PERMIT RENEWAL APPLICATION & SUPPORTING DOCUMENTATION

DE PERMIT No.: DM 2002 MD 03

NaturaLawn® of America

THE LEADER IN **ORGANIC-BASED** LAWN CARE®

PERMIT RENEWAL APPLICATION & SUPPORTING DOCUMENTATION

DE PERMIT No.: DM 2002 MD-03

NATURALAWN OF AMERICA, INC.
1 East Street
Frederick, MD 21701
www.NaturaLawn.com
(800) 989-5444

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COVER LETTER

&

APPLICATION FOR RENEWAL PERMIT

DISTRIBUTION & MARKETING OF WASTEWATER SLUDGE – CLASS A EQ

September 27, 2024

State of Delaware, DNREC
Division of Water
Surface Water Discharges Section
Brian Churchill, Environmental Scientist
89 Kings Highway
Dover, DE 19901

RE: NATURALAWN OF AMERICA PERMIT RENEWAL
APPLICATION & SUPPORTING DOCUMENTATION
PERMIT NO.: DM 2002 MD-03

Dear Brian,

NaturaLawn of America respectfully submits the permit renewal application and the supporting documentation for your consideration.

This permit renewal application is for the Marketing and Distribution of Class A EQ Biosolids originating at Metropolitan Biosolids Management LLC in Cicero, IL to be used in fertilizer blends within the state of Delaware. The report details the processes used to dry/pelletize the product to ensure vector attraction reduction and pathogen reduction methods have been met. There is analyses for the most current three (3) months for the 503 compliance testing in Pace Analytical- Biosolids Monthly Reports, three (3) months of A & L Great Lakes Laboratories-nutrient reports, three (3) months of water extractable phosphorus (WEP) Reports from Midwest Laboratories, and twelve (12) months of analyses from either Eurofins-Denver or Pace Analytical NE for PFAS using Method 1633 Reports. The details of the generator and process equipment are provided in diagrams, Keppel Seghers operator manual, map of MBM, and detailed narrative explaining the processes.

We have assembled a Table of Contents to assist in locating documents within the electronic file and we are sending a hard copy binder via USPS certified mail, additionally.

We appreciate the assistance and expertise you have afforded us in the past in originally attaining this permit and we look forward to continuing working with you in the future.

Sincerely,

Jesse Catron
Senior Vice President

1 E. Church Street | Frederick, MD 21701
301-694-5440 | 800-989-5444
NATURALAWN.COM

APPLICATION FOR A PERMIT TO DISTRIBUTE AND MARKET WASTEWATER SLUDGE IN DELAWARE

PRELIMINARY INFORMATION

1. Name of facility: NaturaLawn of America

Mailing Address: 1 East Church Street
Frederick, MD 21701

Location (street address, if different from mailing address):

2. Name of operator: NaturaLawn of America

Mailing Address: 1 East Church Street
Frederick, MD 21701

Telephone Number: 301-694-5440

1. Does this facility have a currently effective NPDES permit?
_____ Yes __x__ No

2. Is this facility required to have, or is it requesting, permit(s) from other agencies under other programs (e.g. RCRA, UST, CERCLA, etc.)?
_____ Yes __x__ No

Send the completed application information to:

State of Delaware
Division of Water Resources
Department of Natural Resources and Environmental Control
Surface Water Discharges Section
89 Kings Highway, P.O. Box 1401
Dover, Delaware 19901

BACKGROUND INFORMATION:

1. Does this operator own the facility for which the information is submitted?
   x Yes _____ No

2. Indicate type of facility:
   _____ Federally owned treatment works
   _____ Privately owned treatment works
   _____ Publicly owned treatment works (POTW)
   x Other Privately owned lawn care business that uses Class A EQ Biosolids as a minor component in their fertilizer blends.

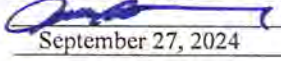
3. **Description of Sewage Sludge Use or Disposal Practices.** Provide the following information on the quantity (total dry metric tons per year) of sewage sludge handled at the applicants facility:

   Amount of sewage sludge:
   _____ generated at the facility:
   _____ received from off-site:
   _____ land applied on-site:
   _____ sent off-site for land application:
   _____ sent off-site for further treatment or distribution
   approx 58 for ultimate land application:
   _____ disposed of in a surface disposal unit on-site:
   _____ sent off-site for surface disposal:
   _____ used or disposed of by a method not described above, including sewage sludge sent to a municipal solid waste landfill unit (explain below):

4. **Sludge Quality Data.** Attach any data available on the quality of the sewage sludge, including but not limited to pollutant concentrations and the level of pathogen reduction attained.

5. **Certification.** Sign the certification statement below.

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person/s who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name of Officer: Jesse Catron
Official Title of Officer: Senior Vice President
Telephone Number: 301-694-5440
Signature of Officer: 
Date Signed: September 27, 2024

SECTION A. SEWAGE SLUDGE GENERATION OR PREPARATION

A.1. To be completed if the applicant processes or packages sewage sludge for sale or give-away in a bag or other container for application to land (as explained in the instructions)

a. Provide the total dry metric tons per year processed or packaged for sale or give-away in a bag or other container for application to land. approx 58 tons

b. Indicate which class of pathogen reduction is met by the sewage sludge processed or packaged for sale or give away in a bag or other container for application to land. CLASS A EQ -Alternative 5

Describe the process(es) used to meet this class of pathogen reduction. PFRP 2-HEAT DRYING Keppel Seghers pelletizer

Are all processes used to meet this class of pathogen reduction provided by the applicant?
_____ Yes __X__ No

If no, explain. Biosolids are processed at MBM LLC in Cicero, IL prior to use by NaturaLawn of America

c. Which of the following vector attraction reduction requirements is met by the sewage sludge processed or packaged for sale or give away in a bag or other container for application to land?

_____ Minimum 38 percent reduction in volatile solids
_____ Anaerobic process, with bench-scale demonstration
_____ Aerobic process, with bench-scale demonstration
_____ Specific oxygen uptake rate (SOUR) for aerobically digested sludge
_____ Aerobic processes plus raised temperature
_____ Raise pH to 12 and retain at 11.5
__x__ 75 percent solids with no unstabilized solids
_____ 90 percent solids with unstabilized solids
_____ Other, explain.

Describe the process(es) used to meet this vector attraction reduction requirement.In direct drying system where solids are treated to temperatures above 80 degrees C.

Are all processes used for vector attraction reduction provided by the applicant?
_____ Yes __x__ No

If no, explain. Biosolids are processed at MBM LLC in Cicero, IL prior to use by NaturaLawn of America

d. Briefly describe any blending or manufacturing processes employed prior to sale or give away in a bag or other container. _Blender/bagger receives Class A EQ biosolids and incorporates the biosolids in their proprietary fertilizer blends.

e. Attach a copy of all labels or notices that accompany the product being sold or given away.

SECTION B. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Officer: 

Name of Officer: Jesse Catron

Official Title of Officer: Senior Vice President

Telephone Number: 301-694-5440

Date Signed: September 27, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

INTRODUCTION & PROPOSED PROJECT SCOPE

INTRODUCTION AND PROPOSED PROJECT SCOPE

NaturaLawn of America is an outdoor service company that pioneered the breakthrough into environmentally responsible lawn care. Founded in Maryland in 1987, franchising opportunities began in 1989 and has grown to currently include 89 locations operating in 24 states. NaturaLawn has been doing business in Delaware since 1990.

NaturaLawn of America utilizes an environmentally friendly approach to lawn care which creates green lawns quickly, more naturally, and has been recognized as "the leader in organic based lawn care" for over 30 years. NaturaLawn was an early adopter to recognize the value of combining Class A Biosolids with traditional fertilizers and other catalysts that result in using less fertilizer, get better results, and are safer for the environment. Other attributes include:

- Class A Biosolids are a prime source nutrient for long-term feeding of turfgrass,
- Class A Biosolids are an excellent alternative to traditional nutrients and/or to enhance traditional fertilizers for their overarching safety features for the environment (water insoluble nitrogen, water insoluble phosphorous, secondary nutrients that include iron, sulfur, calcium, humics, low salt index, etc.),
- Class A Biosolids are renewable resources that are designated as BioPreferred® according to USDA's Certified Biobased Products Program.

With respect to Delaware's regulatory requirements, NaturaLawn's intent will be to continue working directly with DNREC to renew this special use permit for Marketing and Distributing the Class A EQ Biosolids generated by Metropolitan Biosolids Management LLC located at Cicero, IL as a minor component in fortifying their proprietary packaged fertilizer blends for lawn care. The details of this permit renewal request are for the distribution and marketing under Delaware's Biosolids Regulations.

- These fertilizer blends will consist of 60-80% conventional fertilizers/fillers and no more than 20-40% biosolid (by weight}. Typically, 20% biosolids per blend.
- The product list of blended fertilizers would consist of no more than 10 products. Labels are provided following this section.

- NaturaLawn will only source Class A EQ Biosolids from Metropolitan Biosolids Management LLC as approved by DNREC.
- NaturaLawn has provided a list of blender/formulators (3 or 4) they will source to package end-use products for their Delaware needs. See a complete list following this section. Blender/formulators will be required to only source Class A EQ biosolids from MBM LLC, Cicero, IL, that are DNREC approved by this agreement.

Class A EQ Biosolids generated and distributed by NaturaLawn of America have undergone stabilization by heat drying sewage sludge to a Class A EQ biosolids rating. The proposed final product would be distributed for use as a fertilizer by lawn care professionals or utilized in agricultural settings.

NaturaLawn of America biosolids product is a treated byproduct of the wastewater reclamation process at the Metropolitan Water Reclamation District of Greater Chicago's Stickney Water Reclamation Plant located at Cicero, Illinois (MWRD). MWRD's biosolids treatment serves people living in and around Chicago, Illinois. Metropolitan Biosolids Management, LLC. of Cicero, Illinois (MBM) takes dewatered sludge from MWRD for further processing. MBM heat dries, pelletizes, and through a contract with the sole marketing company, OT&T, Inc. of Elida, Ohio, distributes the resultant "exceptional quality" biosolids product throughout the United States. Through their blenders, NaturaLawn of America, proposes to distribute these EQ Biosolids for use in the state of Delaware for their commercial applicators and retail market.

At the MWRDC facility, sludge is anaerobically digested to promote biological decomposition (stabilization) of the organic materials in the sludge. Next, the sludge is dewatered by centrifugation to produce a cake product consisting of approximately 25% solids. The MBM biosolids facility employs four (4) Keppel Seghers vertical indirect heat dryers to heat the sludge to approximately 215° Fahrenheit. Upon exiting the dryer, the temperature of the sludge is at least 80° C (176° F) to demonstrate that Class A pathogen reduction has been achieved. The resultant biosolids product is dried to a solids content of at least 75% solids to meet vector attraction reduction requirements (VAR). The product generated at MBM LLC maintains a 90% or higher total solids monthly.

The treated sludge is tested and meets the requirements of Class A, EQ standards, and the biosolids meet Delaware Department of Agriculture requirements, NaturaLawn is requesting renewal of this permit for Marketing and Distribution within the State of Delaware of the EQ Biosolids for use as a fertilizer. NaturaLawn will be responsible for ensuring all biosolids distributed and marketed within the State of Delaware meet the requirements of this submitted permit application.

FERTILIZER LABELS

NATURALAWN OF AMERICA - DELAWARE – LABELS

The following are the labels that are distributed into Delaware by NaturaLawn of America. The registering of products for NaturaLawn of America is done by Vogel Seed & Fertilizer LLC and they are also the blenders of the products.

In reviewing the labels, there are some modifications to the wording under Section 120.5 that are being revised and the revised labels will be forwarded as soon as possible. I have included an email from Vogel Seed and Fertilizer stating that they are working on the modifications to the labels.

Also, in reviewing the DE Department of Agriculture fertilizer registrations, which is included in this section, it was noticed that the product NaturaLawn of America 22-0-4 Plus .42 Prodiamine was inadvertently registered as a Spring Valley product. The item number (4106010) is the same as on the NaturaLawn label so in talking with Vogel Seed & Fertilizer LLC (the registrants) the consensus was that it was a typo since both company's products were being registered at the same time. This will be corrected on the next registration.

In speaking with Vogel Seeds & Fertilizer LLC it is noted that GHS labels also accompany the products from NaturaLawn of America since they are a professional company. However, the GHS labels cannot be included in the packaging of products containing pesticides as EPA has not adopted GHS for pesticide product classification and labeling.

Plant Nutrient
0-0-50

GUARANTEED ANALYSIS

Soluble Potash (K20) 50.00%

Sulfur (S)..... 17.00%

Derived From:
Sulfate of Potash.

Salt Index: 46.10 Bulk Density: 75.00

Net Weight 50 lbs. (22.70 kg)

Item Number: 2000600

NUTRIENT CALCULATIONS
WITH SPREADER SETTINGS

Product 0-0-50	**Low Rate** 1.00 lbs/M	**Medium Rate** 1.50 lbs/M	**High Rate** 2.00 lbs /M
Lbs Nutrients/M	N: .00 P: .00 K: .50	N: .00 P: .00 K: .75	N: .00 P: .00 K: 1.00
Rotary Spreader	Settings	Settings	Settings
Accupro	P	Q	W
Earthway 2400	18	19	26
Lesco 00600	22	30	
Prizelawn	N	O	W
Spyker	6	6.5	9

MFG BY: VOGEL SEED & FERTILIZER INC.
1891 SPRING VALLEY ROAD
JACKSON, WI 53037

DISTRIBUTED BY: NATURALAWN OF AMERICA
1 E. CHURCH STREET
FREDERICK, MD 21707

Directions – Please Read Carefully Before Using

General Information

This product is a premium mini-sized fertilizer that is ideal for the high potassium nutrient demands of top quality turf performance particularly on golf greens, tees and short-cut fairways.

With potassium as the primary nutrient, this blend serves to assist turf in forming stored energy and helps to resist disease. These extra potassium levels will also accelerate rooting (compared to leaf development in high nitrogen blends) and provide aid in developing turf toughness, especially in high traffic areas. The micro-granular particles are uniformly sized for even application that will quickly settle beneath the turf canopy with minimal effect on ball roll or mower pick-up.

How to Use*

With potassium as the primary ingredient, apply at the rate of 0.5 to 2.0 lbs. K per 1,000 sq. ft. with heavier treatment scheduled during early spring and late fall, and lighter rates for summer application. Depending on soil conditions and turf type, schedule feeding program to deliver 4 – 8 lbs of total potash per 1,000 sq. ft. per year.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.

NEVER FERTILIZE WHEN THE GRASS IS MOIST
ALWAYS CLEAN OUT SPREADER AFTER EACH USE.

Note These Setting are approximate. Due to atmospheric conditions and wear on spreaders it is impossible to be 100% accurate, it is wise to set your spreader to a low rate and then measure the coverage of only one pound of turf food. If you are under applying, increase the rate, if you are over applying, decrease the rate. If in doubt, it is better to under-apply than to over-apply and use formulations with more controlled releases, especially during hot dry conditions.

Note: These Settings are Approximate and can be influenced by other contributing factors Vogel Seed & Fertilizer Inc. makes no warranty as to the uniformity of coverage actually obtained from the settings listed.

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes, flush with plenty of water.

Plant Nutrient

10-0-12

GUARANTEED ANALYSIS

Total Nitrogen (N)	10.00%
2.00% Ammoniacal Nitrogen	
7.2% Urea Nitrogen*	
0.15% Other Water Soluble Nitrogen	
0.65% Water Insoluble Nitrogen	
Soluble Potash (K_2O)	12.00%
Sulfur (S)	6.65%
Iron (Fe)	2.00%

Derived From: Bio-solids, Iron Oxide, Sulfate of Potash, and Urea.

Salt Index: 31.81 Bulk Density: 69.17

Net Weight 50 lbs (22.70 kg)

50 lbs. Covers 6,000 sq. ft.

(These rates equal 1 lb. nitrogen per 1,000 sq. ft.)

F002259

*Urea stabilized with N-(n-Butyl)thiophosphoric triamide

Item Number: 2264250

NUTRIENT CALCULATIONS WITH SPREADER SETTINGS

Product 10-0-12	**Low Rate** 4.16 lbs/M	**Medium Rate** 6.25 lbs/M	**High Rate** 8.33 lbs /M
Lbs Nutrients/M	N: .41 P: .00 K: .50	N: .62 P: .00 K: .75	N: .83 P: .00 K: 1.00
Rotary Spreader	Settings	Settings	Settings
Accupro	N	O	P
Earthway 2400	16	17	18
Lesco 00600	20	22	24
Prizelawn	L	M	N
Spyker	5.5	6	6.5

Directions – Please Read Carefully Before Using

General Information

This product is a highly versatile premium mini-sized fertilizer that is ideal for the nutrient demands of top-quality turf management. The precise balance of nutrients promotes a superior, sustained color response that produces the visual appeal turf professionals desire.

How to Use*

For optimum performance, begin spring applications just before soil temperatures reach 50 degrees F. Although nitrogen can be applied at the rate of 1.0 lb Per 1,000 sq ft every 8 weeks, it is also recommended that lighter, half-rate applications be made each month, especially during hot, dry periods. Continue scheduled feedings throughout the growing season until soil temperature retreats to below 50 degrees F. Late fall and dormant feedings are recommended after soil temperatures remain below 50 degrees F for several consecutive days and turf growth has slowed considerably.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.

*Southern turf grasses, including St. Augustine and hybrid Bermuda grasses may require higher levels of nitrogen for optimum performance.

It is a violation of the law to use this product in a manner inconsistent with its labeling.

Do not apply to any lawns that are flooded, frozen or snow covered. Do not apply near water, storm drains, or drainage ditches. Do not apply if heavy rain is expected. Apply this product only to your lawn/garden, and sweep any product that lands on the driveway, sidewalk, or street, back onto your lawn/garden.

Note: These Settings are Approximate and can be influenced by other contributing factors Vogel Seed & Fertilizer Inc. makes no warranty as to the uniformity of coverage actually obtained from the settings listed.

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes, flush with plenty of water.

DISTRIBUTED BY VOGEL SEED & FERTILIZER INC.
1891 SPRING VALLEY ROAD, JACKSON, WI 53037

Plant Nutrient
10-0-18

Regain

Directions – Please Read Carefully Before Using

GUARANTEED ANALYSIS

Total Nitrogen (N)	10.00%
9.20% Urea Nitrogen*	
0.65% Water Insoluble Nitrogen	
0.15% Other Water Soluble Nitrogen	
Soluble Potash (K_2O)	18.00%
Magnesium (Mg)	1.00%
Sulfur (S)	6.40%
Iron (Fe)	1.30%

Derived From: Bio-Solids, Iron Oxide, Magnesium Sucrate, Sulfate of Potash, Urea

* Urea stabilized with N-(n-Butyl)thiophosphoric triamide.

Salt Index: 33.71 Bulk Density: 65.79

Net Weight 50 lbs (22.70 kg)

50 lbs. Covers 9,000 sq. ft.

(These rates equal 1 lb. K per 1,000 sq. ft.)

Item Number: 2264210

NUTRIENT CALCULATIONS WITH SPREADER SETTINGS

Product 10-0-18	Low Rate 2.77 lbs/M	Medium Rate 4.16 lbs/M	High Rate 5.55 lbs /M
Lbs Nutrients/M	N: .27 P: .00 K: .50	N: .41 P: .00 K: .75	N: .55 P: .00 K: 1.00
Rotary Spreader	Settings	Settings	Settings
Accupro	N	O	P
Earthway 2400	16	17	18
Lesco 00600	20	20	22
Prizelawn	L	M	N
Spyker	5.5	6	6

Note These Setting are approximate. Due to atmospheric conditions and wear on spreaders it is impossible to be 100% accurate, it is wise to set your spreader to a low rate and then measure the coverage ofonly one pound of turf food. If you are under applying, increase the rate, if you are over applying, decrease the rate. If in doubt, it is better to under-apply than to over-apply and use formulations with more controlled releases, especially during hot dry conditions.

General Information

This product is a highly versatile premium mini-sized fertilizer that is ideal for the nutrient demands of top quality turf management. These nutrients promote a superior, sustained color response that produces the visual appeal turf professionals desire.

How to Use*

For optimum performance, begin spring applications just before soil temperatures reach 50 degrees F. Although nitrogen can be applied at the rate of 1.0 lb Per 1,000 sq ft every 8 weeks, it is also recommended that lighter, half-rate applications be made each month, especially during hot, dry periods. Continue scheduled feedings throughout the growing season until soil temperature retreats to below 50 degrees F. Late fall and dormant feedings are recommended after soil temperatures remain below 50 degrees F for several consecutive days and turf growth has slowed considerably.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.

*Southern turf grasses, including St. Augustine and hybrid Bermuda grasses may require higher levels of nitrogen for optimum performance.

Do not apply to any lawns that are flooded, frozen or snow covered.

DO NOT APPLY NEAR WATER, STORM DRAINS, OR DRAINAGE DITCHES. DO NOT APPLY IF HEAVY RAIN IS EXPECTED. APPLY THIS PRODUCT ONLY TO YOUR LAWN/GARDEN, AND SWEEP ANY PRODUCT THAT LANDS ON THE DRIVEWAY, SIDEWALK, OR STREET, BACK ONTO YOUR LAWN/GARDEN.

Information regarding the contents and levels of metals in this product is available on the Internet at http://www.aapfco.org/metals.htm

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes, flush with plenty of water.

MANUFACTURED AND GUARANTEED BY:
VOGEL SEED & FERTILIZER INC.
1891 SPRING VALLEY ROAD
JACKSON, WI 53037

Plant Nutrient
10-15-5

General Information

Total Nitrogen (N) 10.00%
- 5.08% Ammoniacal Nitrogen
- 1.62% Water Insoluble Nitrogen
- 2.93% Urea Nitrogen
- 0.37% Slowly Available Water Soluble Nitrogen

Available Phosphate (P_2O_5) 15.00%
Soluble Potash (K_2O) 5.00%
Calcium (Ca) 1.60%
Sulfur (S) 2.40%
Iron (Fe) 2.00%

Derived From:
Bio-Solids, Diammonium Phosphate, Potassium Sulfate, Urea, and Iron Oxide.

Salt Index: 21.43 Bulk Density: 58.84
Net Weight 50 lbs (22.70 kg)
50 lbs. Covers 7,500 sq. ft.
(These rates equal 1 lb. Phosphate per 1,000 sq. ft.)

Item Number: 4101750

NUTRIENT CALCULATIONS WITH SPREADER SETTINGS

Product 10-15-5	Low Rate 3.3 lbs/M	Medium Rate 5.0 lbs/M	High Rate 6.7 lbs /M
Lbs Nutrients/M	N: .33 P: .50 K: .16	N: .50 P: .75 K: .25	N: .66 P: 1.00 K: .33
Rotary Spreader	Settings	Settings	Settings
Accupro	N	O	P
Earthway 2400	16	17	18
Lesco 00600	20	21	22
Prizelawn	L	M	N
Spyker	5.5	6	7

Note These Setting are approximate. Due to atmospheric conditions and wear on spreaders it is impossible to be 100% accurate, it is wise to set your spreader to a low rate and then measure the coverage of only one pound of turf food. If you are under applying, increase the rate, if you are over applying, decrease the rate. If in doubt, it is better to under-apply than to over-apply and use formulations with more controlled releases, especially during hot dry conditions.

Directions – Please Read Carefully Before Using

GUARANTEED ANALYSIS

This product is a highly versatile premium mini-sized fertilizer that is ideal for the nutrient demands of newly seeded turf. The precise balance of nutrients promotes a superior, sustained color response that produces the visual appeal turf professionals desire.

How to Use*

In accordance with your turf establishment program, apply at a rate of .50 lb to 1.0 lb Per 1,000 sq ft after seeding your lawn.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.

*Southern turf grasses, including St. Augustine and hybrid Bermuda grasses may require higher levels of nitrogen for optimum performance.

Do not apply to any lawns that are flooded, frozen or snow covered.
DO NOT APPLY NEAR WATER, STORM DRAINS, OR DRAINAGE DITCHES. DO NOT APPLY IF HEAVY RAIN IS EXPECTED. APPLY THIS PRODUCT ONLY TO YOUR LAWN/GARDEN, AND SWEEP ANY PRODUCT THAT LANDS ON THE DRIVEWAY, SIDEWALK, OR STREET, BACK ONTO YOUR LAWN/GARDEN.

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes, flush with plenty of water.

MANUFACTURED BY:
VOGEL SEED & FERTILIZER INC.
1891 SPRING VALLEY ROAD
JACKSON, WI 53037

DISTRIBUTED BY:
NATURALAWN OF AMERICA
1 E. CHURCH STREET
FREDERICK, MD 21707

Plant Nutrient

12-0-12

GUARANTEED ANALYSIS

Total Nitrogen (N) 12.00%
11.20% Urea Nitrogen
0.65% Water Insoluble Nitrogen
0.15% Slowly Available Water Soluble Nitrogen

Soluble Potash (K_2O) 12.00%

Sulfur (S)..... 4.36%

Iron (Fe) 2.00%

Derived From:
Bio-Solids, Sulfate of Potash, Urea, and Iron Oxide.

Salt Index: 31.00 Bulk Density: 68.00
Net Weight 50 lbs (22.70 kg)
50 lbs. Covers 6,000 sq. ft.
(These rates equal 1 lb. Nitrogen per 1,000 sq. ft.)

Item Number: 4101010

NUTRIENT CALCULATIONS
WITH SPREADER SETTINGS

Product	Low Rate	Medium Rate	High Rate
12-0-12	4.1 lbs/M	6.2 lbs/M	8.3 lbs /M
Lbs Nutrients/M	N: .50 P: .00 K: .50	N: .75 P: .00 K: .75	N: 1.00 P: .00 K: 1.00
Rotary Spreader	Settings	Settings	Settings
Accupro	M	N	O
Earthway 2400	15	16	17
Lesco 00600	18	20	22
Prizelawn	K	L	M
Spyker	5	5.5	6

Note These Setting are approximate. Due to atmospheric conditions and wear on spreaders it is impossible to be 100% accurate, it is wise to set your spreader to a low rate and then measure the coverage of only one pound of turf food. If you are under applying, increase the rate, if you are over applying, decrease the rate. If in doubt, it is better to under-apply than to over-apply and use formulations with more controlled releases, especially during hot dry conditions.

Directions – Please Read Carefully Before Using

General Information

This product is a highly versatile premium mini-sized fertilizer
that is ideal for the nutrient demands of top quality turf management. The precise balance of nutrients promotes a superior, sustained color response that produces the visual appeal turf professionals desire.

How to Use*

For optimum performance, begin spring applications just before soil temperatures reach 50 degrees F. Although nitrogen can be applied at the rate of 1.0 lb Per 1,000 sq ft every 8 weeks, it is also recommended that lighter, half-rate applications be made each month, especially during hot, dry periods. Continue scheduled feedings throughout the growing season until soil temperature retreats to below 50 degrees F. Late fall and dormant feedings are recommended after soil temperatures remain below 50 degrees F for several consecutive days and turf growth has slowed considerably.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.

*Southern turf grasses, including St. Augustine and hybrid Bermuda grasses may require higher levels of nitrogen for optimum performance.

Do not apply to any lawns that are flooded, frozen or snow covered.
DO NOT APPLY NEAR WATER, STORM DRAINS, OR DRAINAGE DITCHES. DO NOT APPLY IF HEAVY RAIN IS EXPECTED. APPLY THIS PRODUCT ONLY TO YOUR LAWN/GARDEN, AND SWEEP ANY PRODUCT THAT LANDS ON THE DRIVEWAY, SIDEWALK, OR STREET, BACK ONTO YOUR LAWN/GARDEN.

Information regarding the contents and levels of metals in this product is available on the Internet at http://www.aapfco.org/metals.htm

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes, flush with plenty of water.

MANUFACTURED AND GAURANTEED BY
VOGEL SEED & FERTILIZER INC
1891 SPRING VALLEY ROAD
JACKSON, WI 53037

Plant Nutrient
18-0-6

GUARANTEED ANALYSIS

Total Nitrogen (N) 18.00%
0.78% Water Insoluble Nitrogen
17.04% Urea Nitrogen*
0.18% Other Water Soluble Nitrogen

Soluble Potash (K_2O) 6.00%
Sulfur (S) 2.38%
Iron (Fe) 4.00%

*3.60% Slowly available nitrogen from polymer coated urea.

Derived From:
Bio-Solids, Sulfate of Potash, Urea, Polymer Coated Urea, and Iron Oxide.
Salt Index: 35.00 Bulk Density: 63.00
50 lbs. Covers 9,000 sq. ft.
(These rates equal 1 lb. nitrogen per 1,000 sq. ft.)

