	MW-12S	Total/NA	Water	537 (modified)	166936
MB 200-166936/1-A	Method Blank	Total/NA	Water	537 (modified)	166936
LCS 200-166936/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	166936

Lab Chronicle

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Client Sample ID: MW-11S

Date Collected: 05/04/21 14:40

Date Received: 05/07/21 11:00

Lab Sample ID: 200-58366-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			166858	05/13/21 13:47	KFW	TAL BUR
Total/NA	Analysis	537 (modified)		1	166895	05/14/21 15:36	BWC	TAL BUR

Client Sample ID: MW-6S

Date Collected: 05/05/21 08:05

Date Received: 05/07/21 11:00

Lab Sample ID: 200-58366-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			166936	05/17/21 12:48	KFW	TAL BUR
Total/NA	Analysis	537 (modified)		1	166951	05/18/21 01:05	ND	TAL BUR

Client Sample ID: MW-7S

Date Collected: 05/05/21 08:30

Date Received: 05/07/21 11:00

Lab Sample ID: 200-58366-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			166936	05/17/21 12:48	KFW	TAL BUR
Total/NA	Analysis	537 (modified)		1	166951	05/18/21 01:13	ND	TAL BUR

Client Sample ID: MW-8S

Date Collected: 05/05/21 07:50

Date Received: 05/07/21 11:00

Lab Sample ID: 200-58366-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			166936	05/17/21 12:48	KFW	TAL BUR
Total/NA	Analysis	537 (modified)		1	166951	05/18/21 01:21	ND	TAL BUR

Client Sample ID: MW-10S

Date Collected: 05/05/21 08:55

Date Received: 05/07/21 11:00

Lab Sample ID: 200-58366-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			166936	05/17/21 12:48	KFW	TAL BUR
Total/NA	Analysis	537 (modified)		1	166951	05/18/21 01:30	ND	TAL BUR

Client Sample ID: MW-12S

Date Collected: 05/05/21 09:15

Date Received: 05/07/21 11:00

Lab Sample ID: 200-58366-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			166936	05/17/21 12:48	KFW	TAL BUR
Total/NA	Analysis	537 (modified)		1	166951	05/18/21 01:38	ND	TAL BUR

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Eurofins TestAmerica, Burlington

Accreditation/Certification Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Laboratory: Eurofins TestAmerica, Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2336	02-25-23
Connecticut	State	PH-0751	09-30-21
Florida	NELAP	E87467	06-30-21
Minnesota	NELAP	050-999-436	12-31-21
New Hampshire	NELAP	2006	12-18-21
New Jersey	NELAP	VT972	06-30-21
New York	NELAP	10391	04-01-22
Pennsylvania	NELAP	68-00489	04-30-22
Rhode Island	State	LAO00298	12-30-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00272	10-30-23
Vermont	State	VT4000	02-10-22
Virginia	NELAP	460209	12-14-21
Wisconsin	State	399133350	08-31-21

Method Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUR = Eurofins TestAmerica, Burlington, 530 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990



Sample Summary

Client: Waste Connections, Inc.
Project/Site: Dunn Landfill - PFAS

Job ID: 200-58366-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
200-58366-1	MW-11S	Water	05/04/21 14:40	05/07/21 11:00	
200-58366-2	MW-6S	Water	05/05/21 08:05	05/07/21 11:00	
200-58366-3	MW-7S	Water	05/05/21 08:30	05/07/21 11:00	
200-58366-4	MW-8S	Water	05/05/21 07:50	05/07/21 11:00	
200-58366-5	MW-10S	Water	05/05/21 08:55	05/07/21 11:00	
200-58366-6	MW-12S	Water	05/05/21 09:15	05/07/21 11:00	

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Client Information

Client Contact: Dr. Tim Roeper
 Company: Cornerstone Environmental Group, LLC
 Address: 100 Crystal Run Road Suite 101
 City: Middletown
 State, Zip: NY, 10941
 Phone: [blank]
 Email: tim.roeper@cornerstoneeg.com
 Project Name: [blank]
 Site: New York