Item Number: 6000582

NUTRIENT CALCULATIONS WITH SPREADER SETTINGS

Product	Low Rate	Medium Rate	High Rate
18-0-6	2.7 lbs/M	4.1 lbs/M	5.5 lbs /M
Lbs Nutrients/M	N: 0.50 K_2O 0.16	N: 0.75 K_2O: 0.25	N: 1.00 K_2O: 0.33
Rotary Spreader	Settings	Settings	Settings
Accupro	K	L	N
Earthway 2400	13	14	16
Lesco 00600	16	18	20
Prizelawn	I	J	L
Spyker	4.5	5	5.5

Note: These Setting are approximate. Due to atmospheric conditions and wear on spreaders it is impossible to be 100% accurate, it is wise to set your spreader to a low rate and then measure the coverage of only one pound of turf food. If you are under applying, increase the rate, if you are over applying, decrease the rate. If in doubt, it is better to under-apply than to over-apply and use formulations with more controlled releases, especially during hot dry conditions.

Directions – Please Read Carefully Before Using

General Information
This product is a highly versatile premium mini-sized fertilizer that is ideal for the nutrient demands of top quality turf management. These nutrients promote a superior, sustained color response that produces the visual appeal turf professionals desire.

How to Use*
For optimum performance, begin spring applications just before soil temperatures reach 50 degrees F. Although nitrogen can be applied at the rate of 1.0 lb Per 1,000 sq ft every 8 weeks, it is also recommended that lighter, half-rate applications be made each month, especially during hot, dry periods. Continue scheduled feedings throughout the growing season until soil temperature retreats to below 50 degrees F. Late fall and dormant feedings are recommended after soil temperatures remain below 50 degrees F for several consecutive days and turf growth has slowed considerably.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.
*Southern turf grasses, including St. Augustine and hybrid Bermuda grasses may require higher levels of nitrogen for optimum performance.

Do not apply to any lawns that are flooded, frozen or snow covered.

DO NOT APPLY NEAR WATER, STORM DRAINS, OR DRAINAGE DITCHES. DO NOT APPLY IF HEAVY RAIN IS EXPECTED. APPLY THIS PRODUCT ONLY TO YOUR LAWN/GARDEN, AND SWEEP ANY PRODUCT THAT LANDS ON THE DRIVEWAY, SIDEWALK, OR STREET, BACK ONTO YOUR LAWN/GARDEN.

Information regarding the content and levels of metals in this product is available on the internet at: http://www.aapfco.org/metals.htm

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes flush with plenty of water.

MANUFACTURED AND GUARANTEED BY:
VOGEL SEED & FERTILIZER INC.
1891 SPRING VALLEY ROAD
JACKSON, WI 53037

NaturaLawn of America Plus .29 Prodiamine

18-0-6

Guaranteed Fertilizer Analyses:

Total Nitrogen (N).. 18.00%

17.20% Urea Nitrogen*

00.15% Slowly Available Water Soluble Nitrogen

00.65% Water Insoluble Nitrogen

Soluble Potash (K_2O).. 6.00%

Derived From: Bio-Solids, Sulfate of Potash, and Urea, Polymer Coated Urea

*The Urea in this product has been coated to provide 3.60% Slow-Release Nitrogen.

For selective preemergence control of grass and broadleaf weeds in:
- Established Turf Grasses (excluding golf course putting greens) and lawns

Active Ingredient:

Prodiamine [N³,N³-Di-n-propyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine 0.29%

[illegible]ned ingredients 99.71%

Total 100.00%

KEEP OUT OF REACH OF CHILDREN

CAUTION

See the following section, Precautionary Statements, Hazards to Humans and Domestic Animals, for additional information.

EPA Reg. No. 60063-41-41124

EPA Est. Nos. 41124-WI-1 41124-OH-1 045719-PA-003

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

FIRST AID

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a Poison Control Center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible. Call a poison control center, or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center, or doctor, or going for treatment. You may also call 1-800-858-7378 for emergency medical treatment information.

ENVIRONMENTAL HAZARDS

This product has low solubility in water. At the limits of solubility, this product is not toxic to fish. However, at concentrations above the level of water solubility, it may be toxic to fish. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Sweeping any product that lands on a driveway, sidewalk, or street, back onto the treated area of the lawn or garden will help to prevent run off to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

This product is a selective pre-emergence herbicide that provides residual control of many grass and broadleaf weeds in:
- Established turf grasses (excluding golf course putting greens) and lawns

This product controls susceptible weeds by inhibiting weed seeds germination and root development. Most effective weed control will be obtained when it is activated by at least 1/2 inch of rainfall, irrigation, or shallow (1 to 2 inches) incorporation, prior to weed seed germination and within 14 days following application.

Not for use on plants being grown for: (1) Sale or other commercial use, (2) for commercial seed production, or (3) for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in ornamental gardens or parks, or on golf courses or lawns and grounds.

Do not graze or feed livestock forage cut from areas treated with this product. Do not apply aerially. Do not apply to golf course putting greens. Do not apply this product through any type of irrigation system.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

WEEDS CONTROLLED

When used in accordance with this label this product will provide control of the following weeds:

Barnyardgrass	Kochia
Bluegrass, Annual (*Poa annua*)	Lambsquarter, common
Carpetweed	Lovegrass
Chickweed, common	Panicum (Texas, Fall, Browntop)
Chickweed, mouse ear (from seed)	Pigweed
Crabgrass (large, smooth)	Purslane, common
Crowfootgrass	Pusley, Florida
Cupgrass, Woolly	Rescuegrass[2]
Foxtails, Annual	Shepherd's Purse[2]
Goosegrass[1]	Signalgrass, Broadleaf
Henbit	Speedwell, Persian
Itchgrass	Sprangletop
Johnsongrass (from seed)	Spurge, Prostrate
Junglerice	Witchgrass
Knotweed	Woodsorrel, Yellow (from seed)

[1]In many areas a single application of 0.65 lb. to 1.5 lb. active ingredient per acre (equal to 5.1 to 11.0 lbs./1000 sq.ft. of this product) will control goosegrass. However, under heavy goosegrass pressure and/or an extended growing season, most effective weed control may be obtained by making an initial application of 0.65 lb. to 1.0 lb. a.i. per acre (equal to 5.1 to 7.9 lbs./1000 sq.ft. of this product) followed after 60 to 90 days by a second application at doses that would not exceed those given in the **Maximum Annual Rate Table**. Do not exceed the maximum rate for turf grass species listed in the **Maximum Annual Rate Table** above.

[illegible] late summer, fall, or winter prior to germination.

[2]Suppression only. Sequential applications may be made so long as the total amount of product applied does not exceed the maximum annual application rates recommended for each turf species. All applications must be made prior to germination of the weed seeds.

APPLICATION DIRECTIONS

Apply uniformly with suitable, calibrated application equipment.

ESTABLISHED TURF:

This product is a selective pre-emergence herbicide that, when properly applied, will control certain grass and broadleaf weeds in established turf grasses and lawns. The maximum amount of this product that may be applied per year is given for each turf grass species in the Maximum Annual Rates section of this label. Most effective weed control in turf grasses will be obtained when this product is activated by at least 0.5 inches of rainfall or irrigation prior to weed seed germination and within 14 days following application. See the map below for approximate crabgrass seed germination dates.

CRABGRASS SEED GERMINATION DATES

Approximate Date
- After May 30
- After May 10
- After April 20
- After March 20
- January 1 to March 20

USE PRECAUTIONS: The following precautions apply to the use of this product in turf grasses and lawns. (1) Application of this product may thin emerged annual bluegrass and newly overseeded grasses. (2) Do not apply to overseeded turf within 60 days after seeding or until after the second mowing, whichever is longer. Injury to desirable seedlings is likely if this product is applied before seedling secondary roots are in the second inch of soil, not thatch plus soil. (3) Do not cut (harvest) treated sod before 120 days after application. Do not apply to newly cut sod until the following year. (4) Application of this product to turf stressed by drought, low fertility, or pest damage may result in turf injury. (5) Disturbing the herbicide barrier with cultural practices such as disking may result in reduced weed control. (6) Do not apply this product to putting greens or areas where dichondra, colonial bentgrass, velvet bentgrass or annual bluegrass (*Poa annua*) are desirable species.

RATES OF APPLICATION

This product may be applied as a single application or in sequential applications to control weeds germinating throughout the year. All applications must be made prior to germination of the target weeds. This product will not control established weeds. Maximum use rate selection should be based on turf species. The length of time of residual weed control provided by this product is related to the rate applied.

MAXIMUM ANNUAL RATES

This product is recommended for use on the turf grass species listed in the following table. Do not exceed the maximum yearly rate as given in the following table.

Maximum Application Rate/Calendar Year of turf fertilizer by turf grass species[1]			
Turf Species	Lbs. Product/A	Lbs. Product /1000 sq.ft.	Lbs. a.i./A
Creeping Bentgrass	224	5.1	0.65
Creeping Red Fescue	259	5.9	0.75
Buffalograss Kentucky Bluegrass Perennial Ryegrass	345	7.9	1.0
Bermudagrass[2] Bahagrass Centipedegrass Seashore Paspalum St. Augustinegrass Tall Fescue (including turf-type) Zoysia	517	11.9	1.5

[1]These are the maximum rates per calendar year by species limitations.

[2]May be used on newly sprigged or plugged Bermudagrass at rates not to exceed 0.5 lb. a.i./acre (equal to 4.0lbs./1000 sq. ft.). Newly sprigged or plugged Bermudagrass stolon rooting may be temporarily retarded. Suppression only of Foxtail, Goosegrass, and Rescuegrass due to reduced product rates used in sprigging situations.

- Do not apply more than 1.5 lbs. a.i. per calendar year per acre (equal to 11.9 lbs./ 1000 sq ft.). Use higher rates of this product to achieve higher levels of fertility and longer periods of weed control for each turf type, but do not exceed the maximum application rates specified in the Maximum Annual Rates Table.

WHEN TO APPLY AFTER OVERSEEDING TURF

Do not apply to overseeded turf within 60 days after seeding or until after the second mowing, whichever is longer. Injury to desirable seedlings is likely if this product is applied before seedling secondary roots are in the second inch of soil, not thatch plus soil.

WHEN TO OVERSEED AFTER APPLICATION

This product will inhibit the germination of turf species if overseeded too soon after application. Follow rates and intervals in the following table below for best overseeding/reseeding results.

LBs Product/Acre	LBs Product/1000 sq.ft.	LBs ai/A	Months Before Overseeding		
			North	Transition	South
172	4.0	0.50	4	4	4
224	5.1	0.65	5	4	4
259	5.9	0.75	6	5	5
276	6.3	0.80	-	6	6
345	7.9	1.00	-	7	7
393	9.0	1.14	-	-	9
449	10.3	1.30	-		10
517	11.9	1.50	-	-	12

SPREADER SETTINGS

Spreader settings vary by make and model of spreader. It is recommended that individual spreaders are calibrated for the specific product that is to be applied. A walking speed of 3 miles per hour is recommended.

Spreader Model	SPREADER SETTINGS			
	Application Rates[1] a.i. lbs./Acre (Product lbs./1000 sq ft)			
	0.5 (4.0)	0.75 [illegible]	1.0[2] [illegible]	1.5[2] (11.9)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[1]Application rates are to be applied [illegible] the recommended a.i./acre rates. For example apply the .5 rate twice to achieve the 1.0 rate.

[2]Application rate for example only - do not exceed the maximum annual application rate of 1.5 lb a.i./Acre (11.9 lb product/1000 sq ft).

STORAGE AND DISPOSAL

STORAGE: Store this product in its original container in a dry, cool, secured area. Do not contaminate water, foodstuffs, feed, or seed by storage or disposal.

PRODUCT DISPOSAL: As a responsible environmental practice, where possible, it is recommended that all of the contents of the bag be used, carefully following label directions and precautions.

CONTAINER DISPOSAL: Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned stay out of smoke.

CONDITIONS OF SALE AND WARRANTY

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of Vogel Seed and Fertilizer or the Seller. All such risks shall be assumed by the Buyer. To the extent consistent with applicable law, Vogel Seed and Fertilizer warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use subject to the inherent risks referred to above. To the extent consistent with applicable law, Vogel Seed and Fertilizer makes no other express or implied Warranty of Fitness or Merchantability or any other express or implied warranty. To the extent consistent with applicable law, in no case shall Vogel Seed and Fertilizer or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this Product. To the extent consistent with applicable law, Vogel Seed and Fertilizer and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing Conditions of Sale and Warranty, which may be varied only by agreement in writing signed by a duly authorized representative of Vogel Seed and Fertilizer.

NET WEIGHT: 50 pounds (22.7kg.)

Item # 4106005 110513 re

MANUFACTURED BY:

Vogel Seed & Fertilizer, Inc.
1891 Spring Valley Road
Jackson, WI 53037

Naturalawn of America Plus .42 Prodiamine

22-0-4

Guaranteed Analysis

Total Nitrogen (N)	22.00%
3.29% Ammoniacal Nitrogen	
17.91% Urea Nitrogen*	
0.15% Slowly Available Water Soluble Nitrogen†	
0.65% Water Insoluble Nitrogen	
Soluble Potash (K_2O)	4.00%
Sulfur (S)	5.41%
Iron (Fe)	1.00%

Derived From: Ammonium Sulfate, Biosolids, Iron Oxide, Polymer-Coated Urea, Sulfate of Potash

*9.00% Slowly Available Nitrogen from Polymer coated Urea

†0.15% Slowly Available Water Soluble Nitrogen from Bio-solids

Information regarding the contents and levels of metals in this product is available on the Internet at http://www.aapfco.org/metals.htm

Feeds your lawn up to 3 months

For selective preemergence control of grass and broadleaf weeds in:
- Established Turf Grasses (including golf course putting greens) and lawns

Active Ingredient:

Prodiamine, [N³,N³-Di-n-propyl-2,4-dinitro-6-(trifluoromethyl)-m-phenylenediamine	0.42%
Inert Ingredients:	99.58%
Total	100.00%

KEEP OUT OF REACH OF CHILDREN

CAUTION

See the following section, Precautionary Statements, Hazards to Humans and Domestic Animals, for additional information.

EPA Reg. No 60063-43-41124

EPA Est. Nos. 41124-WI-1 41124-OH-1 045719-PA-005

First letter of production batch code indicates producing establishment

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a Poison Control Center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center, or doctor, or when going for treatment. You may also call 1-800-858-7378 for emergency medical treatment advice.

ENVIRONMENTAL HAZARDS

This product has low solubility in water. At the limits of solubility, this product is not toxic to fish. However at concentrations above the level of water solubility it may be toxic to fish. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Sweeping any product that lands on a driveway, sidewalk, or street, back onto the treated area of the lawn or garden will help to prevent run off to water bodies or drainage systems.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. This product is a selective preemergence herbicide that provides residual control of many grass and broadleaf weeds in:
- Established turf grasses (including golf course putting greens) and lawns

This product controls susceptible weeds by inhibiting weed seeds germination and root development. Most effective weed control will be obtained when it is activated by at least 1/2 inch of rainfall, irrigation, or shallow (1 to 2 inches) incorporation, prior to weed seed germination and within 14 days following application.

Not for use on plants being grown for: (1) Sale or other commercial use, (2) for commercial seed production or (3) for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in ornamental gardens or parks, or on golf courses or lawns and grounds.

Do not graze or feed livestock forage cut from areas treated with this product. Do not apply aerially. Do not apply to golf course putting greens. Do not apply this product through any type of irrigation system.

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR WEED CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

WEEDS CONTROLLED

When used in accordance with this label this product will provide control of the following weeds:

Barnyardgrass	Kochia
Bluegrass, Annual (Poa annua)	Lambsquarter, common
Carpetweed	Lovegrass
Chickweed, common	Panicum (Texas, Fall, Browntop)
Chickweed, mouse ear (from seed)	Pigweed
Crabgrass (large, smooth)	Purslane, common
Crowfootgrass	Pusley, Florida
Cupgrass, Woolly	Rescuegrass²
Foxtails, Annual	Shepherd's Purse²
Goosegrass	Signalgrass, Broadleaf
Henbit	Speedwell, Persian
Itchgrass	Sprangletop
Johnsongrass (from seed)	Spurge, Prostrate
Junglerice	Witchgrass
Knotweed	Woodsorrel, Yellow (from seed)

[illegible]

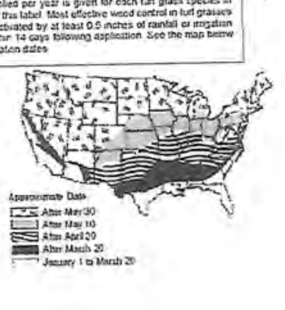
APPLICATION DIRECTIONS

Apply uniformly with suitable calibrated application equipment.

ESTABLISHED TURF:

This product is a selective preemergence herbicide that, when properly applied, will control certain grass and broadleaf weeds in established turf grasses and lawns. The maximum amount of this product that may be applied per year is given for each turf grass species in the Maximum Annual Rates section of this label. Most effective weed control in turf grasses will be obtained when this product is activated by at least 0.5 inches of rainfall or irrigation prior to weed seed germination and within 14 days following application. See the map below for approximate crabgrass seed germination dates.

CRABGRASS SEED GERMINATION DATES



USE PRECAUTIONS: The following precautions apply to the use of this product in turf grasses and lawns. (1) Application of this product may thin emerged annual bluegrass and newly overseeded grasses. (2) Do not apply to overseeded turf within 60 days after seeding or until after the second mowing, whichever is longer. Injury to desirable seedlings is likely if this product is applied before seedling secondary roots are in the second inch of soil, not thatch plus soil. (3) Do not cut (harvest) treated sod before 120 days after application. Do not apply to newly set sod until the following year. (4) Application of this product to turf stressed by drought, low fertility, or pest damage may result in turf injury. (5) Disturbing the herbicide barrier with cultural practices such as disking may result in reduced weed control. (6) Do not apply this product to putting greens or areas where dichondra, colonial bentgrass, velvet bentgrass or annual bluegrass (Poa annua) are desirable species.

RATES OF APPLICATION

This product may be applied as a single application or in sequential applications to control weeds germinating throughout the year. All applications must be made prior to germination of the target weeds. This product will not control established weeds. Maximum use rate selection should be based on turf species. The length of time of residual weed control provided by this product is related to the rate applied.

MAXIMUM ANNUAL RATES

This product is recommended for use on the turf grass species listed in the following table. Do not exceed the maximum yearly rate as given in the following table.

Maximum Application Rate/Calendar Year of turf fertilizer by turf grass species⁽¹⁾			
Turf Species	Lbs. Product/A	Lbs. Product /1000 sq.ft.	Lbs. a.i./A
Creeping Bentgrass	165	3.8	0.65
Creeping Red Fescue	179	4.1	0.75
Buffalograss Kentucky Bluegrass Perennial Ryegrass	238	5.5	1.0
Bermudagrass⁽²⁾ Bahiagrass Centipedegrass Seashore Paspalum St. Augustinegrass Tall Fescue (including turf-type) Zoysia	357	8.2	1.5

¹These are the maximum rates per calendar year by species limitations.
²May be used on newly sprigged or plugged Bermudagrass at rates not to exceed 0.5 lb. a.i./acre (equal to 2.7 lbs/1000 sq. ft. of this product.). Newly sprigged or plugged Bermudagrass stolon rooting may be temporarily retarded. Suppression only of Foxtail, Goosegrass, and Rescuegrass due to reduced product rates used in sprigging situations.

- Do not apply more than 1.5 lbs. a.i. per calendar year per acre (equal to 8.2 lbs / 1,000 sq. ft. of this product.)
- Use higher rates of this product to achieve higher levels of fertility and longer periods of weed control for each turf type, but do not exceed the maximum application rates specified in the Maximum Annual Rates Table.

WHEN TO APPLY AFTER OVERSEEDING TURF

Do not apply to overseeded turf within 60 days after seeding or until after the second mowing, whichever is longer. Injury to desirable seedlings is likely if this product is applied before seedling secondary roots are in the second inch of soil, not thatch plus soil.

WHEN TO OVERSEED AFTER APPLICATION

This product will inhibit the germination of turf species if overseeded too soon after application. Follow rates and intervals in the following table below for best overseeding/reseeding results.

LBs Product/Acre	LBs Product/1000 sq.ft.	LBs ai/A	Months Before Overseeding: North	Transition	South
110	2.7	0.50	4	4	4
155	3.6	0.65	5	4	4
179	4.1	0.75	6	5	5
190	4.4	0.80	-	6	6
238	5.5	1.00	-	7	7
271	6.2	1.14	-	-	9
310	7.1	1.30	-	-	10
357	8.2	1.50	-	-	12

SPREADER SETTINGS

Spreader settings vary by make and model of spreader. It is recommended that individual spreaders are calibrated for the specific product that is to be applied. A walking speed of 3 miles per hour is recommended.

Spreader Model	SPREADER SETTINGS			
	[illegible]			
	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	D	F	D	F
[illegible]	D	F	D	H

[illegible]

STORAGE AND DISPOSAL

STORAGE: Store this product in its original container in a dry, cool, secured area. Do not contaminate water, foodstuffs, feed, or seed by storage or disposal.

PRODUCT DISPOSAL: As a responsible environmental practice, where possible, it is recommended that all of the contents of the bag be used, carefully following label directions and precautions.

CONTAINER DISPOSAL: Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned stay out of smoke.

CONDITIONS OF SALE AND WARRANTY

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of Vogel Seed and Fertilizer or the Seller. All such risks shall be assumed by the Buyer. To the extent consistent with applicable law, Vogel Seed and Fertilizer warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use subject to the inherent risks referred to above. To the extent consistent with applicable law, Vogel Seed and Fertilizer makes no other express or implied Warranty of Fitness or Merchantability or any other express or implied warranty. To the extent consistent with applicable law, in no case shall Vogel Seed and Fertilizer or the Seller be liable for consequential, special, or indirect damages resulting from the use or handling of this Product. To the extent consistent with applicable law, Vogel Seed and Fertilizer and the Seller offer this product, and the Buyer and user accept it, subject to the foregoing Conditions of Sale and Warranty, which may be varied only by agreement in writing signed by a duly authorized representative of Vogel Seed and Fertilizer.

NET WEIGHT: 50 pounds (22.7kg.)

Item # 4106010 110513 re

Manufactured and Guaranteed by:

Vogel Seed & Fertilizer, Inc
1891 Spring Valley Road
Jackson, WI 53037

W119114 2A

Plant Nutrient
30-0-4

Directions – Please Read Carefully Before Using

GUARANTEED ANALYSIS

Total Nitrogen (N) 30.00%
29.20% Urea Nitrogen
0.65% Slowly Available Water Soluble Nitrogen*
0.15% Water Insoluble Nitrogen
Soluble Potash (K_2O) 4.00%
Sulfur (S) 1.64%
Iron (Fe) 0.40%

Derived From: Bio-solids, Sulfate of Potash, and Urea.
* Slowly Available Water Soluble Nitrogen from Bio-solids.

Salt Index: 53.00 Bulk Density: 54.00
Net Weight 50 lbs (22.70 kg)
50 lbs. Covers 15,000 sq. ft.
(These rates equal 1 lb. nitrogen per 1,000 sq. ft.)

Item Number: 4109035

NUTRIENT CALCULATIONS WITH SPREADER SETTINGS

Product	Low Rate	Medium Rate	High Rate
30-0-4	1.66 lbs/M	2.50 lbs/M	3.33 lbs /M
Lbs Nutrients/M	N: .50 P: .00 K: .06	N: .75 P: .00 K: .10	N: 1.00 P: .00 K: .13
Rotary Spreader	Settings	Settings	Settings
Accupro	I	J	K
Earthway 2400	11	12	13
Lesco 00600	13	14	16
Prizelawn	G	H	I
Spyker	4	4.5	5

Note These Setting are approximate. Due to atmospheric conditions and wear on spreaders it is impossible to be 100% accurate, it is wise to set your spreader to a low rate and then measure the coverage ofonly one pound of turf food. If you are under applying, increase the rate, if you are over applying, decrease the rate. If in doubt, it is better to under-apply than to over-apply and use formulations with more controlled releases, especially during hot dry conditions.

General Information

This product is a highly versatile premium mini-sized fertilizer that is ideal for the nutrient demands of top quality turf management. These nutrients promote a superior, sustained color response that produces the visual appeal turf professionals desire.

How to Use*

For optimum performance, begin spring applications just before soil temperatures reach 50 degrees F. Although nitrogen can be applied at the rate of 1.0 lb Per 1,000 sq ft every 8 weeks, it is also recommended that lighter, half-rate applications be made each month, especially during hot, dry periods. Continue scheduled feedings throughout the growing season until soil temperature retreats to below 50 degrees F. Late fall and dormant feedings are recommended after soil temperatures remain below 50 degrees F for several consecutive days and turf growth has slowed considerably.

Apply product evenly with a calibrated spreader. For best results, irrigating after applications will aid in granule penetration in close-cut dense turf. Removing grass catchers for initial mowing will minimize particle pick-up.

*Southern turf grasses, including St. Augustine and hybrid Bermuda grasses may require higher levels of nitrogen for optimum performance.

Do not apply to any lawns that are flooded, frozen or snow covered.
DO NOT APPLY NEAR WATER, STORM DRAINS, OR DRAINAGE DITCHES. DO NOT APPLY IF HEAVY RAIN IS EXPECTED. APPLY THIS PRODUCT ONLY TO YOUR LAWN/GARDEN, AND SWEEP ANY PRODUCT THAT LANDS ON THE DRIVEWAY, SIDEWALK, OR STREET, BACK ONTO YOUR LAWN/GARDEN.

Information regarding the contents and levels of metals in this product is available on the Internet at http://www.aapfco.org/metals.htm

KEEP OUT OF REACH OF CHILDREN

Caution: May cause irritation. On Contact with skin or eyes, flush with plenty of water.

MANUFACTURED AND GAURANTEED BY:
VOGEL SEED & FERTILIZER INC.
1891 SPRING VALLEY ROAD
JACKSON, WI 53037

Connie Bollin

To:Registrations <registrations@springvalleyusa.com>
Cc:Randy Sweeney <rsweeney@naturalawn.com>;Karen Hartung <khartung@naturalawn.com>

Mon 9/30/2024 1:35 PM

Richard,

Thank you for your time this afternoon to go over the label revisions. I certainly appreciate your help on that end!

God bless,

Connie Bollin
Regulatory Reporting Manager
OT & T Inc/AG-Analysis LLC
connie@nutri-pel.com
mrscsb500@gmail.com
219-226-5654

From: Registrations <registrations@springvalleyusa.com>
Sent: Monday, September 30, 2024 1:01 PM
To: Connie Bollin
Cc: Randy Sweeney; Karen Hartung
Subject: Re: Questions on NLA Registrations for DE

Hi Connie,

I'll use your label list as a guide to get these modifications in order. It will take some time to get the labels edited but will provide them as soon as possible.

Richard

Registration Agents

registrations@springvalleyusa.com

Vickie Runkle
574-207-3044

Richard Karr
262-677-2273

Kim MacMillan
574-249-8168

Representing:

Vogel Seed & Fertilizer, LLC
1891 Spring Valley Rd.
Jackson, WI 53037

Rapid Plant Nutrients, LLC
7 Renaissance Square, 7th Floor
White Plains, NY 10601

_____
From: Connie Bollin <connie@nutri-pel.com>
Sent: Monday, September 30, 2024 1:00 PM
To: Registrations <registrations@springvalleyusa.com>
Cc: Randy Sweeney <rsweeney@naturalawn.com>; Karen Hartung <khartung@naturalawn.com>
Subject: Re: Questions on NLA Registrations for DE

CAUTION: This e-mail was sent from outside the Organization. Exercise caution before clicking on any links or attachments

Richard,

I have been reviewing these labels I received from NaturaLawn this morning for DE EPA compliance and 9 of these labels need to have the statement "Biosolids generated by Metropolitan Biosolids Management LLC (MBM LLC), 6001 W Pershing Road, Cicero, IL 60804" on their labels. The 0-0-50 PLANT NUTRIENT label needs to have:

All labels containing biosolids must include the following statements/information.:

120.5.1 It shall identify the product as containing sludge and provide the name and address of the preparer.

120.5.2 Provide information on essential plant nutrient content and instructions for proper use on different plant types, soils and slopes, maximum loading rates (such as number of square feet per bag, ratio of sludge to soil in sludge-soil mixture, etc.).

120.5.3 For sludge or sludge products for general distribution to the public which contain more than 4 percent iron on a dry weight basis, it shall warn against using the sludge or sludge product on pasture land.

120.5.4 Describe proper procedures for storage and stockpiling of the material.

120.5.5 A statement indicating that the product should not be applied to any site that is flooded, frozen or snow covered, and identify any unacceptable uses of the material.

120.5.6 Shall include a statement that land application of sewage sludge is prohibited except in accordance with the instructions on the label or information sheet.

I am attaching the labels I am referring to for NaturaLawn of America, would you please correct these labels according to the EPA requirements and send them back to me as soon as possible? So sorry to request this last minute. I didn't know about this label requirement until Saturday

afternoon.

Humbly,

Connie Bollin
Regulatory Reporting Manager
OT & T Inc/AG-Analysis LLC
connie@nutri-pel.com
mrscsb500@gmail.com
219-226-5654

FERTILIZER BLENDERS

NATURALAWN OF AMERICA - LIST OF BLENDERS

NaturaLawn of America primarily uses Vogel Seed and Fertilizer c/o Timac in Reading, PA, but in case the need should arise to use a different blending location, we have included three of their locations in this permit application.

Vogel Seed and Fertilizer c/o Timac
153 Angstadt Lane
Reading, PA 19607

Vogel Seed & Fertilizer
1891 Spring Valley
Jackson, WI 53037

Vogel Seed & Fertilizer
22472 State Road, 12 West
Fostoria, OH 44830

NaturaLawn of America keeps records of distribution of product from Dagsboro and Wilmington. These records are available upon request.

DE DEPT OF AGRICULTURE

FERTILIZER REGISTRATIONS

VOGEL SEED FOR NATURALAWN OF AMERICA

STATE OF DELAWARE
DEPARTMENT OF AGRICULTURE

SECRETARY
MICHAEL T. SCUSE

AGRICULTURE COMPLIANCE SECTION
2310 SOUTH DUPONT HIGHWAY
DOVER, DELAWARE 19901

DDA.DELAWARE.GOV
Phone: (302) 698-4524
Toll Free: (800) 282-8685
FAX: (302) 697-6287
Email:
Leanne.Garrett@delaware.gov

Vogel Seed & Fertilizer, LLC

1891 Spring Valley RD

Jackson, WI 53037

Certificate Date:11/7/2023

DELAWARE CERTIFICATE OF COMMERCIAL FERTILIZER AND SOIL CONDITIONERS REGISTRATION

Company Information

Company:	Vogel Seed & Fertilizer, LLC	**Company ID:**	100242442
Contact:	Registration Agent	**Email:**	registrations@springvalleyusa.com
Phone:	262-677-2273	**Fax:**	

This certifies that the annual registration fees have been paid on the below products and the registrant is entitled to sell these for a period beginning with the Date Approved and ending on the Expiration Date, unless canceled.

Product Name	Type	% N	% P	% K	State ID	Status	Date Approved	Expiration Date
Burpee Enhanced Organic All Purpose Plant Food 5-5-5	NF	5.00	5.00	5.00	200197162	approved	11/8/2023	12/31/2024
Burpee Enhanced Organic Rose + Bloom Plant Food 4-6-4	NF	4.00	6.00	4.00	200197164	approved	11/8/2023	12/31/2024
Burpee Enhanced Organic Tomato + Edibles Plant Food 8-4-4	NF	8.00	4.00	4.00	200197166	approved	11/8/2023	12/31/2024
Burpee Natural & Organic All Purpose Granular Plant Food 4-4-4	NF	4.00	4.00	4.00	200197168	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Blood Meal 12-0-0	NF	12.00	0.00	0.00	200197170	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Bone Meal 6-8-0	NF	6.00	8.00	0.00	200197172	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Coconut Coir	NF	0.00	0.00	0.00	200197188	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Concentrated Seed Starting Mix	NF	0.00	0.00	0.00	200197190	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Premium Potting Mix 0.12-0.12-0.12	NF	0.12	0.12	0.12	200197174	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Rose + Bloom Granular Plant Food 4-6-4	NF	4.00	6.00	4.00	200197176	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Seed Starting Mix 0.06-0.03-0.03	NF	0.06	0.03	0.03	200197178	approved	11/8/2023	12/31/2024
Burpee Natural & Organic Tomato + Vegetable Granular Plant Food 3-6-4	NF	3.00	6.00	4.00	200197180	approved	11/8/2023	12/31/2024
Burpee Vermiculite	NF	0.00	0.00	0.00	200197192	approved	11/8/2023	12/31/2024
Expert Gardener Organics All-Purpose Plant Food 4-4-4	NF	4.00	4.00	4.00	200197182	approved	11/8/2023	12/31/2024

Product Name	Type	% N	% P	% K	State ID	Status	Date Approved	Expiration Date
Expert Gardener Organics Vegetable & Tomato Food 3-5-6	NF	3.00	5.00	6.00	200197186	approved	11/8/2023	12/31/2024
Expert Gardener Organics™ Chicken Manure All-Natural Plant Food 3-3-2	NF	3.00	3.00	2.00	200197184	approved	11/8/2023	12/31/2024
Naturalawn of America Plant Nutrient 10-0-18 (2264210DE) REV	NF	10.00	0.00	18.00	200159088	approved	11/8/2023	12/31/2024
Naturalawn of America Plant Nutrient 18-0-6 (6000582DET) REV	NF	18.00	0.00	6.00	200159092	approved	11/8/2023	12/31/2024
Naturalawn of America Plant Nutrient 30-0-4 (4109035)	NF	30.00	0.00	4.00	200163472	approved	11/8/2023	12/31/2024
Naturalawn Plant Nutrient 10-15-5 (4101750DET) REV	NF	10.00	15.00	5.00	200159090	approved	11/8/2023	12/31/2024
Naturalawn Plant Nutrient 12-0-12 (4101010DET)	NF	12.00	0.00	12.00	200133072	approved	11/8/2023	12/31/2024
Naturalawn Plus .29 Prodiamine 18-0-6 (4106005DET)	NF	18.00	0.00	6.00	200133014	approved	11/8/2023	12/31/2024
NLA Plant Nutrient 0-0-50 (2000600)	NF	0.00	0.00	50.00	200170634	approved	11/8/2023	12/31/2024
NLA Plant Nutrient 10-0-12 (2264250)	NF	10.00	0.00	12.00	200170624	approved	11/8/2023	12/31/2024
Spring Valley Plant Nutrient 18-24-12 (2041780)	NF	18.00	24.00	12.00	200195946	approved	11/8/2023	12/31/2024
Spring Valley Plant Nutrient 19-0-19 (2200006)	NF	19.00	0.00	19.00	200195948	approved	11/8/2023	12/31/2024
Spring Valley Plant Nutrient 22-0-4 (2017538)	NF	22.00	0.00	4.00	200133020	approved	11/8/2023	12/31/2024
Spring Valley plus .17 Dimension 15-0-2 (2015842T)	NF	15.00	0.00	2.00	200193340	approved	11/8/2023	12/31/2024
Spring Valley plus .42 Prodiamine 18-0-5 (2078763)	NF	18.00	0.00	5.00	200190820	approved	11/8/2023	12/31/2024
Spring Valley Plus .42 Prodiamine 22-0-4 (4106010) REV	NF	22.00	0.00	4.00	200159094	approved	11/8/2023	12/31/2024

Approved By:

Justin Lontz
Laboratory Manager

The Department will email Tonnage Reporting Forms to those businesses which are subject to the fees.

Please keep the Department informed of any changes in address, contact information, ownership, or any other pertinent information. Any changes to product name and/or analysis must be submitted to the Department for review.

Product Renewal forms will be sent to your business, by the email address on file, prior to expiration.

All updated/revised labels must be submitted for review at: http://kellysolutions.com/erenewals/fertilizer/documentsubmit/

DE DEPT OF AGRICULTURE

TONNAGE REPORT & RECEIPT OF PAYMENT

VOGEL SEED FOR NATURALAWN OF AMERICA

STATE OF DELAWARE

DEPARTMENT OF AGRICULTURE

AGRICULTURE COMPLIANCE SECTION
2310 South DuPont Highway
DOVER, DELAWARE 19901

2024 January to June Commercial Fertilizer & Soil Conditioners Tonnage Reporting Form

Company/Firm Information: (Exact information of the **company listed** on the product label)

Company/Firm Name: Vogel Seed & Fertilizer, LLC

Mailing Address: 1891 Spring Valley Rd City: Jackson

State: WI Zip Code: 53037 Country: USA Phone: 262-677-2273

Contact Name: Kimberly MacMillan Email: registrations@springvalleyusa.com

Registrant Information: (Company, C/O, Person submitting Registration on behalf of Company. **Proof of Registration will be delivered to this address if filled**)

Registrant/Company Name: _____

Mailing Address: _____ City: _____

State: _____ Zip Code: _____ Country: _____ Phone: _____

Contact Name: _____ Email: _____

Tonnage Report Delivery Method

☑ Email ☐ Mail

Tonnage Reporting Product List

Please visit our website at https://agriculture.delaware.gov/agriculture-compliance/.
The pdf Tonnage SubmissionForm and Excel Product List will be available online OR email Ag Compliance at DDA_AgCompliance@delaware.gov for a copy of the forms. No other format will be accepted.

Registration Fees				
Products Available	**Total Tons**	**Fee**	**Totals**	**Please make checks payable to:** **Delaware Department of Agriculture** ****DO NOT FAX****
10 lbs. and under only	16.4084	**No Fee**	**No Fee Owed**	
Over 10 lbs. only	177.225	**x $0.25**	$ 44.31	
Please convert pounds to tons. For example 500 LBS = 0.25 Tons		**Total Due:**	$ 44.31	

The following report is a true statement of all the FERTILIZERS & SOIL CONDITIONERS distributed by this firm in the STATE OF DELAWARE for the semi-annual period of January 1, 2024 to June 30, 2024 required by the Delaware Commercial Fertilizers and Soil Conditioners Law.

Kimberly MacMillan — Authorized Representative (**Please Type Your Name**)

07/08/2024 — Date (mm/dd/yyyy)

Office Use Only

CERTIFICATE OF APPROVAL

Approved By Signature: _____

Date: Processed: _____

Check Payment? ☐ **Yes** ☐ **No** $_____

Check Number: _____

CC Payment? ☐ **Yes** ☐ **No** $_____

Credit Applied? ☐ **Yes** ☐ **No** $_____

2024 January to June Fertilizer & Soil Conditioner Tonnage

Please Type Your Company Name Below

Company Name:

Please convert all pounds to tons. For Example 500 LBS = 0.25 Tons

****If you are reporting ZERO tonnage, you only need to fill out the *Tonnage Reporting Form* ****

Product Name	County Code	10 Pounds & Under Total Tons	Over 10 Pounds Total Tons	Fertilizer Code	N-P-K	Form	Use Code
BURPE NATURAL & ORGANIC SEED STARTING MIX 0.06-0.03-0.03	1 = Kent	5.2884		0	0.06-0.03-0.03	Bag	5 = Potting/Planting Soil
NATURALAWN OF AMERICA PLANT NUTRIENT 10-0-12 (2264250T)	5 = Sussex		19	0	10-0-12	Bag	2 = Non- Farm
NATURALAWN OF AMERICA PLANT NUTRIENT 10-0-12 (2264250T)	3 = New Castle		32.925	0	10-0-12	Bag	2 = Non- Farm
NATURALAWN OF AMERICA PLANT NUTRIENT 10-15-5 (4101750T)	3 = New Castle		15	0	10-15-5	Bag	2 = Non- Farm
NATURALAWN OF AMERICA PLUS .29 PRODIAMINE 18-0-6 (4106005T)	5 = Sussex		29.1	0	18-0-6	Bag	2 = Non- Farm
NATURALAWN OF AMERICA PLUS .29 PRODIAMINE 18-0-6 (4106005T)	3 = New Castle		59.875	0	18-0-6	Bag	2 = Non- Farm
NATURALAWN OF AMERICA PLUS .42 PRODIAMINE 22-0-4 (4106010T)	3 = New Castle		21.325	0	22-0-4	Bag	2 = Non- Farm
EXPERT GARDENER ORGANICS CHICKEN MANURE ALL-NATURAL PLANT FOOD 3-3-2	1 = Kent	1.04		0	3-3-2	Bag	4 = Garden/Landscape
EXPERT GARDENER ORGANICS VEGETABLE & TOMATO FOOD 3-5-6	1 = Kent	5.376		0	3-5-6	Bag	4 = Garden/Landscape
EXPERT GARDENER ORGANICS ALL-PURPOSE PLANT FOOD 4-4-4	1 = Kent	4.704		0	4-4-4	Bag	4 = Garden/Landscape
		16.4084	**177.225**				

Delaware.gov

Delaware Department of Agriculture

(https://delaware.gov)

AG COMPLIANCE (65-01-02)

Successful Payment Receipt

Please print this receipt for your records

Remittance ID:	Agricul070824122330505VRE
Payment ID:	323095267
Received:	July 08, 2024 12:26PM EDT
Individual Name:	Richard Karr
Company Name:	Vogel Seed & Fertilizer, LLC
Contact Number:	262-677-2273
Invoice Number:	00
Contact Address :	1891 Spring Valley Road
City:	Jackson
State:	WI
Zip/Postal Code:	53037
Country:	United States
Description:	Fertilizer Tonage Tax 41302
Amount:	$44.31
Transaction Type:	Authorization and Capture
Card Information:	MasterCard RICHARD KARR **********4019
Billing Information:	Address Line 1: 1891 Spring Valley Road Country: United States City: Jackson State: WI ZIP Code: 53037

Thank you for your payment!

Print Page

IN THIS SECTION:

- BIOSOLIDS RESOURCE-MBM LLC – GENERATOR INFORMATION
- USDA BIOPREFERRED CERTIFICATION & RADIOCARBON REPORT
- MBM LLC-FACILITY CONSTRUCTION (MARCH 2006-March 2007)
- MBM LLC-PROCESS FLOW DIAGRAM
- KEPPEL SEGHERS OPERATOR MANUAL
- INDIRECT DRYING & PELLETIZER VIEWS

BIOSOLIDS RESOURCE

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

GENERATOR INFORMATION

BIOSOLIDS GENERATOR INFORMATION

Metropolitan Biosolids Management LLC (MBM) is a special-purpose entity that was formed to build and operate, under a 20-year service agreement, an "inside-the-fence" facility that processes wastewater sludge from the Metropolitan Water Reclamation District of Greater Chicago.

MBM completed construction of the dryer/pelletizer facility in the fall of 2007 at the Stickney Water Reclamation Plant (WRP) located at 6001 West Pershing Road, Cicero, Illinois. The Stickney WRP is part of the Metropolitan Water Reclamation District of Greater Chicago (MWRD). Veolia Water NA operates MBM. Jon Gibson, of Veolia Water NA is the current General Manager of MBM LLC and oversees the pelletizing process.

The MBM facility can process an average of 150 dry tons of biosolids per day to produce an annual total of as much as 60,000 tons of pelletized biosolids. A map of the Stickney Water Reclamation Plant with MBM indicated in red is shown on the following page. Pictures of the facility being constructed between March 2006- March 2007 which will give insight to how the facility is laid out and constructed, may be viewed in the section following the Generator Information.

The *MBM* facility is comprised of four (4) dryers/processing trains. Each train has a maximum capacity of processing fifty-five (55) dry tons per day, for a total of 220 dry tons. Currently, there are three (3) trains running as one pelletizer is offline for repairs.

Finished pellets are never processed below the regulatory limit. When the pelletizer is secured, the biosolids inside the pelletizer are recirculated upon restarting the pelletizer until they have met time and temperature requirements. If the biosolids must be evacuated from the pelletizer for a maintenance activity, they are discarded into trash bins and disposed of via landfill. Material that does not meet regulatory requirements is considered waste and is not brought to the point of delivery.

Daily composite testing demonstrates the percent change in total solids, while operating data is used to demonstrate the time/temperature regime used by *MBM*.

The Class A EQ pellets (Nutri-Pel®) generated at *MBM LLC are* certified by USDA as BioPreferred® and the certificate and Beta Analytic Analysis can be viewed in the section following Generator Information.

The *MBM* facility is comprised of four (4) dryers/processing trains. Each train has a maximum capacity of processing fifty-five (55) dry tons per day, for a total of 220 dry tons. Currently, there are three (3) trains running as one pelletizer is offline for repairs.

Finished pellets are never processed below the regulatory limit. When the pelletizer is secured, the biosolids inside the pelletizer are recirculated upon restarting the pelletizer until they have met time and temperature requirements. If the biosolids must be evacuated from the pelletizer for a maintenance activity, they are discarded into trash bins and disposed of via landfill. Material that does not meet regulatory requirements is considered waste and is not brought to the point of delivery.

Daily composite testing demonstrates the percent change in total solids, while operating data is used to demonstrate the time/temperature regime used by *MBM*.

Following the Generator Information section, a Process Flow Diagram, *Keppel Seghers* Operator Manual 3.4.1, and several visual aids to explain the indirect drying and to show the pelletizers and how they operate.

USDA

BIOPREFERRED CERTIFICATION

&

BETA ANALYTIC

RADIOCARBON REPORT

USDA
United States Department of Agriculture

BioPreferred
www.biopreferred.gov

Notice of Certification / Application ID: 5982

September 07, 2017

Connie Bollin
OT & T Inc.
6430 Poling Road
Elida, OH 45807-9415

Dear Connie Bollin,

On behalf of the United States Department of Agriculture's (USDA's) BioPreferred® program, I am pleased to inform you that your application for use of the USDA Certified Biobased Product Label for Nutri-Pel® has been approved as of September 05, 2017. The test result for Nutri-Pel® indicates that its biobased content is 75%. According to your application, you may now use the Label on the product Nutri-Pel®.

The Label remains in effect as long as the product or package is manufactured and marketed in accordance with the approved application and requirements in the US Code of Federal Regulations Title 7§3202 Voluntary Labeling Program for Biobased Products unless one of the following conditions occurs:

1. Product or package reformulation: The product or package formulation of the certified product is changed such that the biobased content is reduced to a level below that reported in the approved application. When products have been reformulated, a new application for certification must be submitted in order to resume using the USDA Certified Biobased Product Label; and/or,
2. New minimum biobased content: USDA revises the minimum biobased content required for a product or package to be eligible to display the certification mark and the product or package does not meet the revised minimum. USDA will inform you that your certification is no longer valid. In this case, you must increase the biobased content of your product to be at or above the revised minimum and re-apply for certification within 60 days in order to continue to use the certification mark.

Please note that all certifications are subject to USDA's periodic auditing activities.

You must read the BioPreferred Brand Guidelines and Graphic Standards document prior to downloading label artwork (eAuthentication login is required).

This email is your official notice of biobased product certification. Please print and save this email should you need to provide certification documentation to any entity.

The BioPreferred program looks forward to a long and successful partnership with you in the promotion of biobased products.

If you have additional questions or would like further information, you may call the BioPreferred Program Information Line at (919) 765-9969 or email us at BioPreferred_Support@amecfw.com.

Sincerely,
Kate Lewis
Deputy Manager
USDA BioPreferred Program

Radiocarbon Tracer-Free
AMS Laboratory

Beta Analytic Inc
4985 SW 74 Court
Miami, Florida 33156 USA
Tel: 305-667-5167
Fax: 305-663-0964
beta@radiocarbon.com

Darden Hood
President
Ron Hatfield
Deputy Director
Chris Patrick
Deputy Director

September 01, 2017

Glenn Troyer
OT & T, Inc.
6430 Poling Road
Elida, OH, 45807
United States

Dear Mr. Glenn Troyer

Please find enclosed your radiocarbon (C14) report for the material recently submitted. The result is reported as "% Biobased Carbon". This indicates the percentage carbon from "natural" (plant or animal by-product) sources versus "synthetic" (petrochemical) sources sources. For reference, 100 % Biobased Carbon indicates that a material is entirely sourced from plants or animal by-products and 0 % Biobased Carbon indicates that a material did not contain any carbon from plants or animal by-products. A value in between represents a mixture of natural and fossil sources.

The analytical measurement is cited as "percent modern carbon (pMC)". This is the percentage of C14 measured in the sample relative to a modern reference standard (NIST 4990C). The % Biobased Carbon content is calculated from pMC by applying a small adjustment factor for C14 in carbon dioxide in air today. It is important to note is that all internationally recognized standards using C14 assume that the plant or biomass feedstocks were obtained from natural environments.

Reported results are accredited to ISO/IEC 17025:2005 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratory and counted in our own accelerators in Miami, Florida.

The international standard method utilized for this analysis is cited on your report. The report also indicates if the result is relative to total carbon (TC) or only total organic carbon (TOC). When interpreting the results, please consider any communications you may have had with us regarding the analysis. If you have any questions please contact us. We welcome your inquiries.

Sincerely,

Darden Hood

Darden Hood
President

Biobased and Biogenic Carbon Testing Laboratory

ISO/IEC 17025:2005 Accredited

Beta Analytic, Inc.
4985 SW 74 Court
Miami, FL 33155 USA
Tel: 305-667-5167
Fax: 305-663-0964
info@betalabservices.com
www.betalabservices.com

Summary of Results - % Biobased Carbon Content
ASTM D6866-16 Method B (AMS)

Certificate Number: 35254047276380413

Validation:

Submitter	Glenn Troyer
Company	OT & T, Inc.
Date Received	August 29, 2017
Date Reported	September 01, 2017
Submitter Label	Nutri-Pel® (USDA Application# 5982)
RESULT:	75 % Biobased Carbon Content (as a fraction of total organic carbon)
Laboratory Number	Beta-472763
Percent modern carbon (pMC)	76.18 +/- 0.22 pMC
Atmospheric adjustment factor (REF)	101.0; = pMC/1.010

Package received - labeling COC


View of content (1mm x 1mm scale)


2286.5mg analyzed (1mm x 1mm scale)

Disclosures: All work was done at Beta Analytic in its own chemistry lab and AMSs. No subcontractors were used. Beta's chemistry laboratory and AMS do not react or measure artificial C 14 used in biomedical and environmental AMS studies. Beta is a C14 tracer-free facility. Validating quality assurance is verified with a Quality Assurance report posted separately to the web library containing the PDF downloadable copy of this report.

Precision on the RESULT is cited as +/- 3% (absolute). The cited precision on the analytical measure (pMC) is 1 sigma (1 relative standard deviation). The reported result only applies to the analyzed material. The accuracy of the RESULT relies on the measured carbon in the analyzed material having been in recent equilibrium with CO_2 in the air and/or from fossil carbon (from living more than 40,000 years ago such as petroleum or coal. The RESULT only applies to relative carbon content, not to relative mass content. The RESULT is calculated by adjusting pMC by the applicable "Atmospheric adjustment factor (REF)" cited in this report.

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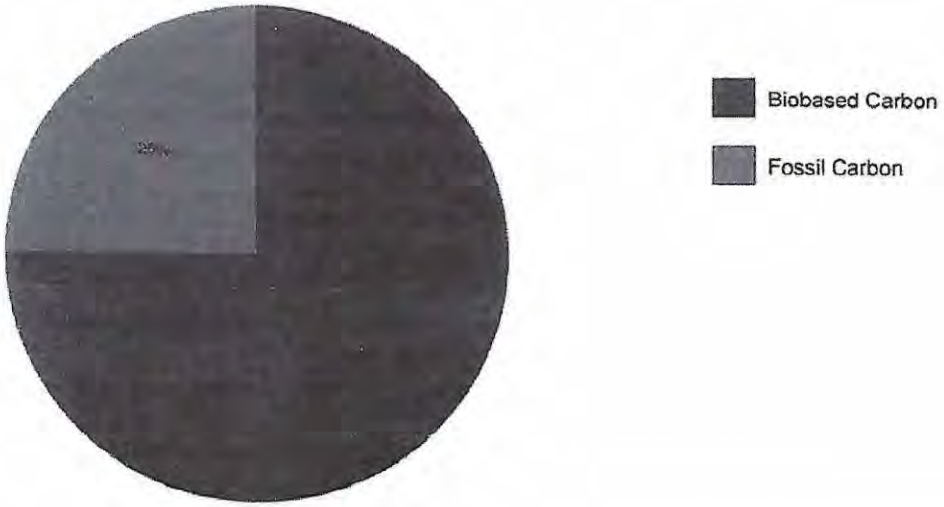

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% Biobased Carbon Content ASTM D6866-16 Method B (AMS)

Explanation of Results

The result was obtained using the radiocarbon isotope (also known as Carbon-14, C14 or 14C), a naturally occurring isotope of carbon that is radioactive and decays in such a way that there is none left after about 45,000 years following the death of a plant or animal. Its most common use is radiocarbon dating by archaeologists. An industrial application was also developed to determine if consumer products and CO2 emissions were sourced from plants/biomass or from materials such as petroleum or coal (fossil-based). By 2003 there was growing demand for a standardized methodology for applying Carbon-14 testing within the regulatory environment. The first of these standards was ASTM D6866-04, which was written with the assistance of Beta Analytic. Since ASTM was largely viewed as a US standard, European stakeholders soon began demanding an equivalent CEN standard while global stakeholders called for ISO standardization.

The analytical procedures for measuring radiocarbon content using the different standards are identical. The only difference is the reporting format. Results are usually reported using the standardized terminology "% biobased carbon". Only ASTM D6866 uses the term "% biogenic carbon" when the result represents all carbon present (Total Carbon) rather than just the organic carbon (Total Organic Carbon). The terms "% biobased carbon" and "% biogenic carbon" are now the standard units in regulatory and industrial applications, replacing obscure units of measure historically reported by radiocarbon dating laboratories e.g. disintegrations per minute per gram (dpm/g) or radiocarbon age.

The result was obtained by measuring the ratio of radiocarbon in the material relative to a National Institute of Standards and Technology (NIST) modern reference standard (SRM 4990C). This ratio was calculated as a percentage and is reported as percent modern carbon (pMC). The value obtained relative to the NIST standard is normalized to the year 1950 AD so an adjustment was required to calculate a carbon source value relative to today. This factor is listed on the report sheet as the terminology "REF".

Interpretation and application of the results is straightforward. A value of 100% biobased or biogenic carbon would indicate that 100% of the carbon came from plants or animal by-products (biomass) living in the natural environment and a value of 0% would mean that all of the carbon was derived from petrochemicals, coal and other fossil sources. A value between 0-100% would indicate a mixture. The higher the value, the greater the proportion of naturally sourced components in the material.

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

FACILITY CONSTRUCTION

MARCH 2006-MARCH 2007

Progress Photographs

March 2006

Progress Photographs

May 2006

Progress Photographs

July 2006

Progress Photographs

September 2006

Progress Photographs

November 2006

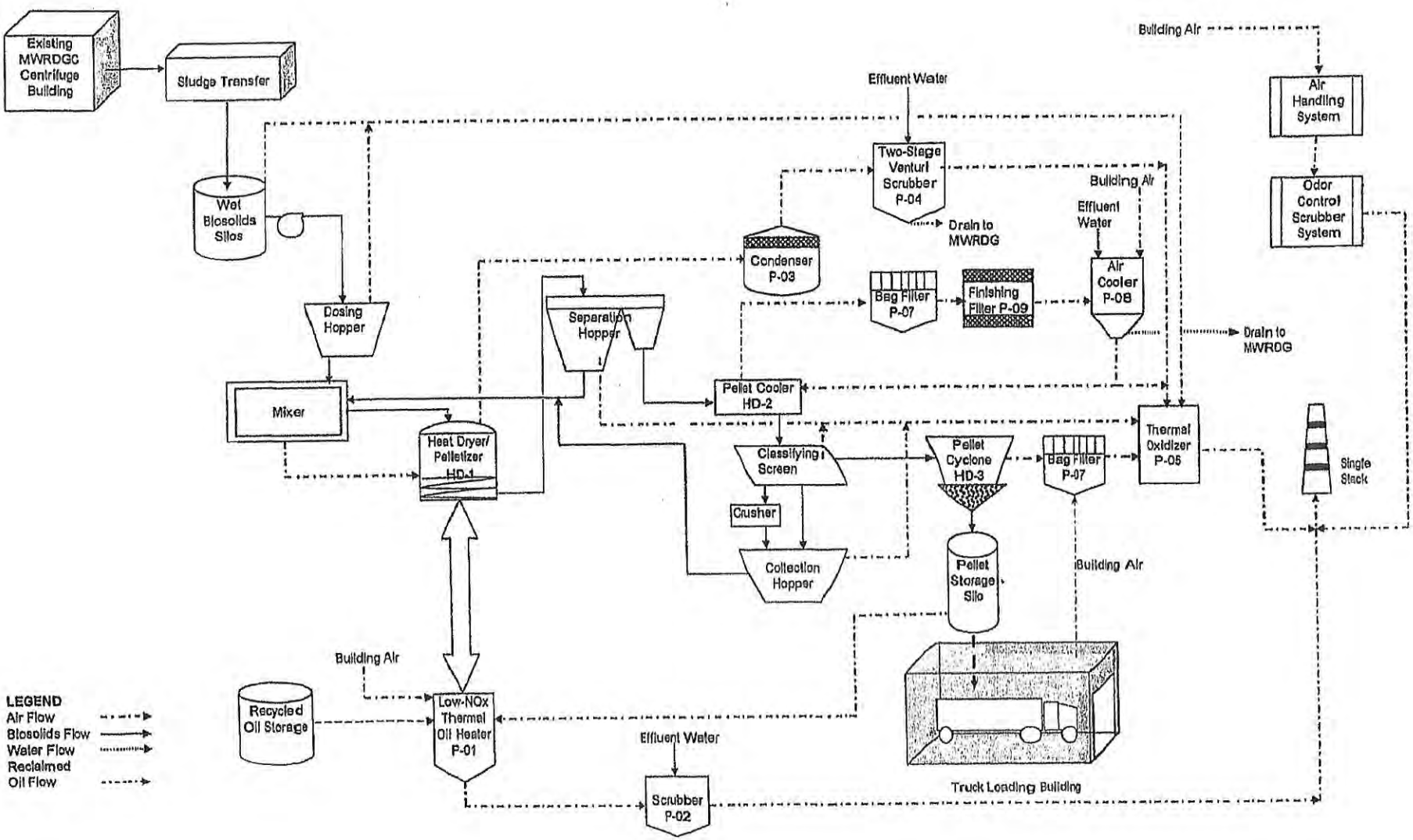
Progress Photographs

March 2007

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

PROCESS FLOW DIAGRAM

Metropolitan Biosolids Management, LLC
Biosolids Heat Drying Plant
Stickney, Illinois
Process Flow Diagram



KEPPEL SEGHERS OPERATOR MANUAL

Seghers HARDpelletiser
PEL 6216

OPERATOR MANUAL

Table of content

1. Introduction

This manual is written to explain the operation of the Seghers HARDpelletiser and auxiliary equipment for the CHICAGO sludge pelletiser plant as designed by KEPPEL SEGHERS BELGIUM.