Sampler: VanDette, Ryan T
 Lab PM: VanDette, Ryan T
 E-Mail: Ryan.VanDette@Eurofinset.com
 PWSID: [blank]

Carrier Tracking No(s): 480-160080-32167.1
 Page: Page 1 of 1
 Job #: [blank]

Date Requested: [blank]
 TAT Requested (days): [blank]
 Compliance Project: Yes No
 PO #: [blank]
 Purchase Order not required
 WO #: 209-4203148
 Project #: 48010065
 SSOW#: [blank]

Analysis Requested

Field Filtered Sample (Yes or No) [blank]
 PFC, LDA - (MOD) PFAS, Standard List (21 analytes) [blank]

Preservation Codes:
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2O4S
 Q - Na2SO3
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 Z - other (specify)
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Anichlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 Other: [blank]

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water/oil, BT=tissue, A=air)
MW-11S	5/4/21	1440	G	Water
MW-6S	5/5/21	0805	G	Water
MW-7S	5/5/21	0830	G	Water
MW-8S	5/5/21	0750	G	Water
MW-10S	5/5/21	0855	G	Water
MW-12S	5/5/21	0915	G	Water
200-58366 COC				
[QR Code]				

Possible Hazard Identification
 Non-Hazard Flammable Skin Irritant Poison B Unknown Radiological
 Deliverable Requested: I, II, III, IV, Other (specify) [blank]

Empty Kit Relinquished by: [blank]
 Relinquished by: [Signature]
 Date/Time: 5/5/21 1450
 Company: WCV

Relinquished by: [Signature]
 Date/Time: 5/6/21 1700
 Company: Eurofins

Custody Seals Intact: Yes No
 Custody Seal No.: [blank]

Special Instructions/Note: [blank]

Special Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Method of Shipment: [blank]

Relinquished by: [Signature]
 Date/Time: 5/5/21 1450
 Company: Eurofins

Relinquished by: [Signature]
 Date/Time: 5/6/21 1100
 Company: TABARA

Relinquished by: [Signature]
 Date/Time: [blank]
 Company: [blank]

Cooler Temperature(s) °C and Other Remarks: [blank]



FROM: (518) 438-8140
TIM KNOLLMEYER
TESTAMERICA LAB INC
25 KRAFT AVE

SHIP DATE: 06MAY21
ACTWGT: 28.70 LB
CAD: 0886598/CAFE3409

ALBANY NY 12205
US

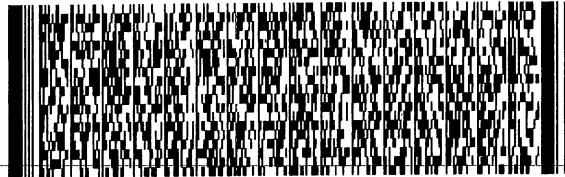
BILL 3rd PARTY

TO **SAMPLE RECEIVING**
TESTAMERICA – BURLINGTON
30 COMMUNITY DRIVE, SUITE 11

BURLINGTON VT 05403

(US)

(802) 660-1990
REF: DUNN LF



FedEx
Ground



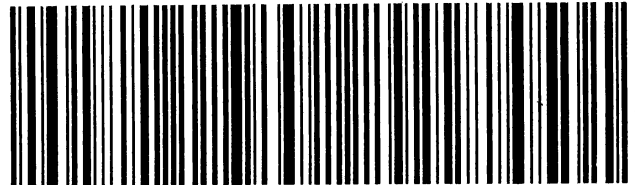
J2011201218011uv

TRK# **5013 1604 8182**

05403

Pat # 156148-434 RIT EXP 11/21

9622 0417 3 (000 000 0000) 0 00 5013 1604 8182



Login Sample Receipt Checklist

Client: Waste Connections, Inc.

Job Number: 200-58366-1

SDG Number:

Login Number: 58366

List Source: Eurofins TestAmerica, Burlington

List Number: 1

Creator: Cunningham, Caroline R

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	NA: Lab does not accept radioactive samples
The cooler's custody seal, if present, is intact.	True	1479299
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.3°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	