1.1. Important remarks:

1. **The pelletiser system works at high temperatures. Safety is ensured by the low oxygen level in the pelletiser system. It is therefore important not to open the pelletiser or auxiliary equipment as long as the temperature of oil or pellets is above 122°F.**

2. **The pelletiser process is a very slow process. Therefore action taken at the inlet of the pelletiser will only be noticed at the outlet after a long delay (typically 20 to 30 minutes). Gentle action, anticipation and patience are therefore the requirements when operating a pelletiser.**

1.2. PID and Layout drawings

Following PFD tables, P&ID's, general arrangements drawings and equipment lists have been made and should be read in conjunction with this manual.

See other parts of this O&M manual.

2. General description

2.1. General description of the Seghers HARDpelletiser plant

The Seghers HARDpelletiser plant, designed by KEPPEL SEGHERS BELGIUM, can be divided in 8 main areas:

1. **Sludge storage**: the wet sludge cake is collected in the sludge receiving silo with extraction mechanism (extraction auger and wet cake pump), and fed in the sludge dosing hopper.

2. **Sludge dosing**: the sludge is dosed into the coater in a controllable way by means of twin screws.

3. **HARDpelletiser (and pellet recirculation)**: the dewatered sludge is coated on the recirculated dried pellets in the coater, dried and pelletised in the pelletiser and part of the formed pellets is recirculated by screws and a bucket elevator and via a separation hopper.

4. **Pellet cooling**: here the pellets are cooled in a fluidized bed air cooler using ambient air, which again is de-dusted in a baghouse filter. The cooling air is cooled by effluent water and recycled in a closed loop system.

5. **Pellet classifying**: a screen separates the regular pellets form the fine and coarse fraction, a crusher breaks the coarse pellets into fines and a screw recirculates the pellet fines back into the system.

6. **Pellet transport and storage**: the selected pellets are transported by means of a pneumatic dense phase transfer system into the pellet silo.

7. **Thermal oil circuit**: the heat required for the evaporation / pelletising process is generated in the thermal oil heater and transferred by means of thermal oil.

8. **Vapor condenser system**: the vapors are condensed in two stages: tray type condenser and venturi scrubber.

2.2. *Detailed description of the main areas of the sludge pelletiser plant*

2.2.1. Sludge storage

The sludge is fed with conveyors form the district hoppers to the sludge receiving silos. Each silo is discharged by means of an extraction auger with a wet cake pump into to the dosing hopper.

The sludge silos have a capacity of 40 ton and are installed outside the pelletiser building.

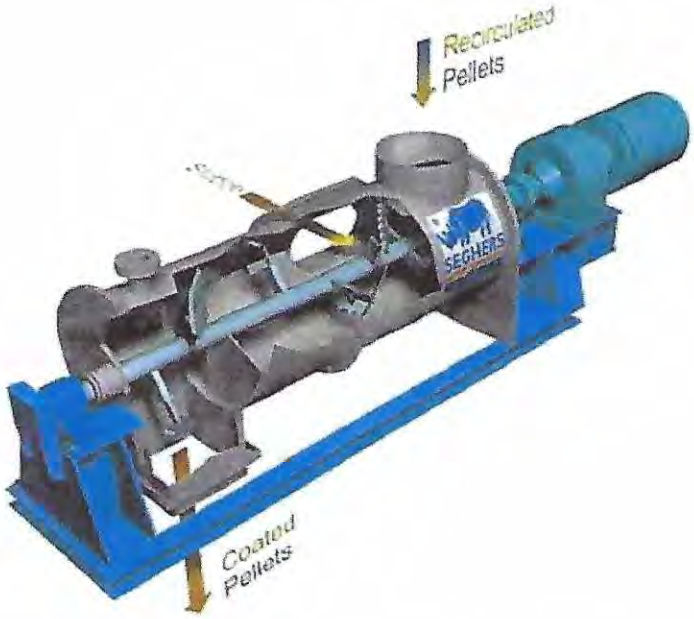
2.2.2. Sludge dosing

The dosing hopper and its frequency controlled twin extraction screws guarantee a good functioning and proper feeding control of the coater. The hopper is supported on a load cell, which allows mass flow calculation of the dewatered sludge. The speed of the dosing hopper twin screws is set by the operator through the supervision system. In case the sludge conditions are sufficiently stable, the sludge dosing can be controlled automatically, based on the temperature of the pellets in the separation hopper.

2.2.3. HARDpelletiser

2.2.3.1. Coater

Sludge cake is fed into the sludge coater located on top of the Seghers HARDpelletiser from where the coated sludge pellets are falling directly into the pelletiser.

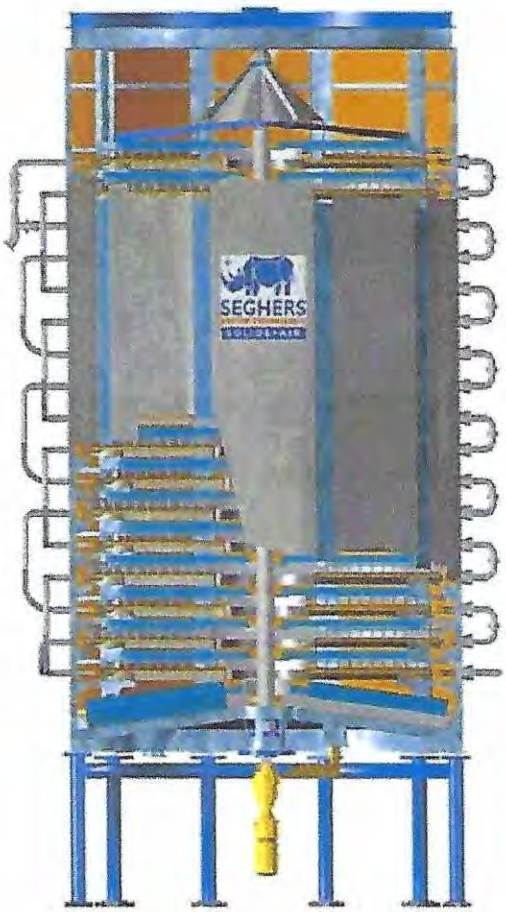


The coater covers the recirculated dry pellets with a layer of dewatered sludge. The small distance the coated sludge-pellets have to travel ensures they keep the coated-granular structure, comprising dry sludge on the inside and dewatered on the outside, which is beneficial for evaporation.

2.2.3.2. HARDpelletiser

The Seghers HARDpelletiser is a vertical multi-stage tray pelletiser in which the sludge is dried and pelletised and at the same time water is evaporated. It consists of horizontal trays heated by thermal oil in a closed loop.

It is a dryer of the indirect type, meaning there is no contact between the heat carrier and the sludge. This offers advantages regarding the treatment of the vapors and the thermal efficiency of the drying process.



The coated sludge pellets fall onto a cone in the upper section of the pelletiser. This cone ensures the sludge flow is evenly spread over the top tray. By means of a raking mechanism, connected to a central rotating shaft, the sludge is moved over the upper tray and pushed to the edge from where it falls onto the second tray. The continuously rotating scraping arms of the second tray move the sludge back from the outside to the inside of this tray from where it falls onto the next tray. In this way, the sludge is transported from tray to tray until it reaches the bottom tray. The scrapers do not touch the tray; there is a small clearance between tray and scraper.

The advantage of the coating principle is that it is the dewatered outside layer of the sludge-pellet that is dried by contact with the hot tray. The sludge is not exposed to the heating medium within the trays. Because of the ploughing action of the raking arms, the sludge particles are continuously mixed and turned over, which results in a high drying efficiency and prevents local overheating of the sludge. This drying process forms pellets with an average diameter of 2 to 6 mm and a dry solids content higher than 90 %.

The pelletiser is kept under negative pressure by means of the ID fan. This ensures an odor free operation, no vapors can leak out of the pelletiser.

2.2.3.3. Nitrogen injection

The pelletiser is equipped with a nitrogen injection system. The pelletiser is filled with nitrogen in the event of ignition inside the pelletiser (high temperature of the vapors coming out of the pelletiser). Nitrogen is also injected in the case of a power failure (to keep the atmosphere inside the pelletiser inert).

The nitrogen injection can also be used to create an inert atmosphere before starting up with vulnerable sludge types. Hereto the pelletiser should be heated to a temperature of 212°F without product at which level water is injected on the higher large tray to create an inert atmosphere.

Please be aware nitrogen injection is to be closed manually.

2.2.4. Pellet recirculation

The dried sludge pellets are collected at the bottom of the pelletiser and transported by means of a screw and a bucket elevator to the intermediate separation hopper. From this separation hopper part of the pellets are recirculated to the sludge coater via a frequency controlled recirculation screw. The balance of the pellets in the separation hopper is transferred to the pellet cooler via a double flap valve. This valve functions as an airlock between the atmosphere of the pelletiser and the atmosphere of the pellet cooling system.

2.2.5. Pellet cooling

The produced pellets fall from the separation hopper into the vibrating fluid bed cooler via a double flap valve.

In a fluid bed cooler the pellets are cooled by direct contact with air. Inside the cooler the pellets are sliding over a vibrating perforated plate through which cooling air is blown.

The air is then dedusted in a baghouse filter followed by micro filters and sent by means of a fan via an air / water heat exchanger back to the fluid bed pellet cooler.

The dust collected in the baghouse filter is sent by a double flap valve, with the cooling water of the heat exchanger, to the sanitary sewer.

In the cooler the pellets are cooled to less than 104°F before being sent to the pellet classifying through a diverter valve.

2.2.6. Pellet classifying

The cooled pellets fall from the vibrating fluid bed cooler through a diverter valve on the pellet screen. This valve allows the evacuation of non-classified pellets f.i. in case the grain size of the pellets is inadmissible.

In a four-deck screen two sizes of regular pellets are separated from the coarse and fine fraction.

The fine and coarse fraction passes into a roller mill crusher to be ground.

Al fines are collected in a fines recirculation screw and sent back the system via the separation hopper.

2.2.7. Pellet transport and storage

The selected pellets produced by the pelletiser are sent to the pellet storage silos by means of pneumatic dense phase transfer systems.

The pellet silos has a capacity of 275 tons and is installed outside the pelletiser building. It is equipped with an explosion relief deck.

A vibrating bin activator and a loading spout under the cone of the pellet silos enable discharging of the pellets into containers or trucks.

2.2.8. Thermal oil circuit

The thermal oil used is a high-quality mineral oil possessing low vapor pressure and selected for high levels of thermal stability, specific heat and thermal conductivity. These characteristics make for long service-life and excellent heat-transfer properties.

Via an oil circulation pump thermal oil is circulated over heater and pelletiser.

The thermal oil is heated to ca. 536°F by a heater on natural gas or fuel oil. The installation can switch between natural gas and fuel oil.

The oil is cooled down by a tube-in-shell water-oil heat exchanger in case of shut-down.

2.2.9. Vapor condenser system

The vapor flow (at a temperature of 257 to 275°C) leaves the pelletiser through the opening at the top. It consists of maximum 10% air and 90% vapor by volume. The vapors are cooled (122°F) and condensed in a two-stage system consisting in a tray type condenser and a venturi scrubber.

An ID-fan pulls the vapors out of the pelletiser and through the condenser and scrubber. The fan is frequency controlled to obtain the desired vacuum in the pelletiser. From the fan the non-condensables flow to the thermal oxidizer where they are thermally destroyed. This results in a completely odor free operation.

3. General Operating Instructions

3.1. System overview

The global system is conceived as an assembly of 8 sub-systems, as such forming the complete 'Seghers HARDpelletiser system'.

1. **Sludge storage**: the dewatered sludge is stored in a sludge silo equipped with an extraction mechanism, and transported to the sludge dosing hopper.

2. **Sludge dosing**: the sludge dosing hopper with twin extraction screws, ensures a controlled sludge dosing into the coater.

3. **Pelletiser and pellet recirculation**: during a first step, sludge is coated on the recirculated pellets inside the coater, then the water still contained in the sludge-pellets is evaporated and the sludge-pellets are pelletised inside the pelletiser. Dried pellets are extracted from the pelletiser through the extraction screw and bucket elevator. In the separation hopper, part of the formed pellets is recirculated through the recirculation screw into the coater and pelletiser.

4. **Pellet cooling**: this system ensures the cooling down of the pellets in a fluidized bed cooler using air, the air de-dusting in a baghouse filter and the air cooling in a heat exchanger. The dust from the cooling air, collected in the baghouse filter is sent with the cooling water of the heat exchanger to the sanitary sewer.

5. **Pellet classifying**: in a screen the regular pellets are separated from the fine and coarse fraction. The fine and coarse fraction is ground in a crusher and all fines are recirculated to the pelletiser system through a fines screw.

6. **Pellet transport and storage**: the selected pellets of the pelletiser are transported by means of a pneumatic dense phase transfer system to the pellet silo. This silo contains also the discharge facilities.

7. **Thermal oil circuit**: the heat required for the pelletiser is generated in the heater unit and transferred by means of thermal oil through an oil circulation pump. This system ensures the controlled input of thermal oil in the pelletiser and the cooling down of the whole pelletiser system.

8. **Vapor condenser system**: this system condenses the vapors created in the pelletiser in two stages: tray type condenser and venturi scrubber.

3.2. Preparation of the system before start-up

3.2.1. Pelletiser line

Before the Seghers HARDpelletiser plant can be started, all common parts of the plant must be started. Utilities such as power, process water, compressed air and nitrogen must be available at the different sub-systems. For the start-up and operation of all these units we refer also to the commissioning manual and corresponding supplier manuals.

The plant is ready for start-up when all sub-systems are ready for start-up. It is assumed that all instruments, valves and motors have already been tested and are operational prior to start-up. The status ('ready' or 'in error') of most of this equipment is indicated on the control screen of the operator. The status of some equipment however (like manual valves, product levels, etc.) is to be checked in the field by the operator. It is recommended to visually check the status of each sub-system in the field before starting up a pelletiser plant.

The paragraphs hereunder describe what is additionally required for each sub-system to be ready to function together with the other sub-systems.

3.2.2. Sludge storage

The sludge receiving silo should be filled to a sufficient level.

The extraction auger and wet cake pump should be ready to operate and filled with sludge. If they are not filled with sludge, the sludge feed has to be started until an increase of weight is detected in the dosing hopper.

3.2.3. Sludge dosing

The sludge dosing hopper must be filled to its nominal level. The twin extraction screws of the dosing hopper must be filled with sludge, standing still and ready to operate.

3.2.4. Pelletiser and pellet recirculation

The pelletiser and recirculation system must be filled with pellets in an even way: each part of the recirculation must be filled to a nominal level (especially the separation hopper). Filling of the recirculation system can be done from the flange on the extraction screw at the outlet of the pelletiser or through the recirculation leg of the separation hopper.

The pellets needed for the very first start-up have to come from another pelletiser plant. If the recirculation is not filled to a nominal level, extra pellets must be added. This is done while the recirculation system is running. Excessive recirculation is to be avoided to avoid degradation of the pellets and production of dust.

All equipment of the pelletiser and pellet recirculation system must be stand-by and ready to operate.

3.2.5. Pellet cooling

All 'transport' equipment must be ready to operate. Transport equipment consists of the vibration motors of the pellet cooler.

The cooling equipment must be ready for operation. The baghouse filter must be ready for running. The fan is ready. The air / water heat exchanger must be ready to operate. The thermal oxidizer is ready and running.

3.2.6. Pellet classifying

All 'transport' equipment must be ready to operate. Transport equipment is here: the motors of screen and crusher and the fines screw.

The classifying equipment must be ready for operation.

3.2.7. Pellet transport and storage

All transport and storage equipment is ready.

3.2.8. Thermal oil circuit

Before starting the oil system, all positions of manual valves must be checked (open or closed). Manual valves, which can cause damage or hazardous situations when opened or closed during operation, should be secured (e.g. take off the handgrip from the spindle).

All piping and equipment in the pelletiser circuit must be filled with thermal oil. All equipment (oil circulation pump, thermal oil cooler) must be ready to operate.

3.2.9. Vapor treatment

Process water has to be available; the ID-fan must be ready to run and to control the negative pressure in the pelletiser.

The emergency stack valve has to be regularly tested.

2 Tests are to be performed:

Each start-up: Open/Close test: the valve is set on manual (via the PLC) and opened and closed again. The operator checks whether the position switches do indeed indicate the correct position.

Monthly: During a start-up, and about monthly, following functional test is to be performed:

- Start the vapor treatment (this is the normal start-up procedure).
- Monitor build-up of negative pressure.
- Open the emergency stack valve and monitor drop in negative pressure (the ID fan can not build up enough negative pressure).
- Close the emergency stack valve and monitor rebuild-up of negative pressure.

3.3. Instructions for start-up

This chapter should be read in conjunction with the document 'Functional Description' of the Seghers HARDpelletiser plant. The start-up of each sub-system describes the 'start sequence' of the corresponding 'Plant Modules' and the 'Function Modules' in mentioned document.

The sub-systems (or modules) are described in order of start-up:

1. Pellet storage and transport
2. Pelletiser line
   a. Vapor condenser system
   b. Thermal oil circuit
   c. Pellet classifying
   d. Pellet cooling
   e. Pellet recirculation
   f. Sludge dosing
3. Sludge transport and storage

Generally spoken, the main condition for underlying start sequences to run is that all components of the sub-system or functional group are not in 'error'. These conditions are the start interlocks.

If a manual start of the Seghers HARDpelletiser plant should be preferable for the operator, all separate sub-systems can be started separately, in the same order as for the automatic sequence.

3.3.1. Pellet storage and transport

The start sequence is as follows:

- The pneumatic dense phase transfer system will start when the silo is activated.

The pellet storage and transport system is now running.

3.3.2. Pelletiser line

Once the pellet storage and transport system is running, the complete pelletiser line can be started automatically (or manually):

1. Start the **vapor condenser system**.
2. When the vapor condenser system is running and there is sufficient negative pressure in the pelletiser (-0.03 PSI), start the **thermal oil circuit**.
3. When the thermal oil circuit is running and the temperature of the oil at the inlet of the pelletiser has reached 167°F, start successively the **pellet classifying** and the **pellet cooling**.
4. When the pellet classifying and cooling are running, start the **pellet recirculation**.
5. When the pellet recirculation is running and the temperature of the pellets in the separation hopper has reached 167°F:
   a. Activate the filling of the dosing hopper (= **sludge transport**).
   b. Start the **sludge dosing** into the coater at a fixed minimum flow.

Now the pelletiser is running.

Sludge dosing flow is to be gradually increased together with the increase of the pellet temperature inside the separation hopper.

3.3.2.1. Vapor condenser system

The start sequence to be followed is:

- Start the supply of the process water to the condenser and the scrubber.
- When the water is flowing through the condenser and the scrubber, the ID-fan can be started.

When the ID-fan is running and the negative pressure in the pelletiser is OK (less than –0.03 PSI), the vapor treatment is running.

3.3.2.2. Thermal oil circuit

The start sequence is as follows:

- Start the oil circulation pump. The full flow of cold oil is circulating through the pelletiser circuit.
- When the pump is running, the setpoint of the temperature of the oil at the outlet of the heater is increased gradually (setpoint in controller).
- The thermal oil circuit is now 'running' (this signal now allows proceeding with other sub-systems in the start sequence of the pelletiser line, while the oil is heating).

- The target point in the controller is set at 536°F (or at a lower temperature, depending on the setpoint of the process temperature).
- The controller of the thermal oil-heating gradient is set.

The thermal oil circuit is now running.

The next sub-systems may only be started when the temperature of the oil at the inlet of the pelletiser has reached 167°F.

3.3.2.3. Pellet classifying

The start sequence to be followed is:

- Start the fines recirculation screw.
- When the fines recirculation screw runs, start the motor(s) of the crusher.
- When the crusher is in operation, start the motor of the screen.

The pellet classifying system is now running.

3.3.2.4. Pellet cooling

The start sequence is as follows:

- Start the supply of the cooling water to the heat exchanger.
- Start the cooling air fan between baghouse filter and heat exchanger.
- When the fan is running, start the baghouse filter (package unit).
- When the filter is in operation, start the vibrating motors on the fluidized bed cooler.

When the negative pressure in the fluidized bed cooler is OK (less than –0.015 PSI), the pellet cooling is running.

3.3.2.5. Pellet recirculation

The pelletiser contains a small buffer capacity between the roof and the top tray. Therefore, the first equipment of the recirculation to start, is the coater.

The starting sequence is hence:

- Start the coater (frequency 60 Hz or latest setting).
- When the coater is running, start the pellet recirculation screw to the coater.
- When the recirculation screw is running, start the bucket elevator.
- When the bucket elevator is running, start the extraction screw under the pelletiser.
- When the extraction screw is running, start the pelletiser.

Now the pelletiser, coater and recirculation are running.

3.3.2.6. Sludge dosing

The start sequence to be followed is:

- Activate the filling of the dosing hopper.
  (= Step 5.a. in the start sequence of the pelletiser line)
- Start the twin extraction screws of the dosing hopper at low flow. Sludge is fed into the coater.

Sludge dosing flow is to be gradually increased together with increasing pellet temperature in the separation hopper.

The entire pelletiser line is now running.

3.3.3. Sludge transport and storage

The start sequence is as follows:

- The wet cake pump under the sludge silo will start when the dosing hopper is activated.
- When the pump runs, the extraction auger of the sludge silo is started.

The sludge transport and storage system is now running.

3.4. Instructions during normal operation

This paragraph describes how the Seghers HARDpelletiser plant is operated under normal circumstances. Basic assumption is that no alarms or warnings are reported.

3.4.1. Main control parameters

The main control parameters are those on which the operator can act, in order to influence (changing or maintaining) the pelletiser process.

We repeat our comment as to the slow working of the process:

The pelletiser process is a very slow process. Therefore action taken at the inlet of the pelletiser will only be noticed at the outlet after a long delay (typically 20 to 30 minutes). Gentle action, anticipation and patience are therefore requirements when operating a pelletiser.

Following main controls are foreseen:

3.4.1.1. Dewatered sludge dosing

This control has to be monitored by the operators and is the most important control feature of the pelletiser. The dosage is achieved with the frequency control of the twin extraction screws. The sludge flow to the dosing hopper is normally very constant during nominal operation. It needs to be carefully monitored and possibly manually controlled during start-up and shut-down and when the dry solids content or the composition of the sludge changes.

The operator will increase or decrease the dosing of dewatered sludge, mainly after evaluation of following 2 parameters:

1. The ***temperature of the pellets*** at the outlet of the pelletiser (or in the separation hopper). The temperature of the pellets is likely to rise when the dry solids content of the pellet mixture entering the pelletiser is increasing. Likewise, when the dewatered sludge is drier or the dewatered sludge flow is decreased, the temperature of the pellets at the exit of the pelletiser tends to rise. The temperature of the pellets is typically 221°F and may vary between 203°F and 257°F.
2. Evaluation of a ***sample of coated pellets*** at the outlet of the coater. The mixture should be reported as: evenly coated pellets, sticky but falling apart when dropped, and without loose pieces of dewatered sludge. The dry solids content should be around 75% (between 70% and 80%). A sample should be taken and observed at least every 2 hours.

When the operator is getting acquainted with the pelletiser process, he might decide to switch from manual control of the sludge dosing to automatic control. A control loop is foreseen for regulating the dosage of dewatered sludge, as a function of the pellet temperature at the outlet of the pelletiser or in the separation hopper (only in function of this

sole parameter). A detailed description of this control sequence is given in the 'Functional Description'.

Following observed parameters might also make the operator to decide to change the sludge dosing:

1. Desired evaporation rate. For the same type of dewatered sludge, the evaporation will increase when the dewatered sludge flow is increased (meanwhile keeping the other parameters under control of course).
2. Efficiency (temperature of the in- and out-going thermal oil).
3. Incoming type of sludge (origin, dry solids content, composition, ...)

3.4.1.2. Temperature of the in-going thermal oil

The temperature of the oil, coming from the heater, should be constant and lying in a range between 536°F and 482°F. The desired temperature of the in-going oil for each pelletiser is to be set by the operator (as a setpoint for the oil heater).

However, it is stressed that the design inlet oil temperature for the Seghers HARDpelletiser plant is 536°F. The guaranteed evaporation capacity is only achievable under these design circumstances.

3.4.1.3. Flow of recirculated pellets

The flow of pellets in recirculation is controlled by varying the frequency in the speed converter of the recirculation screw (screw from separation hopper to coater). This frequency is mainly set by the operator, after considering the coating quality at the outlet of the coater (see also § 3.4.1.1. point 2.). The flow will be such that a coated pellet mixture of about 75% is achieved. This depends of course of the water content of the dewatered sludge. A typical value for the ratio of the pellet flow versus the dewatered sludge flow is 2. This parameter is not often to be changed, if the characteristics of the incoming sludge do not vary too much.

3.4.1.4. Negative pressure in the pelletiser

Negative pressure in the pelletiser is eventually set by the operator, after considering the process and especially the O_2-content in the vapor line. This parameter is changed by varying the frequency in the speed converter of the ID-fan. A typical value for the negative pressure is –0.03 PSI. This control parameter is rarely changed.

3.4.1.5. Speed of the coater

The coater speed can be set to influence the coating process. This is evaluated by checking the quality of the coated mixture at the coater outlet (see also § 3.4.1.1. point 2.). To avoid excessive wear it is advisable to reduce as much as possible the speed of the coater without loosing the quality of coating.

3.4.2. Other parameters

3.4.2.1. Temperature of cooled pellets

The pellet temperature at the outlet of the cooler can be influenced by the operator. By adjusting the cooling air flow with the manual valves in the air inlet manifold under the pellet cooler. Or by adjusting the height of the fluid bed, hereby regulating the overflow weir at the pellet outlet of the cooler. The temperature of the pellets will vary according to the air temperature; a typical value is 104°F. The temperature must not exceed 122°F. The higher the temperature of the pellets, the higher the risk for fermentation of the pellets in the storage silo.

3.4.2.2. Oxygen content in the vapors

This parameter is not directly controllable. Under normal conditions, the oxygen content in the vapors lies between 0 and 5%. A sudden change in the oxygen content means that an important amount of leaking air has entered the pelletiser. The operator should immediately remedy and find the cause of this abnormal situation (inspection door opened, expansion bellow torn, ...).

It is stressed that by all means, air must be prevented to enter the pelletiser and the recirculation equipment, under normal pelletiser operations and when the pellets in the system are still hot !

3.4.3. Automatic control loops

3.4.3.1. Control of level of dewatered sludge in the dosing hopper

The level in the dosing hopper is actually measured by a load cell (weight measurement) and a level switch. When the level reaches a low level, the speed of the wet cake pump of the sludge silo is increased and vice versa. When the level switch detects a high level, the feeding to the hopper is stopped.

3.4.3.2. Control of negative pressure in the cooler

The cooling air fan controls the negative pressure in the cooler. The setpoint is set at -0.007 to –0.015 PSI.

3.4.3.3. Control of negative pressure in the pelletiser

The negative pressure in the pelletiser is controlled by the frequency converter of the ID fan after the condensers. The setpoint is set at –0.03 PSI.

3.4.3.4. Control of temperature of the non-condensables

The temperature of the non-condensable gases (air outlet of the venturi scrubber) is controlled by the control valve regulating the water supply to this condenser. The setpoint is typically set at 122°F non-condensables temperature.

3.4.3.5. Control of temperature of thermal oil

The temperature of the oil going to the pelletiser is controlled by the setpoint on the thermal oil heater. This setpoint can be entered by the operator.

3.5. Instructions during shut-down

This chapter should be read in conjunction with the document 'Functional Description' of the Seghers HARDpelletiser plant. Shut-down of the pelletiser plant is analogous but in the reverse order of the start-up procedures (see § 3.3. Instructions for start-up). The shut-down of each sub-system which is describes the 'stop sequences' of the corresponding 'Plant Modules' and 'Function Modules' of the mentioned document.

The sub-systems (or modules) are described in order of shut-down:

1. Pelletiser line
   a. Thermal oil circuit
   b. Sludge dosing
   c. Pellet recirculation
   d. Pellet cooling
   e. Pellet classifying
   f. Vapor condenser system
2. Sludge storage and transport
3. Pellet transport and storage

The interlocks of each sub-system or functional group are listed in the 'Functional Description'. When these 'run interlocks' are active, the stop sequence of the sub-system will run, finally putting it out of operation. The run interlocks act as protections or securities of the system, first of all to prevent injury but also to avoid material damages or losses.

3.5.1. Pelletiser line

The pelletiser line can be stopped automatically, but if necessary, the operator can stop each sub-system separately in the same order as for the automatic sequence:

1. The **thermal oil circuit** of the pelletiser starts cooling the system. In a first stage by reducing the heater output to minimum (still burning the off-gasses if any), then starting the water/oil cooler and gradually by mixing the cooled oil in the oil loop until finally the full oil flow is passing through the oil cooler.
2. After a certain time, when the pellets in the separation hopper have reached a temperature below 176°F, the stop sequence of the **sludge dosing** is activated. This sequence gradually decreases the sludge feeding to the coater.
3. When the sludge dosing is stopped, the **sludge transport** is stopped.
4. When the temperature of the pellets in the separation hopper has dropped down to 122°F, the **pellet recirculation** is stopped.

5. After the pellet recirculation is stopped, successively the **pellet cooling** and the **pellet classifying** is stopped.
6. After the pellet cooling and classifying are stopped, the **pellet transport** is stopped.
7. When the temperature of the vapors have dropped to 122°F, the **vapor condenser system** is stopped.

The pelletiser line is completely at stop.

3.5.1.1. Thermal oil circuit

The stop sequence is as follows:

- The heater output is first reduced to minimum (still burning the off-gasses, if any).
- Cooling water supply to the water/oil cooler is started by opening the valve on the water supply.
- Gradually the oil temperature at the pelletiser inlet is lowered with 9°F per minute by mixing the cooled oil in the oil loop until the full flow of oil is going through the oil cooler.
- When the oil temperature has dropped below 122°F, the valve on the water supply is closed.
- When the vapor condenser system and the pellet cooling and classifying have stopped and no off-gasses need to be further treated in the heater, the heater can be turned off.
- The oil circulation pump can be switched off.

The thermal oil circuit of the pelletiser is at standstill.

3.5.1.2. Sludge dosing

The feed of sludge to the coater (and the pelletiser) is not stopped at once in order not to overheat the pellets during the shut-down. Therefore, a separate stop sequence is activated, which gradually decreases the feed of the sludge to the coater (= group sludge dosing for shut-down).

In a first phase, the speed of the wet cake pump is decreased gradually until the minimum speed is reached. When the temperature of the pellets in the separation hopper has reached a certain minimum, the sludge dosing is completely stopped.

3.5.1.3. *Pellet recirculation*

Stopping the recirculation is done by stopping all motors at the same time, or by stopping them one by one in the reverse order of the starting order:

- Stop the pelletiser.
- Stop the extraction screw under the pelletiser.
- Stop the bucket elevator.
- Stop the recirculation screw to the coater.
- Stop the coater.

The pellet recirculation is now shut down.

3.5.1.4. *Pellet cooling*

The stop sequence to be followed is:

- Stop the vibrating motors on the fluidized bed cooler.
- Stop the cooling air fan.
- Stop the baghouse filter (cleaning package unit).

The pellet cooling has stopped.

3.5.1.5. *Pellet classifying*

The stop sequence is as follows:

- Stop the motor of the screen.
- Stop the motor(s) of the crusher.
- Stop the fines recirculation screw.

The pellet classifying is now at standstill.

3.5.1.6. *Vapor treatment*

The stop sequence to be followed is:

- Stop the ID-fan.
- Stop the supply of the process water to the condenser and the scrubber.

The vapor treatment has stopped.

3.5.2. Sludge storage and transport

The stop sequence of the sludge transport follows as soon as the sludge dosing system is at standstill (and the vapor treatment has stopped) and is as follows:

- Stop the extraction auger of the sludge silo.
- Stop the wet cake pump under the sludge silo.

The sludge transport system has stopped now.

3.5.3. Pellet transport and storage

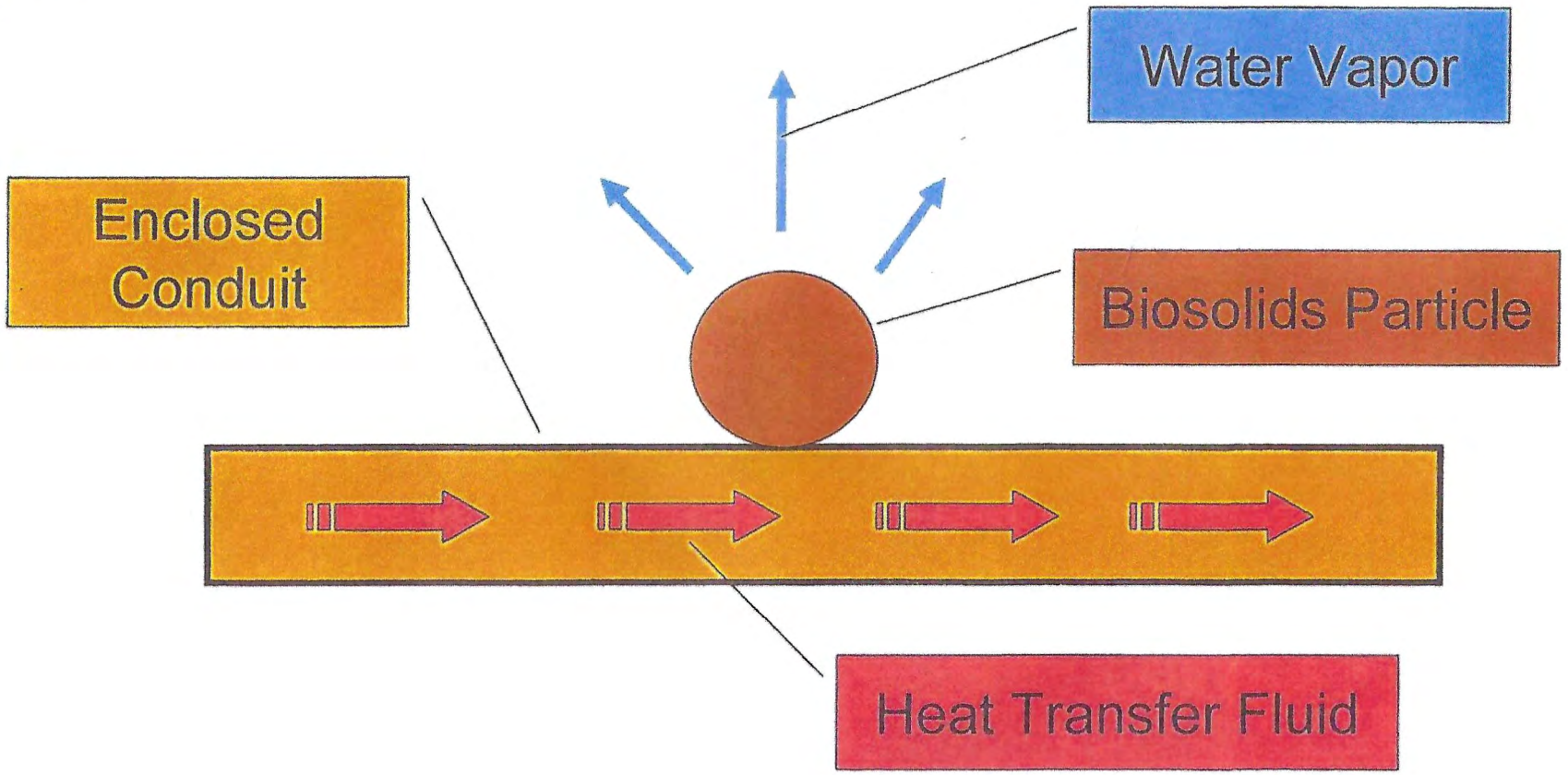
The stop sequence of the pellet transport follows once the pellet cooling and classifying system has stopped and is as follows:

- Stop the pneumatic dense phase transfer system, leaving enough time to empty the system.

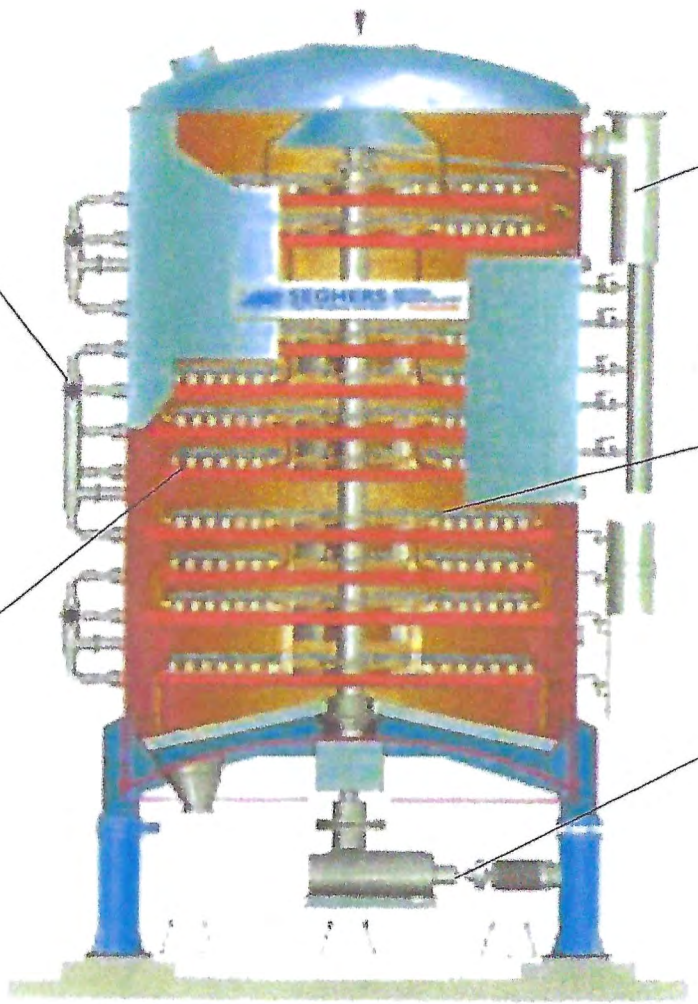
The pellet transport system is now at a standstill.

INDIRECT DRYING & PELLETIZER VIEWS

What is indirect drying?



The Heart of the Process - Pelletizer Unit



HTF Piping

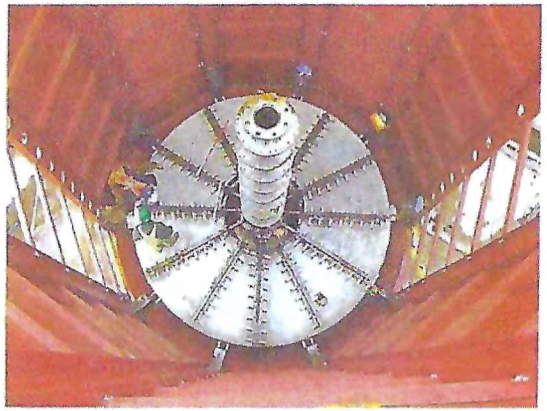
Vapor Duct

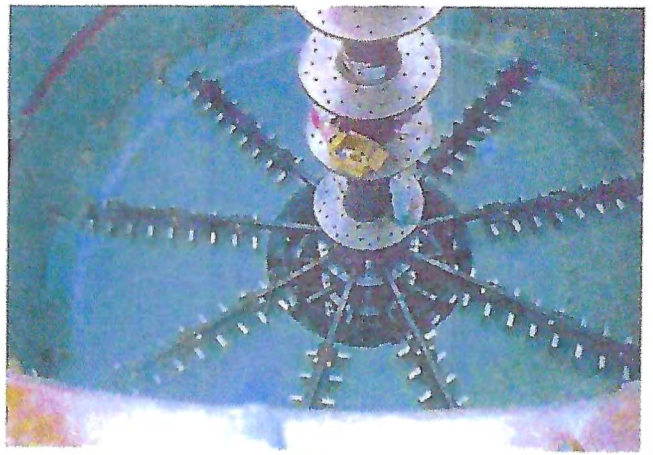
Rake Arms

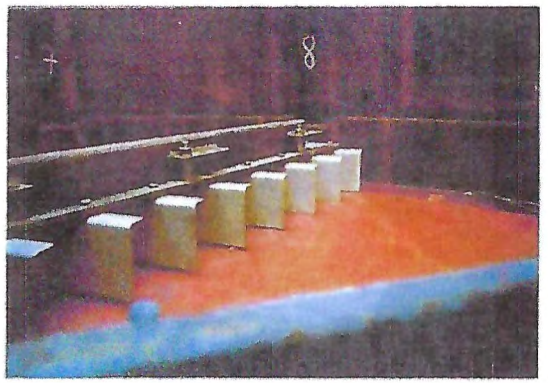
Trays

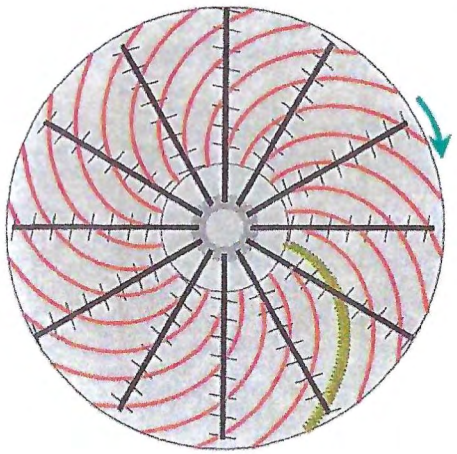
Drive Assembly

Pelletizer Views

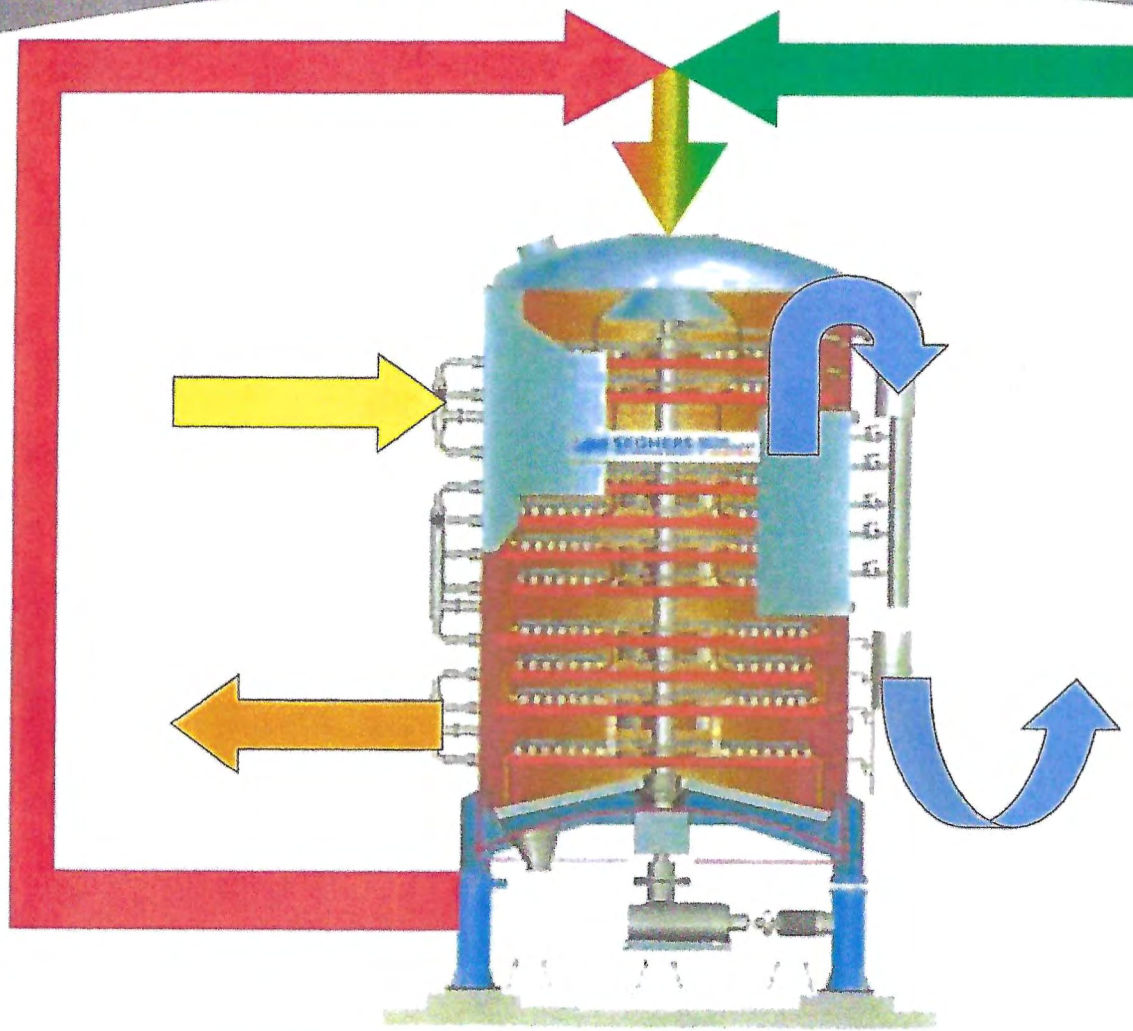








How it works…



Tab 3

IN THIS SECTION:

- MBM LLC-DESCRIPTION OF PROCESS & COMPLIANCE
- MBM LLC-PELLET DUST CONTROL

  MBM LLC-SAMPLING & RECORD KEEPING

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

DESCRIPTION OF PROCESS & COMPLIANCE

DESCRIPTION OF PROCESS & COMPLIANCE

Wastewater entering SWRP passes through coarse screens to filter out large debris and is then pumped up from sewer level to flow by gravity throughout the treatment plant. Aerated grit tanks and settling tanks use physical and mechanical means to remove fats and oils and to separate solids from the water. The separated solids are pumped away to undergo their own treatment process and eventually become biosolids, a recycled and sustainable alternative to chemical fertilizers.

In secondary treatment, a community of microorganisms helps remove organic material from the wastewater. The microbes need oxygen to thrive, so air is pumped through the water in secondary aeration tanks. Next, the water enters the final settling tanks where remaining solids settle to the bottom and clean water flows out the top. The clean water is released from the SWRP into the Chicago Sanitary and Ship Canal.

Solids removed during the process are sent to temperature-controlled digesters at SWRP that break them down in a process similar to composting that converts nutrients into forms that kill pathogens and provide beneficial use to plants. The cake, anaerobically digested, and then dewatered by centrifugation to produce a cake product of 25-30% dry solids by Stickney WRP is then transferred to the MBM facility.

The solids are processed through an indirect drying system where the solids are heated to temperatures above 80°C. Most of the remaining water is evaporated in the dryer and the moisture content of the solids is reduced to below 10% (typically 5%-8%).

Vector Attraction is achieved through 327 IAC 6.1-4-15(b)7. This regards stabilized biosolids being dried to a solids content of 75% or greater. The pelletized biosolids produced at *Stickney WRP by MBM LLC* maintain a 90% or higher total solids. In 2022 the average total solids were 96.13% and in 2023 the average was 95.73%.

Pathogen reduction is achieved through Class A, Alternative 5, PFRP 2-Heat Drying, according to 327 IAC 6.1-4-13(b)D. Monitoring is being done to demonstrate compliance with this regulation. The facility utilizes a proven drying process that has demonstrated effective pathogen reduction at eleven other facility sites. Log showing the temperature readings taken every 15 minutes in the Pelletizer. Biosolids typically stay in the dryers for 30-40 minutes as per *Keppel Seghers* Operator Manual 3.4.1. Operating experience shows that pellet stay time is approximately 45 minutes.

At *MBM*, the 25-30% dry solids cake begins the pelletizing process and is dried to an average of 90% or higher total solids for use as a fertilizer. *MBM* employs a drying system manufactured by *Keppel Seghers*. The *Seghers* System is a vertical, indirect dryer. Operating in similar fashion as a clothes dryer, the biosolids are gently moved through the

dryer while being heated to cause the evaporation of the moisture remaining in the centrifuged cake. Cake received from *Stickney WRP* (25-30% dry solids) is pumped to the top of the dryers where it is mixed with the finished product from the dryers (90-95% dry solids). The result produces an infeed to the dryer of about 70% dry solids.

Heating takes place as the biosolid pellets cascade across a series of vertically stacked hollow trays. The trays are filled with oil which has been heated and is then continuously circulated through the trays. As the pellets contact the heated trays, they are heated to a temperature above 215°F.

The liberated moisture is removed from the dryers, then condensed and discharged to the *Stickney WRP*.

The pellets are screened and sized, with many of the pellets being recycled back through the process to be mixed with incoming biosolids. The excess pellets are cooled and then pneumatically conveyed to storage silos for marketing and distribution.

The final step, and the only additive in the entire process, is a finishing dust control product is sprayed on the pellets prior to loading in the trucks. The product is called *GTEC-2020 from Arkema-ArrMaz* and is a proprietary blend of complex hydrocarbons. The *GTEC-2020* is sprayed into the pellet loading auger to mix with the pellets as product is loaded into the trucks. Following this section, you will find a statement from Arkema ArrMaz stating that no intentionally added PFOS or PFOS substitutes are used in the making of the dust control product along with an SDS Sheet for the *GTEC-2020* dust control product.

Pollutant Concentration Limits according to *Delaware* Table 402.3 are met. In the event of a regulatory exceedance, a verbal and or written notice is given to *DE DNREC*, and a written compliance report is issued within 5 days of acknowledgement of the compliance issue.

Daily samples are collected, composited and analyzed for compliance. The testing is being conducted by a certified laboratory and proper sampling, shipping, storage and analytical techniques are being utilized.

MBM measures the temperature of the pellets in the drying systems to demonstrate compliance with the 80° Celsius requirement. SCADA monitors and controls the process using sensors and remote telemetry units to serve as collection points. The SCADA servers centrally process and control the SCADA system and archive information. Control workstations provide a human interface in the plant control room. Temperature readings are done on a continuous basis by SCADA. SCADA temperature records are stored indefinitely. SCADA temperature records are available upon request.

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

PELLET-DUST CONTROL

ARKEMA | ArrMaz

GTEC-2020

STATEMENT LETTER & SDS

ARKEMA | ArrMaz

INNOVATIVE CHEMISTRY

BUILDING A NEW LEADER IN SPECIALTY SURFACTANTS

March 23, 2020

David Plank
Business Manager
The Andersons, Inc.
Liqui Fert Corporation
863-441-3004

David:

We have reviewed the composition of GTEC-2020 and can confirm that we do not intentionally add any PFOS or PFOS substances.

If you have any further questions or need more information, please feel free to contact me.

Best Regards,

CHRIS SGARLATA
Director, Environmental and Regulatory Compliance
4800 State Road 60 East
Mulberry, FL 33860
USA

Office: +1-863-578-1231
Cell: +1-863-582-1692

Arkema.com – ArrMaz.com

SAFETY DATA SHEET

1. Identification

Product identifier GTEC 2020

Other means of identification

Product Code ZC72020

Recommended use Dust Control.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	ArrMaz	
Address	4800 State Road 60 East Mulberry, FL 33860 United States	
Telephone	EHS Contact Phone Number (US):	+(1)-(863) 578-1221
E-mail	MSDSinfo@arrmaz.com	
Emergency phone number	CANUTEC (Canadian Transport.):	+(1)-(613) 996-6666
	CHEMTREC (US Transportation):	+(1)-(800) 424-9300
	ArrMaz QA 24-hr Number (US):	+(1)-(863) 578-1206

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information 100% of the mixture consists of component(s) of unknown acute oral toxicity. 100% of the mixture consists of component(s) of unknown acute dermal toxicity. 100% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Complex Blend of Hydrocarbons		Proprietary	60< 100*

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact	Wash off with soap and water. Take off contaminated clothing and wash before reuse. For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat. Get medical attention if irritation develops and persists.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. If hot product contacts eye, flush with water for at least 15 minutes and seek medical attention immediately. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do not induce vomiting without advice from poison control center.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Warning: May contain and release hydrogen sulfide (H2S), a highly toxic and flammable gas that can accumulate in confined areas.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Warning: May contain and release hydrogen sulfide (H2S), a highly toxic and flammable gas that can accumulate in confined areas. Provide adequate ventilation. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid prolonged exposure. Observe good industrial hygiene practices. Wear appropriate personal protective equipment. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight.
Conditions for safe storage, including any incompatibilities	Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits	This mixture has no ingredients that have PEL, TLV, or other recommended exposure limit.
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).

Skin protection	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear suitable protective clothing.
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Dark brown to black viscous liquid
Physical state	Liquid.
Form	Liquid.
Color	Dark brown to black.
Odor	Petroleum.
Odor threshold	Not available.
pH	Not applicable.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	> 300 °F (> 149 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	0.93
Relative density temperature	77 °F (25 °C)
Solubility(ies)	
Solubility (water)	Not soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	150 - 250 cP
Viscosity temperature	130 °F (54 °C)
Other information	
Density	7.69 lbs/gal
Density temperature	77 °F (25 °C)
Explosive properties	Not explosive.
Flammability class	Combustible IIIB
Oxidizing properties	Not oxidizing.
Specific gravity	0.93
Specific gravity temperature	77 °F (25 °C)

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Acids. Alkalis.
Hazardous decomposition products	Carbon oxides. Sulfur oxides. Hydrocarbons. Unidentified organic compounds. Hydrogen sulfide. Thermal decomposition can lead to release of irritating gases and vapors.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Not classified. May irritate the respiratory system at high concentrations. Prolonged inhalation may be harmful.
Skin contact	Not classified. May cause skin irritation. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. If skin irritation or rash occurs: Get medical advice/attention. Thermal burn hazard - contact with hot material may cause thermal burns.
Eye contact	Not classified. Avoid contact with eyes. Direct contact with eyes may cause temporary irritation. Thermal burn hazard - contact with hot material may cause thermal burns.
Ingestion	Not classified. May cause irritation to the digestive tract. May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity	Not classified.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not classified.
Skin sensitization	Not classified. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Germ cell mutagenicity	Not classified. No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	Not classified. This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. The formulated mineral oils in this product have been severely hydrotreated and therefore not considered carcinogenic.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Not classified. This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified. May cause irritation to the respiratory system.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Not classified. May cause injury if enters the airways.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.

Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not established.
Further Information	When transporting this product at temperatures at or above 212 degrees Fahrenheit, the following Proper Shipping Name is required: UN3257; Elevated temperature liquid, N.O.S.; Class 9; PG III. In this circumstance, the corresponding ERG Guide Number will be 128 and the shipment will require the "HOT" placard.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

This product contains trace quantities of the following listed component(s):
Lead (CAS 7439-92-1).

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	11-17-2017
Revision date	01-10-2018
Version #	02
HMIS® ratings	Health: 1 Flammability: 1 Physical hazard: 0 Personal protection: X
NFPA ratings	Health: 1 Flammability: 1 Instability: 0
Disclaimer	ArrMaz cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information	Product and Company Identification: Alternate Trade Names Composition / Information on Ingredients: Disclosure Overrides Physical & Chemical Properties: Multiple Properties Regulatory information: California Prop 65 Regulatory information: US state regulations GHS: Classification

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

SAMPLING & RECORD KEEPING

SAMPLING AND RECORD KEEPING

Samples are collected upstream of the storage silos at the classifiers because there is no practical method to collect a sample at the silo due to equipment access and other operational issues.

Trained Assistant Operators take samples of the biosolid cake coming into the pelletizing/drying facility six (6) times per day to monitor moisture content for process control. Pellet samples are also being collected and tested for moisture control six (6) times per day. Approximately every 8 hours: 500mL samples are collected from the in-service Pellet Classifying Screens. Sieve analyses are run on a portion of the samples and the remainder is retained for a daily laboratory analysis. This sample represents the daily sample to be sent out for percent solids**.**

Daily samples are collected, composited and analyzed for compliance. Biosolids Daily Total Solids Standard Method 2540G is used to determine the moisture content of the residual and demonstrate compliance with the 10 percent or lower requirement. The testing is being conducted by *Pace Analytical* and proper sampling, shipping, storage and analytical techniques are being utilized.

A composited monthly sample is sent to *Pace Analytical Services LLC, Green Bay, WI* for 503 Metals compliance testing Monthly, *Pace Analytical* performs *MBM'*s 503 metals compliance testing (Biosolids Monthly Reports) using EPA 6010D, EPA 8082A for PCB, EPA 7471 for mercury, ASTM D2974-87 for percent moisture, EPA 160.4 for total volatile solids, TKN-NHC Calculation for total organic nitrogen soil, TKN+NO3+NO2 Calculation for total nitrogen, EPA 300.0 for 300.0 IC Anions, EPA 350.1 for nitrogen, ammonia, EPA 351.2 for total kjeldahl nitrogen, EPA 365.4 for phosphorus, EPA 9012B for cyanide. In addition to moisture content analysis, composited samples are subsequently tested for total kjeldahl nitrogen, ammonia-nitrogen, nitrate-nitrogen, phosphorus, potassium, aluminum, arsenic, cadmium, calcium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, zinc, PCB's, boron and mercury by *Pace Analytical Services LLC, Green Bay, WI*

Fecal coliform samples are taken and sent immediately due to constraints on holding time to *Suburban Labs in Geneva, IL* for a monthly analysis. Fecal coliform reports are a part of the *Pace Analytical* Biosolids Monthly Reports, but performed by *Suburban Laboratories, Geneva, IL* using Method 9221E 18 Ed, 1992.

Monthly nutrient testing is provided by *A & L Great Lakes Laboratories, Fort Wayne, IN* which has the pH, NJ PAN, bulk density, moisture, solids, total nitrogen, total Kjeldahl nitrogen, ammoniacal nitrogen, nitrate nitrogen, organic nitrogen, total phosphate and

available phosphate, potash, aluminum, boron, calcium, copper, iron, magnesium, manganese, sodium, sulfur and zinc.

In June of 2024, *MBM* began monthly testing of water extractable phosphorus (WEP) on a regular basis and this testing is subcontracted by *Pace Analytical Services, LLC, Green Bay, WI* and performed by *Midwest Laboratories, Omaha, NE*.

The samples are taken by the assistant operator as he unscrews a 5" removable plug and manually hand dips the sample out of the classifier using the 500 mL HDPE BPA3 plastic sampling jar. Sampler is wearing gloves, and care is taken to not handle inside of the jar. Samples are taken from each pelletizer train in operation for at minimum four (4) hours, each pelletizer having its own labelled specific sampling jar. For each 24-hour period, there are six (6) samples taken and added to the HDPE BPA3 lidded composite container. These samples are taken daily at 8 a.m., 12 p.m., 4 p.m., 8 p.m., 12 a.m. and 4 a.m. The composite is hand tumbled to mix the grab samples, and the lab samples are prepared in new 4 oz amber jars from the lab, which are labelled and refrigerated until they are picked up by *CS Logistics*. Fecal coliform samples are collected directly from the classifier stream of pellets, using a 1000 mL sterile Whirl PAK, which is then sealed and placed into another sterile 1000 mL plastic jar for extra protection during its trip to *Suburban Laboratories, Geneva, IL*. Fecal samples are collected when the lab courier arrives to pick samples up in order to observe stringent holding times for fecal samples. *CS Logistics* provides a cooler packed with ice and takes the samples from the refrigerator at MBM along with the fecal sample, completed chain of custody and puts them in the ice packed cooler. The courier stops first at *Suburban Labs in Geneva, IL* and drops off the fecal coliform sample before continuing to the distribution center where the samples are sent on to *Pace Analytical, Green Bay, WI*. The *A & L Great Lakes Laboratories* sample for nutrient testing is composited and the sample bag provided by the lab is labelled with the ID number, filled and folded down and fastened prior to being placed in a Ziploc bag for protection during shipping. This sample and chain of custody are placed in a shipping box provided by *A & L Great Lakes* and shipped via priority mail.

Following this section, you will find three (3) months of the most current *Pace Analytical* Biosolids Monthly Reports which includes the fecal coliform analysis from *Suburban Laboratories, Geneva, IL*, three (3) months of WEP Reports, three (3) months of *A & L Great Lakes Laboratories* nutrient analyses are included in this permit renewal application to demonstrate compliance with Class A EQ standards.

A TCLP analysis report from *Pace Analytical* is also provided.

Additionally, Class A EQ Certificates are issued by *MBM* each month to verify quality of the pellets. Three (3) months of the most current Class A EQ Certificates are attached to this document following the lab analyses.

There has been no significant change in the quality of the biosolids produced at *MBM LLC*. There has been additional sampling and testing that has been implemented due to changing regulatory needs.

MBM also samples three times per quarter according to the Michigan Guidelines for PFAS Sampling and reports for the PFAS using Method 1633 are done and field blanks are also collected. These reports are performed by *Pace Analytical NE*. Twelve months of the most recent analyses are presented with this report. These reports are labelled as CDPHE PFAS SAMPLING because *MBM* and *OT & T Inc* have been supplying these analyses to *Colorado Department of Public Health & Environment (CDPHE)* in conjunction with a research data gathering effort.

As of October 2018, when *MBM* collects pellet samples, a portion of those samples sent for analysis is retained for a period of 4-6 months as a back-up. All data collected from the lab at *MBM*, *Pace Analytical, Suburban Laboratories, Inc. and A & L Great Lakes Laboratories* are kept permanently in an archive server at *MBM*. The analysis hard copies are kept on site for a period of 3 years; after that, they are sent to a third-party long-term storage facility, in this case that is *Iron Mountain Record Storage Facility.* Reports of analysis and nutrients are filed pursuant to each state that the product is distributed to according to their regulation frequency and manner prescribed for reporting.

Twelve months of 503 compliance analyses and nutrient reports are provided annually according to Delaware Subsection 137.2. Monthly reports and lab results are sent to *DE DNREC,* and annual reports are reported by February 1.

IN THIS SECTION:

- PACE ANALYTICAL-BIOSOLIDS MONTHLY REPORTS
- PACE ANALYTICAL-MBM LLC-WEP REPORTS
- A & L GREAT LAKES-MONTHLY NUTRIENT REPORTS
- PACE ANALYTICAL-MBM LLC-TCLP REPORT
- MBM LLC-CLASS A EQ CERTIFICATES
- PACE ANALYTICAL-MBM LLC-PFAS METHOD 1633 SAMPLING

PACE ANALYTICAL

BIOSOLIDS MONTHLY LAB ANALYSIS

JULY, AUGUST & SEPTEMBER 2024

PACE ANALYTICAL BIOSOLIDS MONTHLY

DRY WEIGHT

2024 JULY

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

July 18, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on July 03, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Pace Analytical Services Green Bay
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40280586001	PCD070224	Solid	07/02/24 10:00	07/03/24 09:45

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1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40280586001	PCD070224	EPA 8082A	BDS	10
		EPA 6010D	SIS	11
		EPA 7471	RZA	1
		ASTM D2974-87	GRF	1
		EPA 160.4	LMB	1
		SM 2540G	LMB	1
		TKN-NH3 Calculation	BAF	1
		TKN+NO3+NO2 Calculation	BAF	1
		EPA 300.0	HMB	3
		EPA 350.1	TMK	1
		EPA 351.2	TMK	1
		EPA 365.4	MT	1
		EPA 9012B	DAW	1

PASI-G = Pace Analytical Services - Green Bay

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Sample: PCD070224 **Lab ID: 40280586001** Collected: 07/02/24 10:00 Received: 07/03/24 09:45 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082A GCS PCB	Analytical Method: EPA 8082A Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<0.031**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	12674-11-2	
PCB-1221 (Aroclor 1221)	**<0.031**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	11104-28-2	
PCB-1232 (Aroclor 1232)	**<0.031**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	11141-16-5	
PCB-1242 (Aroclor 1242)	**0.16**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	53469-21-9	
PCB-1248 (Aroclor 1248)	**<0.031**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	12672-29-6	
PCB-1254 (Aroclor 1254)	**0.13**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	11097-69-1	
PCB-1260 (Aroclor 1260)	**0.092J**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	11096-82-5	
PCB, Total	**0.38**	mg/kg	0.10	0.031	2	07/05/24 12:43	07/05/24 22:55	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	72	%	65-120		2	07/05/24 12:43	07/05/24 22:55	877-09-8	
Decachlorobiphenyl (S)	53	%	55-120		2	07/05/24 12:43	07/05/24 22:55	2051-24-3	S0
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**8.9**	mg/kg	2.5	1.5	1	07/08/24 07:32	07/10/24 20:36	7440-38-2	
Cadmium	**2.1**	mg/kg	0.51	0.13	1	07/08/24 07:32	07/10/24 20:36	7440-43-9	
Chromium	**80.2**	mg/kg	1.0	0.28	1	07/08/24 07:32	07/10/24 20:36	7440-47-3	
Cobalt	**14.0**	mg/kg	0.51	0.15	1	07/08/24 07:32	07/10/24 20:36	7440-48-4	
Copper	**464**	mg/kg	1.0	0.28	1	07/08/24 07:32	07/10/24 20:36	7440-50-8	
Lead	**113**	mg/kg	2.0	0.61	1	07/08/24 07:32	07/10/24 20:36	7439-92-1	
Molybdenum	**15.5**	mg/kg	1.0	0.14	1	07/08/24 07:32	07/10/24 20:36	7439-98-7	
Nickel	**46.8**	mg/kg	1.0	0.27	1	07/08/24 07:32	07/10/24 20:36	7440-02-0	
Potassium	**3210**	mg/kg	101	25.9	1	07/08/24 07:32	07/10/24 20:36	7440-09-7	
Selenium	**4.9**	mg/kg	4.1	1.3	1	07/08/24 07:32	07/10/24 20:36	7782-49-2	
Zinc	**951**	mg/kg	4.1	1.2	1	07/08/24 07:32	07/10/24 20:36	7440-66-6	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Green Bay								
Mercury	**0.51**	mg/kg	0.065	0.018	1	07/11/24 07:24	07/11/24 13:03	7439-97-6	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**2.0**	%	0.10	0.10	1		07/05/24 14:21		
160.4 Total Volatile Solids	Analytical Method: EPA 160.4 Pace Analytical Services - Green Bay								
Total Volatile Solids	**46.2**	% (w/w)	0.10	0.10	1		07/03/24 14:53		
2540G Total Percent Solids	Analytical Method: SM 2540G Pace Analytical Services - Green Bay								
Total Solids	**97.9**	%	0.10	0.10	1		07/03/24 14:12		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Sample: PCD070224 **Lab ID: 40280586001** Collected: 07/02/24 10:00 Received: 07/03/24 09:45 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Nitrogen Soil	Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Green Bay								
Total Organic Nitrogen	**16200**	mg/kg	1860	395	18.63		07/18/24 14:35		1q
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Green Bay								
Nitrogen	**19200**	mg/kg	1860	395	18.25		07/18/24 14:25	7727-37-9	1q
300.0 IC Anions	Analytical Method: EPA 300.0 Preparation Method: EPA 300.0 Pace Analytical Services - Green Bay								
Nitrate as N	**<2.3**	mg/kg	7.7	2.3	5	07/15/24 15:59	07/16/24 22:27	14797-55-8	D3
Nitrite as N	**<1.6**	mg/kg	5.5	1.6	5	07/15/24 15:59	07/16/24 22:27	14797-65-0	D3
Nitrogen, NO2 plus NO3	**<3.9**	mg/kg	13.2	3.9	5	07/15/24 15:59	07/16/24 22:27		
350.1 Ammonia	Analytical Method: EPA 350.1 Preparation Method: EPA 350.1 Pace Analytical Services - Green Bay								
Nitrogen, Ammonia	**3030**	mg/kg	403	121	20	07/17/24 14:19	07/17/24 16:10	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Green Bay								
Nitrogen, Kjeldahl, Total	**19200**	mg/kg	1860	395	20	07/17/24 10:45	07/18/24 10:57	7727-37-9	
365.4 Total Phosphorus	Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - Green Bay								
Phosphorus	**17700**	mg/kg	984	246	50	07/08/24 08:40	07/08/24 13:14	7723-14-0	P6
9012 Cyanide, Total	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Green Bay								
Cyanide	**0.39J**	mg/kg	0.78	0.26	1	07/15/24 13:46	07/15/24 14:38	57-12-5	

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478962
QC Batch Method: EPA 7471
Analysis Method: EPA 7471
Analysis Description: 7471 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2743253 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.010	0.035	0.010	07/11/24 12:00	

LABORATORY CONTROL SAMPLE: 2743254

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.83	0.85	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743255 2743256

Parameter	Units	40280542001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.036J	0.96	0.96	0.96	0.99	96	100	85-115	3	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478852
QC Batch Method: EPA 3050B
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2742755 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<1.5	2.5	1.5	07/10/24 20:05	
Cadmium	mg/kg	<0.13	0.50	0.13	07/10/24 20:05	
Chromium	mg/kg	<0.28	1.0	0.28	07/10/24 20:05	
Cobalt	mg/kg	<0.15	0.50	0.15	07/10/24 20:05	
Copper	mg/kg	<0.28	1.0	0.28	07/10/24 20:05	
Lead	mg/kg	<0.60	2.0	0.60	07/10/24 20:05	
Molybdenum	mg/kg	<0.14	1.0	0.14	07/10/24 20:05	
Nickel	mg/kg	<0.26	1.0	0.26	07/10/24 20:05	
Potassium	mg/kg	<25.5	100	25.5	07/10/24 20:05	
Selenium	mg/kg	<1.3	4.0	1.3	07/10/24 20:05	
Zinc	mg/kg	<1.2	4.0	1.2	07/10/24 20:05	

LABORATORY CONTROL SAMPLE: 2742756

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	25	24.3	97	80-120	
Cadmium	mg/kg	25	26.7	107	80-120	
Chromium	mg/kg	25	26.4	106	80-120	
Cobalt	mg/kg	25	27.1	108	80-120	
Copper	mg/kg	25	26.8	107	80-120	
Lead	mg/kg	25	27.1	108	80-120	
Molybdenum	mg/kg	25	26.1	104	80-120	
Nickel	mg/kg	25	27.3	109	80-120	
Potassium	mg/kg	1000	1070	107	80-120	
Selenium	mg/kg	25	25.9	104	80-120	
Zinc	mg/kg	25	25.3	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2742757 2742758

Parameter	Units	40280528002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	2.1J	30.2	30.2	30.4	34.2	93	106	75-125	12	20	
Cadmium	mg/kg	<0.16	30.2	30.2	31.9	31.9	105	105	75-125	0	20	
Chromium	mg/kg	15.4	30.2	30.2	50.5	51.2	116	119	75-125	1	20	
Cobalt	mg/kg	5.8	30.2	30.2	37.7	41.7	106	119	75-125	10	20	
Copper	mg/kg	15.3	30.2	30.2	46.9	47.5	105	107	75-125	1	20	
Lead	mg/kg	7.9	30.2	30.2	43.0	40.2	116	107	75-125	7	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2742757 2742758

Parameter	Units	40280528002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	mg/kg	<0.17	30.2	30.2	30.7	30.8	102	102	75-125	0	20	
Nickel	mg/kg	11.2	30.2	30.2	44.4	44.6	110	111	75-125	1	20	
Potassium	mg/kg	1630	1210	1210	3960	4130	192	207	75-125	4	20	M0
Selenium	mg/kg	<1.6	30.2	30.2	31.3	31.8	100	102	75-125	2	20	
Zinc	mg/kg	48.1	30.2	30.2	78.3	86.1	100	126	75-125	10	20	M0

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478875
QC Batch Method: EPA 3541
Analysis Method: EPA 8082A
Analysis Description: 8082 GCS PCB
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2742852 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
PCB-1221 (Aroclor 1221)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
PCB-1232 (Aroclor 1232)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
PCB-1242 (Aroclor 1242)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
PCB-1248 (Aroclor 1248)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
PCB-1254 (Aroclor 1254)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
PCB-1260 (Aroclor 1260)	mg/kg	<0.015	0.050	0.015	07/05/24 18:18	
Decachlorobiphenyl (S)	%	75	55-120		07/05/24 18:18	
Tetrachloro-m-xylene (S)	%	84	65-120		07/05/24 18:18	

LABORATORY CONTROL SAMPLE: 2742853

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg		<0.015			
PCB-1221 (Aroclor 1221)	mg/kg		<0.015			
PCB-1232 (Aroclor 1232)	mg/kg		<0.015			
PCB-1242 (Aroclor 1242)	mg/kg		<0.015			
PCB-1248 (Aroclor 1248)	mg/kg		<0.015			
PCB-1254 (Aroclor 1254)	mg/kg		<0.015			
PCB-1260 (Aroclor 1260)	mg/kg	0.5	0.39	79	68-120	
Decachlorobiphenyl (S)	%			68	55-120	
Tetrachloro-m-xylene (S)	%			74	65-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2742854 2742855

Parameter	Units	40280515007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	mg/kg	<0.017			<0.017	<0.017					20	
PCB-1221 (Aroclor 1221)	mg/kg	<0.017			<0.017	<0.017					20	
PCB-1232 (Aroclor 1232)	mg/kg	<0.017			<0.017	<0.017					20	
PCB-1242 (Aroclor 1242)	mg/kg	<0.017			<0.017	<0.017					20	
PCB-1248 (Aroclor 1248)	mg/kg	<0.017			<0.017	<0.017					20	
PCB-1254 (Aroclor 1254)	mg/kg	<0.017			<0.017	<0.017					20	
PCB-1260 (Aroclor 1260)	mg/kg	<0.017	0.56	0.56	0.45	0.46	80	81	45-126	1	20	
Decachlorobiphenyl (S)	%						70	71	55-120			
Tetrachloro-m-xylene (S)	%						79	82	65-120			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478889
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40280586001

SAMPLE DUPLICATE: 2742931

Parameter	Units	40280586001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	2.0	2.1	4	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478823
QC Batch Method: EPA 160.4
Analysis Method: EPA 160.4
Analysis Description: 160.4 Total Volatile Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2742519 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Volatile Solids	% (w/w)	8.0	0.10	0.10	07/03/24 14:53	

LABORATORY CONTROL SAMPLE: 2742520

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Volatile Solids	% (w/w)	286	296	104	80-120	

SAMPLE DUPLICATE: 2742521

Parameter	Units	40280490001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Volatile Solids	% (w/w)	74.7	75.6	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478822
QC Batch Method: SM 2540G
Analysis Method: SM 2540G
Analysis Description: 2540G Total Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2742516 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Solids	%	<0.10	0.10	0.10	07/03/24 14:10	

LABORATORY CONTROL SAMPLE: 2742517

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Solids	%	790	737	93	80-120	

SAMPLE DUPLICATE: 2742518

Parameter	Units	40280490001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	8.0	8.0	1	10	

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REPORT OF LABORATORY ANALYSIS

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(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 479399
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2745544 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/kg	<0.44	1.5	0.44	07/16/24 17:10	
Nitrite as N	mg/kg	<0.32	1.1	0.32	07/16/24 17:10	
Nitrogen, NO2 plus NO3	mg/kg	<0.76	2.6	0.76	07/16/24 17:10	

LABORATORY CONTROL SAMPLE: 2745545

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/kg	15	15.5	104	80-120	
Nitrite as N	mg/kg	10	10.3	103	80-120	
Nitrogen, NO2 plus NO3	mg/kg	25	25.8	103		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2745546 2745547

Parameter	Units	40280571003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/kg	ND	16.6	16.7	18.3	18.5	110	111	80-120	1	15	
Nitrite as N	mg/kg	ND	11	11.2	12.3	12.5	112	113	80-120	2	15	
Nitrogen, NO2 plus NO3	mg/kg	ND	27.6	27.8	30.6	31.1	111	111		2	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2745548 2745549

Parameter	Units	40280571015 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/kg	126	17.5	17.5	151	162	142	205	80-120	7	15	P6
Nitrite as N	mg/kg	ND	11.7	11.7	13.6	14.3	116	122	80-120	5	15	M0
Nitrogen, NO2 plus NO3	mg/kg	126	29.2	29.2	165	176	132	172		7	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 479596
QC Batch Method: EPA 350.1
Analysis Method: EPA 350.1
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2746710 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/kg	<6.4	21.5	6.4	07/17/24 16:04	

LABORATORY CONTROL SAMPLE: 2746711

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/kg	300	286	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2746712 2746713

Parameter	Units	40280379004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	3590J	71400	72600	75200	77800	100	102	80-120	3	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2746714 2746715

Parameter	Units	40280764001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	2900	826	815	3920	3720	122	101	80-120	5	20	M0

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 479667
QC Batch Method: EPA 351.2
Analysis Method: EPA 351.2
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2747096 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	<21.2	100	21.2	07/18/24 10:55	

LABORATORY CONTROL SAMPLE: 2747097

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	500	500	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2747098 2747099

Parameter	Units	40280571001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	161	477	473	609	550	94	82	80-120	10	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2747100 2747101

Parameter	Units	40280631001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	2360	1330	1340	4040	3600	126	92	80-120	12	20	M0

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 478910
QC Batch Method: EPA 365.4
Analysis Method: EPA 365.4
Analysis Description: 365.4 Total Phosphorus
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2743087 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phosphorus	mg/kg	<5.0	20.0	5.0	07/08/24 13:09	

LABORATORY CONTROL SAMPLE: 2743088

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/kg	500	518	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2743137 2743138

Parameter	Units	40280586001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/kg	17700	474	475	19100	19400	301	346	80-120	1	20	P6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

QC Batch: 479256
QC Batch Method: EPA 9012B
Analysis Method: EPA 9012B
Analysis Description: 9012 Cyanide
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40280586001

METHOD BLANK: 2744515 Matrix: Solid
Associated Lab Samples: 40280586001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide	mg/kg	<0.31	0.92	0.31	07/15/24 14:36	

LABORATORY CONTROL SAMPLE: 2744516

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/kg	3	3.0	100	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2744517 2744518

Parameter	Units	10699200002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	<0.88	3	2.8	2.5	2.3	79	74	85-115	8	15	M0

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(920)469-2436

QUALIFIERS

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q	Dilution for calculation purposes only.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
S0	Surrogate recovery outside laboratory control limits.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BIOSOLIDS MONTHLY JULY
Pace Project No.: 40280586

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40280586001	**PCD070224**	EPA 3541	478875	EPA 8082A	478882
40280586001	**PCD070224**	EPA 3050B	478852	EPA 6010D	479020
40280586001	**PCD070224**	EPA 7471	478962	EPA 7471	479268
40280586001	**PCD070224**	ASTM D2974-87	478889		
40280586001	**PCD070224**	EPA 160.4	478823		
40280586001	**PCD070224**	SM 2540G	478822		
40280586001	**PCD070224**	TKN-NH3 Calculation	479841		
40280586001	**PCD070224**	TKN+NO3+NO2 Calculation	479839		
40280586001	**PCD070224**	EPA 300.0	479399	EPA 300.0	479607
40280586001	**PCD070224**	EPA 350.1	479596	EPA 350.1	479736
40280586001	**PCD070224**	EPA 351.2	479667	EPA 351.2	479817
40280586001	**PCD070224**	EPA 365.4	478910	EPA 365.4	478965
40280586001	**PCD070224**	EPA 9012B	479256	EPA 9012B	479483

40280586

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To cletus.ketter@veolia.com	Attention Veolia Support Services North
6001 W. Pershing Rd	Copy To cletus.ketter@veolia.com	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus.ketter@veolia.com	Purchase Order No. 1000361816	Pace Quote Reference
Phone na Fax na	Project Name BIOSOLIDS MONTHLY	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number na	Pace Profile # 5163

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER___

Section D Required Client Information

SAMPLE ID

One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOLID/SOLID	SL
OIL	OL/WP
WIPE	AR
AIR	CT
OTHER	TS
TISSUE	

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	#OF CONTAINERS	Preservatives: Unpreserved	Preservatives: 1 L plastic/ whirl	Preservatives: Pak Bag	Filtered (Y/N)	Requested Analysis: SM2540B TS,EPA160.4 TVS	Requested Analysis: S2220 FECAL COLIFORM*	Requested Analysis: 6010 METALS - As,Cd, Cr,Cu,K,Pb,Mo,Ni,Se,Zn	Requested Analysis: 7471 MERCURY; TKN,TN	Requested Analysis: 350.1 NH3, TON	Requested Analysis: 9012 Cyanide,Phosphorus	Requested Analysis: 300 Nitrate, Nitrite, N+N	Requested Analysis: Residual Chlorine (Y/N)	Pace Project Number Lab I.D.
1	PCD 070224	SL	G	7-2-24	10AM	7-2-24	10AM		1		1				X							006 001
2	PCD070224	SL	G	7-2-24	10AM	7-2-24	10AM		1	1				X		X	X	X	X	X	X	008 001
3	PCD070224		G	7-2-24	10AM	7-2-24	10AM															7/3/24 OF
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Additional Comments:

* Pace Courier to drop off at sub lab

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	7-2-24	10:2	[illegible]	7/2/24	1030
	7/2/24	1700	CS LOGISTICS	7/2/24	1900
CS Logistics	7/3/24	0945	Veolia Water Pace	7/3/24	0945

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
20	(Y)N	(Y)N	(Y)N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Harry Maxwell

SIGNATURE of SAMPLER: Harry Maxwell

DATE Signed (MM / DD / YY): 07-02-2024

SUBURBAN LABORATORIES, Inc.

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CHAIN OF CUSTODY RECORD

40280586

Electronic Version

Company Name: Pace Analytical
Company Address: 1241 Bellevue St
City: Green Bay State: WI Zip: 54302
Phone: 920-321-9455 Fax: ☐ Fax Report
Email Address: cindy.varga@pacelabs.com ☑ Email Report
Project ID / Location: Veoila Biosolids Monthly/Cicero IL
Project Manager (Report to): Cindy Varga
Sample Collector(s):

TURNAROUND TIME REQUESTED

☑ Normal ☐ RUSH* *Additional Rush Charges Approved

*Date & Time Needed.

Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only

☐ LUST ☐ SRP ☐ SDWA

☐ 503 Sludge ☐ NPDES ☐ MWRDGC

☐ Disposal ☐ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED

Enter an "X" in box below for request

Page of

PO No

Shipping Method

QC Reporting Level ☐ 1 ☐ 2 ☐ 3

LAB USE ONLY

SLI Order No.

Sample containers supplied by customer? ☐ Yes

Temperature of Received Samples 26.1 °C

Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	9222D Fecal Coliform	R	Condition	Split	LAB #
1	PCD070124	7/1/24	1000	SL	GRAB/	1	120 ml sterile	Nathiosulfate	X				
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) **CONTAINER:** 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) **PRESERVATIVE:** H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS: T107

CONDITION CODES

1 Improper/damaged container/cap
2 Improper preservation
3 Insufficient sample volume
4 Headspace/air bubbles for VOCs
5 Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3 Relinquished By	Date	4. Relinquished By	Date
			7/2/24 1200				
Received By ☐ Ice	Time	Received By ☐ Ice	Time 1200	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

Sample Preservation Receipt Form

Client Name: Veolia Project # 402805860

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☑N/A Initial when completed: Date/ Time:

Lab Lot# of pH paper: Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2							
001																				2														2.5 / 5
002																																		2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
006																																		2.5 / 5
007																																		2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
011																																		2.5 / 5
012																																		2.5 / 5
013																																		2.5 / 5
014																																		2.5 / 5
015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: Headspace in VOA Vials (>6mm): ☐Yes ☐No ☑N/A ***If yes look in headspace column**

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	
						GN 2	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO#: 40280586

40280586

Client Name: Veolia

Courier: ☑ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Custody Seal on Samples Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 136 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr: 2.0 /Corr. 2.0

Temp Blank Present: ☑ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 7/3/24 /Initials: GP

Labeled By Initials: GP

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☑Yes ☐No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: (Pace Green Bay) Pace IR, Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: S		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave., Suite 150 Geneva, Illinois 60134
Tel. (708) 544-3260 • Toll Free (800) 783-LABS
Fax (708) 544-8587
www.suburbanlabs.com

July 08, 2024

Workorder: 2407138

Cindy Varga
Pace Analytical - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

TEL: (920) 469-2436
FAX:
RE: Veolia Biosolids- Cicero IL

Dear Cindy Varga:

Suburban Laboratories, Inc. received 1 sample(s) on 7/2/2024 for the analyses presented in the following report.

All data for the associated quality control (QC) met EPA, method, or internal laboratory specifications except where noted in the case narrative. If you are comparing these results to external QC specifications or compliance limits and have any questions, please contact us.

This final report of laboratory analysis consists of this cover letter, case narrative, analytical report, dates report, and any accompanying documentation including, but not limited to, chain of custody records, raw data, and letters of explanation or reliance. This report may not be reproduced, except in full, without the prior written approval of Suburban Laboratories, Inc.

If you have any questions regarding these test results, please call me at (708) 544-3260.

Sincerely,

Dan Galeher
Project Manager
708-544-3260 ext 216
dan@SuburbanLabs.com

Case Narrative

Client: Pace Analytical - WI
Project: Veolia Biosolids- Cicero IL
WorkOrder: 2407138
Temperature of samples upon receipt at SLI: C

Date: July 08, 2024
PO #:
QC Level:
Chain of Custody #:

General Comments:
- All results reported in wet weight unless otherwise indicated. (dry = Dry Weight)
- Sample results relate only to the analytes of interest tested and to sample as received by the laboratory.
- Environmental compliance sample results meet the requirements of 35 IAC Part 186 unless otherwise indicated.
- Waste water analysis follows the rules set forth in 40 CFR part 136 except where otherwise noted.
- Accreditation by the State of Illinois is not an endorsement or a guarantee of the validity of data generated.
- For more information about the laboratories' scope of accreditation, please contact us at (708) 544-3260 or the Agency at (217) 782-6455.
- All radiological results are reported to the 95% confidence level.

Abbreviations:
- Reporting Limit: The concentration at which an analyte can be routinely detected on a day to day basis, and which also meets regulatory and client needs.
- Quantitation Limit: The lowest concentration at which results can be accurately quantitated.
- J: The analyte was positively identified above our Method Detection Limit and is considered detectable and usable; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- ATC: Automatic Temperature Correction. - TNTC: Too Numerous To Count
- TIC: Tentatively Identified Compound (GCMS library search identification, concentration estimated to nearest internal standard).
- SS: (Surrogate Standard): Quality control compound added to the sample by the lab.
-LA: Lab Accident - No valid data to report.
-VO: Insufficient Volume provided
-BR: Received broken
-IP: Invalid Sampling

Method References:
For a complete list of method references please contact us.
- E: USEPA Reference methods
- SW: USEPA, Test Methods for Evaluating Solid Waste (SW-846)
- M: Standard Methods for the Examination of Water and Wastewater
- USP: Latest version of United States Pharmacopeia

Workorder Specific Comments:

Suburban Laboratories, Inc.
1950 S. Batavia Ave., Suite 150, Geneva, IL 60134 (708) 544-3260

Laboratory Results

Client ID: Pace Analytical - WI
Project Name: Veolia Biosolids- Cicero IL

Report Date: July 08, 2024
Workorder: **2407138**

Client Sample ID: **PCD070124**
Lab ID: 2407138-001

Date Received: 07/02/2024 12:00 PM

Matrix: SLUDGE
Collection Date: 07/02/2024 10:00 AM

Parameter	Result	Report Limit	Qual.	Units	Dilution Factor	Date Analyzed	Batch ID
FECAL COLIFORM (MPN), CLASS A		Method: SM-9221E-Rev 18Ed, 1992				Analyst: VA	
Fecal Coliform	<2	0	c	MPN/g-dry	1	07/02/2024 1:06 PM	R178832
PERCENT MOISTURE		Method: ASTM-D2216-Rev 2005				Analyst: SH	
Percent Moisture	1.7	1.0	c	wt%	1	07/03/2024 8:43 AM	R178861

Qualifier Definitions

WO#: **2407138**
Date: **7/8/2024**

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level
B	Analyte detected in the associated Method Blank
C	Value is below Minimum Concentration Limit
c	Analyte not in TNI/NELAC scope of accreditation
E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)
N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit
P	Present
Q	Accreditation is not available from Wisconsin
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
T	Analyte detected in sample trip blank
V	EPA requires field analysis/filtration. Lab analysis would be considered past hold time.
WI	This sample was ran at the Wisconsin Laboratory, WI DNR Certified #246179890

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave. Geneva, IL 60134 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

Electronic Version

Company Name: Pace Analytical
Company Address: 1241 Bellevue St
City: Green Bay State: WI Zip: 54302
Phone: 920-321-9455 Fax: ☐ Fax Report
Email Address: cindy.varga@pacelabs.com ☑ Email Report
Project ID / Location: Veolia Biosolids Monthly/Cicero IL
Project Manager (Report to): Cindy Varga
Sample Collector(s):

TURNAROUND TIME REQUESTED

☑ Normal ☐ RUSH* *Additional Rush Charges Approved.

*Date & Time Needed:

Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only
☐ LUST ☐ SRP ☐ SDWA
☐ 503 Sludge ☐ NPDES ☐ MWRDGC
☐ Disposal ☐ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED

Enter an "X" in box below for request

Page of
PO No.
Shipping Method
QC Reporting Level ☐ 1 ☐ 2 ☐ 3

LAB USE ONLY

SLI Order No: 2407138
Sample containers supplied by customer? ☐ Yes
Temperature of Received Samples: 26.1 °C
Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	9222D Fecal Coliform	R	Condition	Split	LAB #
1	PCD070124	7/1/24	1000	SL	GRAB/	1	120 ml sterile	Nathiosulfate	X				
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) **CONTAINER:** 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) **PRESERVATIVE:** H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

TAT

CONDITION CODES

1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3. Relinquished By	Date	4. Relinquished By	Date
			7/2/24 1200				
Received By ☐ Ice	Time	Received By ☐ Ice	Time 1200	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

PACE ANALYTICAL BIOSOLIDS MONTHLY

DRY WEIGHT

2024 AUGUST

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

August 28, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on August 07, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
- Pace Analytical Services - Green Bay

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc
Sarah Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Pace Analytical Services Green Bay
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40282155001	PCD080624	Solid	08/06/24 11:00	08/07/24 10:10

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40282155001	PCD080624	EPA 8082A	BDS	10
		EPA 6010D	SIS	11
		EPA 7471	AJT	1
		ASTM D2974-87	NMK	1
		EPA 160.4	LMB	1
		SM 2540G	LMB	1
		TKN-NH3 Calculation	BAF	1
		TKN+NO3+NO2 Calculation	BAF	1
		EPA 300.0	HMB	3
		EPA 350.1	CDD	1
		EPA 351.2	DAW	1
		EPA 365.4	MT	1
		EPA 9012B	DAW	1

PASI-G = Pace Analytical Services - Green Bay

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Sample: PCD080624 **Lab ID: 40282155001** Collected: 08/06/24 11:00 Received: 08/07/24 10:10 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082A GCS PCB	Analytical Method: EPA 8082A Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<0.032**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	12674-11-2	
PCB-1221 (Aroclor 1221)	**<0.032**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	11104-28-2	
PCB-1232 (Aroclor 1232)	**<0.032**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	11141-16-5	
PCB-1242 (Aroclor 1242)	**0.15**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	53469-21-9	
PCB-1248 (Aroclor 1248)	**<0.032**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	12672-29-6	
PCB-1254 (Aroclor 1254)	**0.14**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	11097-69-1	
PCB-1260 (Aroclor 1260)	**0.099J**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	11096-82-5	
PCB, Total	**0.39**	mg/kg	0.10	0.032	2	08/08/24 12:00	08/08/24 23:39	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	67	%	65-120		2	08/08/24 12:00	08/08/24 23:39	877-09-8	
Decachlorobiphenyl (S)	51	%	55-120		2	08/08/24 12:00	08/08/24 23:39	2051-24-3	S0
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**6.3**	mg/kg	2.6	1.5	1	08/09/24 06:12	08/09/24 13:23	7440-38-2	
Cadmium	**1.7**	mg/kg	0.52	0.14	1	08/09/24 06:12	08/09/24 13:23	7440-43-9	
Chromium	**56.4**	mg/kg	1.0	0.29	1	08/09/24 06:12	08/09/24 13:23	7440-47-3	M0
Cobalt	**8.5**	mg/kg	0.52	0.15	1	08/09/24 06:12	08/09/24 13:23	7440-48-4	
Copper	**332**	mg/kg	1.0	0.29	1	08/09/24 06:12	08/09/24 13:23	7440-50-8	P6
Lead	**72.8**	mg/kg	2.1	0.63	1	08/09/24 06:12	08/09/24 13:23	7439-92-1	M0
Molybdenum	**12.1**	mg/kg	1.0	0.15	1	08/09/24 06:12	08/09/24 13:23	7439-98-7	
Nickel	**33.1**	mg/kg	1.0	0.28	1	08/09/24 06:12	08/09/24 13:23	7440-02-0	M0
Potassium	**2190**	mg/kg	104	26.7	1	08/09/24 06:12	08/09/24 13:23	7440-09-7	M0
Selenium	**4.2J**	mg/kg	4.2	1.4	1	08/09/24 06:12	08/09/24 13:23	7782-49-2	
Zinc	**771**	mg/kg	41.8	12.5	10	08/09/24 06:12	08/09/24 13:57	7440-66-6	P6
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Green Bay								
Mercury	**0.52**	mg/kg	0.066	0.019	1	08/19/24 06:16	08/19/24 09:18	7439-97-6	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.3**	%	0.10	0.10	1		08/09/24 17:14		
160.4 Total Volatile Solids	Analytical Method: EPA 160.4 Pace Analytical Services - Green Bay								
Total Volatile Solids	**48.8**	% (w/w)	0.10	0.10	1		08/08/24 11:16		
2540G Total Percent Solids	Analytical Method: SM 2540G Pace Analytical Services - Green Bay								
Total Solids	**96.4**	%	0.10	0.10	1		08/08/24 11:01		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Sample: PCD080624 **Lab ID: 40282155001** Collected: 08/06/24 11:00 Received: 08/07/24 10:10 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Organic Nitrogen Soil	Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Green Bay								
Total Organic Nitrogen	**30400**	mg/kg	1890	401	18.9		08/28/24 12:35		1q
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Green Bay								
Nitrogen	**33300**	mg/kg	1890	401	18.08		08/28/24 12:40	7727-37-9	1q
300.0 IC Anions	Analytical Method: EPA 300.0 Preparation Method: EPA 300.0 Pace Analytical Services - Green Bay								
Nitrate as N	**<2.3**	mg/kg	7.9	2.3	5	08/13/24 16:58	08/14/24 22:05	14797-55-8	D3
Nitrite as N	**<1.7**	mg/kg	5.6	1.7	5	08/13/24 16:58	08/14/24 22:05	14797-65-0	D3
Nitrogen, NO2 plus NO3	**<4.0**	mg/kg	13.5	4.0	5	08/13/24 16:58	08/14/24 22:05		
350.1 Ammonia	Analytical Method: EPA 350.1 Preparation Method: EPA 350.1 Pace Analytical Services - Green Bay								
Nitrogen, Ammonia	**2940**	mg/kg	182	54.7	10	08/14/24 11:31	08/14/24 16:56	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Green Bay								
Nitrogen, Kjeldahl, Total	**33300**	mg/kg	1890	401	20	08/27/24 09:30	08/28/24 10:05	7727-37-9	
365.4 Total Phosphorus	Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - Green Bay								
Phosphorus	**15900**	mg/kg	1010	253	50	08/12/24 08:20	08/12/24 13:15	7723-14-0	P6
9012 Cyanide, Total	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Green Bay								
Cyanide	**0.88**	mg/kg	0.86	0.29	1	08/14/24 10:55	08/14/24 13:25	57-12-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 482128
QC Batch Method: EPA 7471
Analysis Method: EPA 7471
Analysis Description: 7471 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2761017 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.010	0.035	0.010	08/19/24 09:00	

LABORATORY CONTROL SAMPLE: 2761018

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.83	0.84	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2761019 2761020

Parameter	Units	40282352001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.027J	0.92	0.92	0.94	0.87	99	92	85-115	8	20	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481563
QC Batch Method: EPA 3050B
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2757792 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<1.5	2.5	1.5	08/09/24 13:19	
Cadmium	mg/kg	<0.13	0.50	0.13	08/09/24 13:19	
Chromium	mg/kg	<0.28	1.0	0.28	08/09/24 13:19	
Cobalt	mg/kg	<0.15	0.50	0.15	08/09/24 13:19	
Copper	mg/kg	<0.28	1.0	0.28	08/09/24 13:19	
Lead	mg/kg	<0.60	2.0	0.60	08/09/24 13:19	
Molybdenum	mg/kg	<0.14	1.0	0.14	08/09/24 13:19	
Nickel	mg/kg	<0.26	1.0	0.26	08/09/24 13:19	
Potassium	mg/kg	<25.5	100	25.5	08/09/24 13:19	
Selenium	mg/kg	<1.3	4.0	1.3	08/09/24 13:19	
Zinc	mg/kg	<1.2	4.0	1.2	08/09/24 13:19	

LABORATORY CONTROL SAMPLE: 2757793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	25	23.7	95	80-120	
Cadmium	mg/kg	25	25.8	103	80-120	
Chromium	mg/kg	25	25.2	101	80-120	
Cobalt	mg/kg	25	25.8	103	80-120	
Copper	mg/kg	25	25.9	104	80-120	
Lead	mg/kg	25	25.6	103	80-120	
Molybdenum	mg/kg	25	25.5	102	80-120	
Nickel	mg/kg	25	25.9	104	80-120	
Potassium	mg/kg	1000	986	99	80-120	
Selenium	mg/kg	25	25.5	102	80-120	
Zinc	mg/kg	25	25.4	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2757794 2757795

Parameter	Units	40282155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	6.3	26	26	31.6	31.6	97	97	75-125	0	20	
Cadmium	mg/kg	1.7	26	26	27.3	27.6	98	100	75-125	1	20	
Chromium	mg/kg	56.4	26	26	99.6	101	166	171	75-125	1	20	M0
Cobalt	mg/kg	8.5	26	26	35.7	36.5	105	108	75-125	2	20	
Copper	mg/kg	332	26	26	452	470	463	532	75-125	4	20	P6
Lead	mg/kg	72.8	26	26	118	121	173	186	75-125	3	20	M0

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2757794 2757795

Parameter	Units	40282155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	mg/kg	12.1	26	26	39.8	40.8	107	111	75-125	2	20	
Nickel	mg/kg	33.1	26	26	67.3	68.2	132	135	75-125	1	20	M0
Potassium	mg/kg	2190	1040	1040	4790	4920	249	262	75-125	3	20	M0
Selenium	mg/kg	4.2J	26	26	30.8	30.2	102	100	75-125	2	20	
Zinc	mg/kg	771	26	26	984	1010	820	920	75-125	3	20	P6

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481486
QC Batch Method: EPA 3541
Analysis Method: EPA 8082A
Analysis Description: 8082 GCS PCB
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2757173 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
PCB-1221 (Aroclor 1221)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
PCB-1232 (Aroclor 1232)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
PCB-1242 (Aroclor 1242)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
PCB-1248 (Aroclor 1248)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
PCB-1254 (Aroclor 1254)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
PCB-1260 (Aroclor 1260)	mg/kg	<0.015	0.050	0.015	08/08/24 17:16	
Decachlorobiphenyl (S)	%	76	55-120		08/08/24 17:16	
Tetrachloro-m-xylene (S)	%	90	65-120		08/08/24 17:16	

LABORATORY CONTROL SAMPLE: 2757174

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg		<0.015			
PCB-1221 (Aroclor 1221)	mg/kg		<0.015			
PCB-1232 (Aroclor 1232)	mg/kg		<0.015			
PCB-1242 (Aroclor 1242)	mg/kg		<0.015			
PCB-1248 (Aroclor 1248)	mg/kg		<0.015			
PCB-1254 (Aroclor 1254)	mg/kg		<0.015			
PCB-1260 (Aroclor 1260)	mg/kg	0.5	0.44	87	68-120	
Decachlorobiphenyl (S)	%			81	55-120	
Tetrachloro-m-xylene (S)	%			90	65-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2757175 2757176

Parameter	Units	40282091011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	mg/kg	<0.018			<0.018	<0.018					20	
PCB-1221 (Aroclor 1221)	mg/kg	<0.018			<0.018	<0.018					20	
PCB-1232 (Aroclor 1232)	mg/kg	<0.018			<0.018	<0.018					20	
PCB-1242 (Aroclor 1242)	mg/kg	<0.018			<0.018	<0.018					20	
PCB-1248 (Aroclor 1248)	mg/kg	<0.018			<0.018	<0.018					20	
PCB-1254 (Aroclor 1254)	mg/kg	<0.018			<0.018	<0.018					20	
PCB-1260 (Aroclor 1260)	mg/kg	<0.018	0.6	0.6	0.48	0.51	80	84	45-126	6	20	
Decachlorobiphenyl (S)	%						73	76	55-120			
Tetrachloro-m-xylene (S)	%						81	85	65-120			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481642
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

SAMPLE DUPLICATE: 2758607

Parameter	Units	40282332003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.9	17.7	1	10	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481480
QC Batch Method: EPA 160.4
Analysis Method: EPA 160.4
Analysis Description: 160.4 Total Volatile Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2757159 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Volatile Solids	% (w/w)	<0.10	0.10	0.10	08/08/24 11:16	

LABORATORY CONTROL SAMPLE: 2757160

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Volatile Solids	% (w/w)	286	273	96	80-120	

SAMPLE DUPLICATE: 2757161

Parameter	Units	40282155001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Volatile Solids	% (w/w)	48.8	48.5	1	10	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481479
QC Batch Method: SM 2540G
Analysis Method: SM 2540G
Analysis Description: 2540G Total Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2757156 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Solids	%	<0.10	0.10	0.10	08/08/24 11:00	

LABORATORY CONTROL SAMPLE: 2757157

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Solids	%	790	750	95	80-120	

SAMPLE DUPLICATE: 2757158

Parameter	Units	40282155001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Solids	%	96.4	96.3	0	10	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481771
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2759167 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/kg	<0.44	1.5	0.44	08/14/24 18:59	
Nitrite as N	mg/kg	<0.32	1.1	0.32	08/14/24 18:59	
Nitrogen, NO2 plus NO3	mg/kg	<0.76	2.6	0.76	08/14/24 18:59	

LABORATORY CONTROL SAMPLE: 2759168

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/kg	15	16.7	112	80-120	
Nitrite as N	mg/kg	10	11.0	110	80-120	
Nitrogen, NO2 plus NO3	mg/kg	25	27.8	111		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2759169 2759170

Parameter	Units	40282310001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/kg	56.1	15.7	15.6	85.0	87.0	184	199	80-120	2	15	M0
Nitrite as N	mg/kg	ND	10.5	10.4	12.3	12.6	117	121	80-120	3	15	M0
Nitrogen, NO2 plus NO3	mg/kg	56.1	26.1	25.9	97.2	99.6	157	168		2	15	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2759171 2759172

Parameter	Units	40282398003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/kg	<24.9	172	172	242	241	129	128	80-120	1	15	M0
Nitrite as N	mg/kg	<18.1	114	114	95.2	93.8	83	82	80-120	2	15	
Nitrogen, NO2 plus NO3	mg/kg	<43.1	287	286	338	335	110	110		1	15	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481815
QC Batch Method: EPA 350.1
Analysis Method: EPA 350.1
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2759361 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/kg	<6.4	21.5	6.4	08/14/24 16:08	

LABORATORY CONTROL SAMPLE: 2759362

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/kg	300	319	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2759363 2759364

Parameter	Units	40281816001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	16.1J	309	309	352	322	109	99	80-120	9	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2759365 2759366

Parameter	Units	40281881001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	41.9	263	265	292	305	95	99	80-120	4	20	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 482841
QC Batch Method: EPA 351.2
Analysis Method: EPA 351.2
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2765023 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	<21.2	100	21.2	08/28/24 09:57	

LABORATORY CONTROL SAMPLE: 2765024

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	500	522	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2765025 2765026

Parameter	Units	40282389006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	ND	566	540	664	620	108	105	80-120	7	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2765202 2765203

Parameter	Units	40282604007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	23700	2900	2810	24900	23100	41	-22	80-120	7	20	P6

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481656
QC Batch Method: EPA 365.4
Analysis Method: EPA 365.4
Analysis Description: 365.4 Total Phosphorus
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2758753 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phosphorus	mg/kg	9.0J	20.0	5.0	08/12/24 13:12	

LABORATORY CONTROL SAMPLE: 2758754

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/kg	500	532	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2758755 2758756

Parameter	Units	40282155001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/kg	15900	501	494	20100	20900	3980	4190	80-120	4	20	P6

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

QC Batch: 481886
QC Batch Method: EPA 9012B
Analysis Method: EPA 9012B
Analysis Description: 9012 Cyanide
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40282155001

METHOD BLANK: 2759700 Matrix: Solid
Associated Lab Samples: 40282155001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide	mg/kg	<0.31	0.92	0.31	08/14/24 13:18	

LABORATORY CONTROL SAMPLE: 2759701

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/kg	3	2.9	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2759702 2759703

Parameter	Units	40282152001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	<0.29	2.9	2.9	1.9	2.1	63	70	85-115	9	15	M0

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
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(920)469-2436

QUALIFIERS

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q	Dilution for calculation purposes only.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
S0	Surrogate recovery outside laboratory control limits.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BIOSOLIDS MONTHLY AUGUST
Pace Project No.: 40282155

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40282155001	PCD080624	EPA 3541	481486	EPA 8082A	481492
40282155001	PCD080624	EPA 3050B	481563	EPA 6010D	481621
40282155001	PCD080624	EPA 7471	482128	EPA 7471	482224
40282155001	PCD080624	ASTM D2974-87	481642		
40282155001	PCD080624	EPA 160.4	481480		
40282155001	PCD080624	SM 2540G	481479		
40282155001	PCD080624	TKN-NH3 Calculation	483077		
40282155001	PCD080624	TKN+NO3+NO2 Calculation	483078		
40282155001	PCD080624	EPA 300.0	481771	EPA 300.0	481919
40282155001	PCD080624	EPA 350.1	481815	EPA 350.1	481964
40282155001	PCD080624	EPA 351.2	482841	EPA 351.2	482941
40282155001	PCD080624	EPA 365.4	481656	EPA 365.4	481679
40282155001	PCD080624	EPA 9012B	481886	EPA 9012B	481936

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

402 pans

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To cletus ketter@veolia com	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To cletus ketter@veolia com	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus ketter@veolia com	Purchase Order No.1000361816	Pace Quote Reference
Phone na Fax na	Project Name BIOSOLIDS MONTHLY	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number na	Pace Profile # 5163

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER___

Section D Required Client Information

SAMPLE ID

One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL/WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

ITEM #	Section D SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	#OF CONTAINERS	Preservatives: Unpreserved	1 L plastic/ whirl	Pak Bag	Filtered (Y/N)	Requested Analyses: SM2540B TS,EPA160.4 TVS	9222D FECAL COLIFORM*	6010 METALS - As,Cd, Cr,Cu,K,Pb,Mg,Ni,Se,Zn	7471 MERCURY,TKN,TN	350.1 NH3, TON	9012 Cyanide,Phosphorus	300 Nitrate, Nitrite, N+N	Residual Chlorine (Y/N)	Pace Project Number / Lab I.D.
1	PCD 080624	SL		8-6-24	11:00	8-6-24	11:00		1		1		N		X							001
2		SL							1	1			N	X		X	X	X	X	X	X	↓
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Additional Comments:

* Pace Courier to drop off at sub lab

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Tom Murray	8-6-24	11:00		8/6/24	1100
	8/6/24	1700	CS Logistics	8/6/24	1900
CS Logistics	8/7/24	1010	E. Jeff PACE	8/7/24	1010

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
3.0	(Y)/N	(Y)/N	(Y)/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Tom Murray

SIGNATURE of SAMPLER: Tom Murray DATE Signed (MM / DD / YY): 8-6-24

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave. Geneva, IL 60134 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free. 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

402f2455

Electronic Version

Company Name	Pace Analytical
Company Address	1241 Bellevue St
City / State / Zip	Green Bay / WI / 54302
Phone / Fax	920-321-9455 / ☐ Fax Report
Email Address	cindy.varga@pacelabs.com ☑ Email Report
Project ID / Location	Veoila Biosolids Monthly/Cicero IL
Project Manager (Report to)	Cindy Varga
Sample Collector(s)	

TURNAROUND TIME REQUESTED

☑ Normal ☐ RUSH* *Additional Rush Charges Approved

*Date & Time Needed:

Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply

Specify Regulatory Program: (Required) ☐ None/Info only

☐ LUST ☐ SRP ☐ SDWA

☐ 503 Sludge ☐ NPDES ☐ MWRDGC

☐ Disposal ☐ Other *Please specify in comment section below

ANALYSIS & METHOD REQUESTED

Enter an "X" in box below for request

Page	of
PO No	
Shipping Method	
QC Reporting Level	☐ 1 ☐ 2 ☐ 3

LAB USE ONLY

SLI Order No	
Sample containers supplied by customer?	☐ Yes
Temperature of Received Samples	25.3 °C
Samples received within 24 hours of collection?	☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	9222D Fecal Coliform	R	Condition	Split	LAB #
1	PCD080624	8/6/24	1100	SL	GRAB/	1	120 ml sterile	Nathiosulfate	X				
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) **CONTAINER:** 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) **PRESERVATIVE:** H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

T114

CONDITION CODES

1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2 Relinquished By	Date	3 Relinquished By	Date	4. Relinquished By	Date
	8/6/24						
Received By ☐ Ice	Time 1152	Received By ☐ Ice	Time	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

Sample Preservation Receipt Form

Client Name: Veolia Project # 40282185

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☒N/A Initial when completed: Date/ Time:

Lab Lot# of pH paper: Lab Std #ID of preservation (if pH adjusted).

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2							
001																																		2.5 / 5
002																																		2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
006																																		2.5 / 5
007																																		2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
011																																		2.5 / 5
012																																		2.5 / 5
013																																		2.5 / 5
014																																		2.5 / 5
015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

CL 8/7/24

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other

Headspace in VOA Vials (>6mm) : ☐Yes ☐No ☒N/A ***If yes look in headspace column**

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	
						GN 2	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40282155

40282155

Client Name: Veolia

Courier: ☑ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 110 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr. 3.0 /Corr: 3.0

Temp Blank Present: ☑ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 8/7/24 /Initials: EA

Labeled By Initials: GF

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time.
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: Pace Green Bay, Pace IR, Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: Solid	☑Yes ☐No ☐N/A	12.
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: No fecal coliform present GA 8/7/24

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave., Suite 150 Geneva, Illinois 60134
Tel. (708) 544-3260 • Toll Free (800) 783-LABS
Fax (708) 544-8587
www.suburbanlabs.com

August 16, 2024

Cindy Varga
Pace Analytical - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Workorder: 2408321

TEL: (920) 469-2436
FAX:
RE: Veolia Biosolids- Cicero IL

Dear Cindy Varga:

Suburban Laboratories, Inc. received 1 sample(s) on 8/6/2024 for the analyses presented in the following report.

All data for the associated quality control (QC) met EPA, method, or internal laboratory specifications except where noted in the case narrative. If you are comparing these results to external QC specifications or compliance limits and have any questions, please contact us.

This final report of laboratory analysis consists of this cover letter, case narrative, analytical report, dates report, and any accompanying documentation including, but not limited to, chain of custody records, raw data, and letters of explanation or reliance. This report may not be reproduced, except in full, without the prior written approval of Suburban Laboratories, Inc.

If you have any questions regarding these test results, please call me at (708) 544-3260.

Sincerely,

Dan Galeher
Project Manager
708-544-3260 ext 216
dan@SuburbanLabs.com

Case Narrative

Client: Pace Analytical - WI
Project: Veolia Biosolids- Cicero IL
WorkOrder: 2408321
Temperature of samples upon receipt at SLI: C

Date: August 16, 2024
PO #:
QC Level:
Chain of Custody #:

General Comments:
- All results reported in wet weight unless otherwise indicated. (dry = Dry Weight)
- Sample results relate only to the analytes of interest tested and to sample as received by the laboratory.
- Environmental compliance sample results meet the requirements of 35 IAC Part 186 unless otherwise indicated.
- Waste water analysis follows the rules set forth in 40 CFR part 136 except where otherwise noted.
- Accreditation by the State of Illinois is not an endorsement or a guarantee of the validity of data generated.
- For more information about the laboratories' scope of accreditation, please contact us at (708) 544-3260 or the Agency at (217) 782-6455.
- All radiological results are reported to the 95% confidence level.

Abbreviations:
- Reporting Limit: The concentration at which an analyte can be routinely detected on a day to day basis, and which also meets regulatory and client needs.
- Quantitation Limit: The lowest concentration at which results can be accurately quantitated.
- J: The analyte was positively identified above our Method Detection Limit and is considered detectable and usable; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- ATC: Automatic Temperature Correction. - TNTC: Too Numerous To Count
- TIC: Tentatively Identified Compound (GCMS library search identification, concentration estimated to nearest internal standard).
- SS: (Surrogate Standard): Quality control compound added to the sample by the lab.
-LA: Lab Accident - No valid data to report.
-VO: Insufficient Volume provided
-BR: Received broken
-IP: Invalid Sampling

Method References:
For a complete list of method references please contact us.
- E: USEPA Reference methods
- SW: USEPA, Test Methods for Evaluating Solid Waste (SW-846)
- M: Standard Methods for the Examination of Water and Wastewater
- USP: Latest version of United States Pharmacopeia

Workorder Specific Comments:

Suburban Laboratories, Inc.
1950 S. Batavia Ave., Suite 150 Geneva, IL 60134 (708) 544-3260

Laboratory Results

Client ID: Pace Analytical - WI
Workorder Name: Veolia Biosolids- Cicero IL

Date: *16-Aug-24*
Lab Order: *2408321*

Lab Sample #: 2408321-001A
Client Sample ID: PCD080624
Matrix: SLUDGE

Collection Date: 8/6/2024 11:00:00 AM
Date Received: 8/6/2024 12:25:47 PM

Analyses	Wet Wt	Dry Wt	RPL	Qual	DF	Date Analyzed
FECAL COLIFORM (MPN), CLASS A		MethodNo: 9221E 18Ed, 1992				Analyst: VA
Fecal Coliform	2.000 MPN/g	2.07 MPN/g-dry	0		1	8/6/2024 2:46:00 PM
PERCENT MOISTURE		MethodNo: D2216 2005				Analyst: SH
Percent Moisture	3.600 wt%	3.6 wt%	1.0		1	8/7/2024 8:25:23 AM

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
C	Value is below Minimum Concentration Limit	e	Analyte not in TNI/NELAC scope of accreditation
E	Estimated, detected above quantitation range	G	Refer to case narrative page for specific comments
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit (QL)
N	Tentatively identified compounds	ND	Not Detected at the Reporting Limit
P	Present	Q	Accreditation is not available from Wisconsin

Suburban Laboratories, Inc.
1950 S. Batavia Ave., Suite 150, Geneva, IL 60134 (708) 544-3260

Qualifier Definitions

WO#: **2408321**
Date: **8/9/2024**

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level
B	Analyte detected in the associated Method Blank
C	Value is below Minimum Concentration Limit
c	Analyte not in TNI/NELAC scope of accreditation
E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)
N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit
P	Present
Q	Accreditation is not available from Wisconsin
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
T	Analyte detected in sample trip blank
V	EPA requires field analysis/filtration. Lab analysis would be considered past hold time.
WI	This sample was ran at the Wisconsin Laboratory, WI DNR Certified #246179890

SUBURBAN LABORATORIES, Inc. 1950 S. Batavia Ave. Geneva, IL 60134 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

Electronic Version

Company Name: Pace Analytical
Company Address: 1241 Bellevue St
City: Green Bay State: WI Zip: 54302
Phone: 920-321-9455 Fax: ☐ Fax Report
Email Address: cindy.varga@pacelabs.com ☑ Email Report
Project ID / Location: Veoila Biosolids Monthly/Cicero IL
Project Manager (Report to): Cindy Varga
Sample Collector(s):

TURNAROUND TIME REQUESTED
☑ Normal ☐ RUSH* *Additional Rush Charges Approved.
*Date & Time Needed:
Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only
☐ LUST ☐ SRP ☐ SDWA
☐ 503 Sludge ☐ NPDES ☐ MWRDGC
☐ Disposal ☐ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED
Enter an "X" in box below for request

Page of
PO No.
Shipping Method
QC Reporting Level ☐ 1 ☐ 2 ☐ 3

LAB USE ONLY
SLI Order No. 2408321
Sample containers supplied by customer? ☐ Yes
Temperature of Received Samples 25.3 °C
Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	9222D Fecal Coliform	R	Condition	Split	LAB #
1	PCD080624	8/6/24	1100	SL	GRAB/	1	120 ml sterile	Nathiosulfate	X				
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) **CONTAINER:** 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) **PRESERVATIVE:** H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

T114

CONDITION CODES
1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3. Relinquished By	Date	4. Relinquished By	Date
[signature]	8/6/24						
Received By [signature] ☐ Ice	Time 1152	Received By ☐ Ice	Time	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

PACE ANALYTICAL BIOSOLIDS MONTHLY

DRY WEIGHT

2024 SEPTEMBER

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

September 17, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 04, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc
Sarah Troyer, OT&T Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Pace Analytical Services Green Bay
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40283470001	**PCD090324**	Solid	09/03/24 10:30	09/04/24 08:10

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Lab ID	Sample ID	Method	Analysts	Analytes Reported
40283470001	**PCD090324**	EPA 8082A	BLM	10
		EPA 6010D	SIS	11
		EPA 7471	AJT	1
		ASTM D2974-87	MJV	1
		EPA 160.4	LMB	1
		TKN-NH3 Calculation	BAF	1
		TKN+NO3+NO2 Calculation	BAF	1
		EPA 300.0	HMB	3
		EPA 350.1	CDD	1
		EPA 351.2	DAW	1
		EPA 365.4	MT	1
		EPA 9012B	DAW	1

PASI-G = Pace Analytical Services - Green Bay

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Sample: PCD090324 **Lab ID: 40283470001** Collected: 09/03/24 10:30 Received: 09/04/24 08:10 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8082A GCS PCB	Analytical Method: EPA 8082A Preparation Method: EPA 3541 Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<0.016**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	12674-11-2	
PCB-1221 (Aroclor 1221)	**<0.016**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	11104-28-2	
PCB-1232 (Aroclor 1232)	**<0.016**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	11141-16-5	
PCB-1242 (Aroclor 1242)	**0.25**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	53469-21-9	
PCB-1248 (Aroclor 1248)	**<0.016**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	12672-29-6	
PCB-1254 (Aroclor 1254)	**0.17**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	11097-69-1	
PCB-1260 (Aroclor 1260)	**0.15**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	11096-82-5	
PCB, Total	**0.57**	mg/kg	0.053	0.016	1	09/05/24 15:35	09/05/24 22:35	1336-36-3	
Surrogates									
Tetrachloro-m-xylene (S)	77	%	65-120		1	09/05/24 15:35	09/05/24 22:35	877-09-8	
Decachlorobiphenyl (S)	64	%	55-120		1	09/05/24 15:35	09/05/24 22:35	2051-24-3	
6010D MET ICP	Analytical Method: EPA 6010D Preparation Method: EPA 3050B Pace Analytical Services - Green Bay								
Arsenic	**6.9**	mg/kg	2.6	1.5	1	09/05/24 09:16	09/06/24 16:35	7440-38-2	
Cadmium	**1.6**	mg/kg	0.52	0.14	1	09/05/24 09:16	09/06/24 16:35	7440-43-9	
Chromium	**62.2**	mg/kg	1.0	0.29	1	09/05/24 09:16	09/06/24 16:35	7440-47-3	
Cobalt	**7.6**	mg/kg	0.52	0.15	1	09/05/24 09:16	09/06/24 16:35	7440-48-4	
Copper	**362**	mg/kg	1.0	0.29	1	09/05/24 09:16	09/06/24 16:35	7440-50-8	
Lead	**82.0**	mg/kg	2.1	0.62	1	09/05/24 09:16	09/06/24 16:35	7439-92-1	
Molybdenum	**15.8**	mg/kg	1.0	0.14	1	09/05/24 09:16	09/06/24 16:35	7439-98-7	
Nickel	**39.5**	mg/kg	1.0	0.27	1	09/05/24 09:16	09/06/24 16:35	7440-02-0	
Potassium	**2610**	mg/kg	103	26.4	1	09/05/24 09:16	09/06/24 16:35	7440-09-7	
Selenium	**4.3**	mg/kg	4.1	1.4	1	09/05/24 09:16	09/06/24 16:35	7782-49-2	
Zinc	**752**	mg/kg	4.1	1.2	1	09/05/24 09:16	09/06/24 16:35	7440-66-6	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471 Pace Analytical Services - Green Bay								
Mercury	**0.46**	mg/kg	0.070	0.020	1	09/10/24 08:57	09/11/24 08:24	7439-97-6	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.4**	%	0.10	0.10	1		09/07/24 14:59		
160.4 Total Volatile Solids	Analytical Method: EPA 160.4 Pace Analytical Services - Green Bay								
Total Volatile Solids	**48.4**	% (w/w)	0.10	0.10	1		09/10/24 10:27		
Total Organic Nitrogen Soil	Analytical Method: TKN-NH3 Calculation Pace Analytical Services - Green Bay								
Total Organic Nitrogen	**37000**	mg/kg	3650	774	36.5		09/16/24 07:35		1q

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Sample: PCD090324 **Lab ID: 40283470001** Collected: 09/03/24 10:30 Received: 09/04/24 08:10 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Total Nitrogen Calculation	Analytical Method: TKN+NO3+NO2 Calculation Pace Analytical Services - Green Bay								
Nitrogen	**40700**	mg/kg	3650	774	34.9		09/16/24 07:42	7727-37-9	
300.0 IC Anions	Analytical Method: EPA 300.0 Preparation Method: EPA 300.0 Pace Analytical Services - Green Bay								
Nitrate as N	**<2.3**	mg/kg	7.8	2.3	5	09/10/24 14:18	09/12/24 00:53	14797-55-8	D3
Nitrite as N	**1.7J**	mg/kg	5.6	1.7	5	09/10/24 14:18	09/12/24 00:53	14797-65-0	D3
Nitrogen, NO2 plus NO3	**<4.0**	mg/kg	13.4	4.0	5	09/10/24 14:18	09/12/24 00:53		
350.1 Ammonia	Analytical Method: EPA 350.1 Preparation Method: EPA 350.1 Pace Analytical Services - Green Bay								
Nitrogen, Ammonia	**3710**	mg/kg	1010	303	50	09/09/24 12:25	09/09/24 16:04	7664-41-7	
351.2 Total Kjeldahl Nitrogen	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2 Pace Analytical Services - Green Bay								
Nitrogen, Kjeldahl, Total	**40700**	mg/kg	3650	774	20	09/10/24 10:30	09/11/24 11:40	7727-37-9	
365.4 Total Phosphorus	Analytical Method: EPA 365.4 Preparation Method: EPA 365.4 Pace Analytical Services - Green Bay								
Phosphorus	**22600**	mg/kg	1020	255	50	09/09/24 07:35	09/09/24 12:30	7723-14-0	
9012 Cyanide, Total	Analytical Method: EPA 9012B Preparation Method: EPA 9012B Pace Analytical Services - Green Bay								
Cyanide	**0.63J**	mg/kg	0.94	0.31	1	09/17/24 10:05	09/17/24 10:59	57-12-5	M0

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483907
QC Batch Method: EPA 7471
Analysis Method: EPA 7471
Analysis Description: 7471 Mercury
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2770403 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/kg	<0.010	0.035	0.010	09/11/24 07:26	

LABORATORY CONTROL SAMPLE: 2770404

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	0.83	0.79	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2770405 2770406

Parameter	Units	40283482001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	<0.043	1	1	0.95	0.96	89	91	85-115	2	20	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483599
QC Batch Method: EPA 3050B
Analysis Method: EPA 6010D
Analysis Description: 6010D MET
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2768398 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/kg	<1.5	2.5	1.5	09/09/24 13:41	
Cadmium	mg/kg	<0.13	0.50	0.13	09/09/24 13:41	
Chromium	mg/kg	<0.28	1.0	0.28	09/09/24 13:41	
Cobalt	mg/kg	<0.15	0.50	0.15	09/09/24 13:41	
Copper	mg/kg	<0.28	1.0	0.28	09/09/24 13:41	
Lead	mg/kg	<0.60	2.0	0.60	09/09/24 13:41	
Molybdenum	mg/kg	<0.14	1.0	0.14	09/09/24 13:41	
Nickel	mg/kg	<0.26	1.0	0.26	09/09/24 13:41	
Potassium	mg/kg	<25.5	100	25.5	09/09/24 13:41	
Selenium	mg/kg	<1.3	4.0	1.3	09/09/24 13:41	
Zinc	mg/kg	<1.2	4.0	1.2	09/09/24 13:41	

LABORATORY CONTROL SAMPLE: 2768399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	25	23.8	95	80-120	
Cadmium	mg/kg	25	25.6	102	80-120	
Chromium	mg/kg	25	24.9	100	80-120	
Cobalt	mg/kg	25	25.8	103	80-120	
Copper	mg/kg	25	25.8	103	80-120	
Lead	mg/kg	25	25.9	104	80-120	
Molybdenum	mg/kg	25	25.9	104	80-120	
Nickel	mg/kg	25	26.1	105	80-120	
Potassium	mg/kg	1000	1070	107	80-120	
Selenium	mg/kg	25	25.9	103	80-120	
Zinc	mg/kg	25	25.4	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2768453 2768454

Parameter	Units	40283463001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	2.5J	28.4	28.4	28.4	28.2	91	90	75-125	1	20	
Cadmium	mg/kg	0.21J	28.4	28.4	28.7	28.7	100	100	75-125	0	20	
Chromium	mg/kg	16.3	28.4	28.4	50.4	52.8	120	128	75-125	4	20	M0
Cobalt	mg/kg	6.4	28.4	28.4	34.3	34.7	98	100	75-125	1	20	
Copper	mg/kg	19.8	28.4	28.4	44.1	90.9	86	250	75-125	69	20	M0,R1
Lead	mg/kg	15.0	28.4	28.4	57.4	36.4	149	75	75-125	45	20	M0,R1

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2768453 2768454

Parameter	Units	40283463001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Molybdenum	mg/kg	0.77J	28.4	28.4	29.5	29.4	101	101	75-125	0	20	
Nickel	mg/kg	16.8	28.4	28.4	45.7	46.6	102	105	75-125	2	20	
Potassium	mg/kg	2770	1140	1140	6360	7020	316	374	75-125	10	20	M0
Selenium	mg/kg	<1.5	28.4	28.4	28.7	28.6	101	100	75-125	0	20	
Zinc	mg/kg	61.8	28.4	28.4	75.2	67.3	47	19	75-125	11	20	M0

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483687
QC Batch Method: EPA 3541
Analysis Method: EPA 8082A
Analysis Description: 8082 GCS PCB
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2768946 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
PCB-1221 (Aroclor 1221)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
PCB-1232 (Aroclor 1232)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
PCB-1242 (Aroclor 1242)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
PCB-1248 (Aroclor 1248)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
PCB-1254 (Aroclor 1254)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
PCB-1260 (Aroclor 1260)	mg/kg	<0.015	0.050	0.015	09/05/24 21:10	
Decachlorobiphenyl (S)	%	80	55-120		09/05/24 21:10	
Tetrachloro-m-xylene (S)	%	86	65-120		09/05/24 21:10	

LABORATORY CONTROL SAMPLE: 2768947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg		<0.015			
PCB-1221 (Aroclor 1221)	mg/kg		<0.015			
PCB-1232 (Aroclor 1232)	mg/kg		<0.015			
PCB-1242 (Aroclor 1242)	mg/kg		<0.015			
PCB-1248 (Aroclor 1248)	mg/kg		<0.015			
PCB-1254 (Aroclor 1254)	mg/kg		<0.015			
PCB-1260 (Aroclor 1260)	mg/kg	0.5	0.43	86	68-120	
Decachlorobiphenyl (S)	%			78	55-120	
Tetrachloro-m-xylene (S)	%			85	65-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2768948 2768949

Parameter	Units	40283430019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	mg/kg	<17.7 ug/kg			<0.018	<0.018					20	
PCB-1221 (Aroclor 1221)	mg/kg	<17.7 ug/kg			<0.018	<0.018					20	
PCB-1232 (Aroclor 1232)	mg/kg	<17.7 ug/kg			<0.018	<0.018					20	
PCB-1242 (Aroclor 1242)	mg/kg	<17.7 ug/kg			<0.018	<0.018					20	
PCB-1248 (Aroclor 1248)	mg/kg	<17.7 ug/kg			<0.018	<0.018					20	
PCB-1254 (Aroclor 1254)	mg/kg	<17.7 ug/kg			<0.018	<0.018					20	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2768948 2768949

Parameter	Units	40283430019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1260 (Aroclor 1260)	mg/kg	<17.7 ug/kg	0.58	0.58	0.43	0.42	75	73	45-126	2	20	
Decachlorobiphenyl (S)	%						66	65	55-120			
Tetrachloro-m-xylene (S)	%						81	80	65-120			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483769
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

SAMPLE DUPLICATE: 2769931

Parameter	Units	40283739001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.7	5.7	1	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483945
QC Batch Method: EPA 160.4
Analysis Method: EPA 160.4
Analysis Description: 160.4 Total Volatile Solids
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2770508 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Total Volatile Solids	% (w/w)	6.1	0.10	0.10	09/10/24 10:27	

LABORATORY CONTROL SAMPLE: 2770509

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Volatile Solids	% (w/w)	286	285	100	80-120	

SAMPLE DUPLICATE: 2770510

Parameter	Units	40283470001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Volatile Solids	% (w/w)	48.4	47.6	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483962
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2770567 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrate as N	mg/kg	<0.44	1.5	0.44	09/11/24 23:12	
Nitrite as N	mg/kg	<0.32	1.1	0.32	09/11/24 23:12	
Nitrogen, NO2 plus NO3	mg/kg	<0.76	2.6	0.76	09/11/24 23:12	

LABORATORY CONTROL SAMPLE: 2770568

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/kg	15	16.5	110	80-120	
Nitrite as N	mg/kg	10	10.9	109	80-120	
Nitrogen, NO2 plus NO3	mg/kg	25	27.4	110		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2770569 2770570

Parameter	Units	40283597001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/kg	<0.54	18.5	18.5	19.0	17.4	103	94	80-120	9	15	
Nitrite as N	mg/kg	<0.40	12.3	12.4	13.4	13.1	108	106	80-120	2	15	
Nitrogen, NO2 plus NO3	mg/kg	<0.94	30.8	30.9	32.4	30.4	105	98		6	15	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483800
QC Batch Method: EPA 350.1
Analysis Method: EPA 350.1
Analysis Description: 350.1 Ammonia
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2770071 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/kg	<6.4	21.5	6.4	09/09/24 15:50	

LABORATORY CONTROL SAMPLE: 2770072

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/kg	300	313	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2770073 2770074

Parameter	Units	40282920001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	5050	1830	1840	7070	7080	110	111	80-120	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2770075 2770076

Parameter	Units	40283678011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/kg	1030	302	305	1370	1330	113	97	80-120	3	20	

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QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483877
QC Batch Method: EPA 351.2
Analysis Method: EPA 351.2
Analysis Description: 351.2 TKN
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2770351 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	<21.2	100	21.2	09/11/24 11:14	

LABORATORY CONTROL SAMPLE: 2770352

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/kg	500	468	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2770353 2770354

Parameter	Units	40283501003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/kg	7.6 % (w/w)	5380	5730	86400	78800	199	55	80-120	9	20	P6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 483683
QC Batch Method: EPA 365.4
Analysis Method: EPA 365.4
Analysis Description: 365.4 Total Phosphorus
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2768926 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phosphorus	mg/kg	<5.0	20.0	5.0	09/09/24 12:08	

LABORATORY CONTROL SAMPLE: 2768927

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/kg	500	503	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2768928 2768929

Parameter	Units	40283491007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/kg	766	1240	1310	1960	1980	96	92	80-120	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

QC Batch: 484549
QC Batch Method: EPA 9012B
Analysis Method: EPA 9012B
Analysis Description: 9012 Cyanide
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40283470001

METHOD BLANK: 2774539 Matrix: Solid
Associated Lab Samples: 40283470001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide	mg/kg	<0.31	0.92	0.31	09/17/24 10:58	

LABORATORY CONTROL SAMPLE: 2774540

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide	mg/kg	3	3.1	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2774541 2774542

Parameter	Units	40283470001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cyanide	mg/kg	0.63J	3	3.1	1.8	1.8	39	38	85-115	2	15	M0

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALIFIERS

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q	Dilution for calculation purposes only.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
R1	RPD value was outside control limits.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: BIOSOLIDS MONTHLY - SEPTEMBER
Pace Project No.: 40283470

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40283470001	**PCD090324**	EPA 3541	483687	EPA 8082A	483690
40283470001	**PCD090324**	EPA 3050B	483599	EPA 6010D	483675
40283470001	**PCD090324**	EPA 7471	483907	EPA 7471	483989
40283470001	**PCD090324**	ASTM D2974-87	483769		
40283470001	**PCD090324**	EPA 160.4	483945		
40283470001	**PCD090324**	TKN-NH3 Calculation	484396		
40283470001	**PCD090324**	TKN+NO3+NO2 Calculation	484399		
40283470001	**PCD090324**	EPA 300.0	483962	EPA 300.0	484091
40283470001	**PCD090324**	EPA 350.1	483800	EPA 350.1	483865
40283470001	**PCD090324**	EPA 351.2	483877	EPA 351.2	483995
40283470001	**PCD090324**	EPA 365.4	483683	EPA 365.4	483806
40283470001	**PCD090324**	EPA 9012B	484549	EPA 9012B	484570

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

4028347O

Page: 1 of 1

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Veolia North America	Report To: same	Attention: Veolia Support Services North
4001 W. Pershing Rd	Copy To	Company Name: Veolia Support Services North
Cicero, IL 60804		Address: 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To: jon.gibson@veolia.com	**Purchase Order No: 1000361816**	Pace Quote Reference
Phone: 708 652 0575 Fax: na	Project Name: **BIOSOLIDS MONTHLY**	Pace Project Manager: Cindy Varga
Requested Due Date/TAT:	Project Number: na	Pace Profile #: 5163

REGULATORY AGENCY

_NPDES _GROUND WATER _DRINKING WATER
_UST _RCRA OTHER X

SITE LOCATION: _GA X IL _IN _MI _NC _OH _SC _WI OTHER___

Section D Required Client Information

SAMPLE ID
One Character per box.
(A-Z, 0-9 / ,-)
Samples IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

Filtered (Y/N): N N N N N N N N

Requested Analysis: ...A1684 TVS; COLIFORM*; ...LS - As,Cd,; Mo,Ni,Se,Zn; ...RY,TKN,TN, NH3, TON; Phosphorus; Nitrite, Nitrate (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	1 L plastic/ whirl	Pak Bag	Requested Analysis	Pace Project Number Lab I.D.
1	PCD 090324	SL		9-3-24	10:30				1	1	X			
2	090324	SL		9-3-24	10:30				1	1			X (COLIFORM)	001
3													X X X X X X X	002
4														
5														
6														
7														
8														
9														
10														
11														
12														

Additional Comments:

Pace Courier to drop off at sub lab

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Tom Murray	9-3-24	10:30	[signature]	9/3/24	1030		Y/N	Y/N	Y/N
[signature]	9/3/24	1700	CS LOGISTICS	9/3/24	1900		Y/N	Y/N	Y/N
CS Logistics	09/04/24	0810	Susan Kuller Pace	09/04/24	0810	1.0	Y	Y	Y
							Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Tom Murray

SIGNATURE of SAMPLER: Tom Murray   DATE Signed (MM/DD/YY): 9-3-24

E-File,(ALLQ020rev.3,31Mar05), 13Jun2005

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave. Geneva, IL 60134 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

40283470

Electronic Version

Company Name	Pace Analytical
Company Address	1241 Bellevue St
City / State / Zip	Green Bay / WI / 54302
Phone / Fax	920-321-9455 / ☐ Fax Report
Email Address	cindy.varga@pacelabs.com ☑ Email Report
Project ID / Location	Veoila Biosolids Monthly/Cicero IL
Project Manager (Report to)	Cindy Varga
Sample Collector(s)	

TURNAROUND TIME REQUESTED

☑ Normal ☐ RUSH* *Additional Rush Charges Approved

*Date & Time Needed:

Normal TAT is 5-7 work days for most work Rush work must be pre-approved and additional charges apply

Specify Regulatory Program: (Required) ☐ None/Info only

☐ LUST ☐ SRP ☐ SDWA

☐ 503 Sludge ☐ NPDES ☐ MWRDGC

☐ Disposal ☐ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED

Enter an "X" in box below for request

SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	9222D Fecal Coliform
1 PCB090324	9/3/24	10:30	SL	GRAB/	1	120 ml sterile	Nathiosulfate	X
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Page of

PO No

Shipping Method

QC Reporting Level ☐ 1 ☐ 2 ☐ 3

LAB USE ONLY

SLI Order No.

Sample containers supplied by customer? ☐ Yes

Temperature of Received Samples 2.7 °C

Samples received within 24 hours of collection? ☐ Yes

R	Condition	Split	LAB #

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) **CONTAINER:** 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) **PRESERVATIVE:** H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

CONDITION CODES

1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1 Relinquished By	Date	2 Relinquished By	Date	3 Relinquished By	Date	4. Relinquished By	Date
	9/3/24						
Received By ☐ Ice	**Time** 11:50	**Received By** ☐ Ice	**Time**	**Received By** ☐ Ice	**Time**	**Received By** ☐ Ice	**Time**

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

Client Name: Veolia

Sample Preservation Receipt Form

Project # 40283470

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☒N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	Initial when completed: H2SO4 pH ≤2	NaOH+Zn Acl pH ≥9	NaOH pH ≥12	Date/ Time: HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2							
001																				2														
002																																		2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
006																																		2.5 / 5
007																																		2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
011																																		2.5 / 5
012																																		2.5 / 5
013																																		2.5 / 5
014																																		2.5 / 5
015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																09/21/22		2.5/5

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:

Headspace in VOA Vials (>6mm): ☐Yes ☐No ☒N/A *If yes look in headspace column

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4
BP2Z	500 mL plastic NaOH + Zn

VG9C	40 mL clear ascorbic w/ HCl
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN 1	
GN 2	

Sample Condition Upon Receipt Form (SCUR)

Client Name: Veolia

Project #:

WO# : 40283470

40283470

Courier: ☒ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco
☐ Client ☐ Pace Other:

Tracking #:

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Custody Seal on Samples Present: ☒ yes ☒ no 09/04/24 Seals intact: ☒ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other

Thermometer Used SR - 129 Type of Ice: (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr: 1.0 /Corr: 1.0

Temp Blank Present: ☐ yes ☒ no Biological Tissue is Frozen: ☐ yes ☐ no

Person examining contents: Date: 09/04/24 /Initials: SKW

Labeled By Initials: JB

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: ~~Pace Green Bay~~, Pace IR, Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: S	☑Yes ☐No ☐N/A	12.
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:
Person Contacted: Date/Time:
If checked, see attached form for additional comments ☐
Comments/ Resolution:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave., Suite 150 Geneva, Illinois 60134
Tel. (708) 544-3260 • Toll Free (800) 783-LABS
Fax (708) 544-8587
www.suburbanlabs.com

September 09, 2024

Cindy Varga
Pace Analytical - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Workorder: 2409034

TEL: (920) 469-2436
FAX:
RE: Veolia Biosolids- Cicero IL

Dear Cindy Varga:

Suburban Laboratories, Inc. received 1 sample(s) on 9/3/2024 for the analyses presented in the following report.

All data for the associated quality control (QC) met EPA, method, or internal laboratory specifications except where noted in the case narrative. If you are comparing these results to external QC specifications or compliance limits and have any questions, please contact us.

This final report of laboratory analysis consists of this cover letter, case narrative, analytical report, dates report, and any accompanying documentation including, but not limited to, chain of custody records, raw data, and letters of explanation or reliance. This report may not be reproduced, except in full, without the prior written approval of Suburban Laboratories, Inc.

If you have any questions regarding these test results, please call me at (708) 544-3260.

Sincerely,

Dan Galeher
Project Manager
708-544-3260 ext 216
dan@SuburbanLabs.com

Case Narrative

Client: Pace Analytical - WI
Project: Veolia Biosolids- Cicero IL
WorkOrder: 2409034
Temperature of samples upon receipt at SLI: C

Date: September 09, 2024
PO #:
QC Level:
Chain of Custody #:

General Comments:
- All results reported in wet weight unless otherwise indicated. (dry = Dry Weight)
- Sample results relate only to the analytes of interest tested and to sample as received by the laboratory.
- Environmental compliance sample results meet the requirements of 35 IAC Part 186 unless otherwise indicated.
- Waste water analysis follows the rules set forth in 40 CFR part 136 except where otherwise noted.
- Accreditation by the State of Illinois is not an endorsement or a guarantee of the validity of data generated.
- For more information about the laboratories' scope of accreditation, please contact us at (708) 544-3260 or the Agency at (217) 782-6455.
- All radiological results are reported to the 95% confidence level.

Abbreviations:
- Reporting Limit: The concentration at which an analyte can be routinely detected on a day to day basis, and which also meets regulatory and client needs.
- Quantitation Limit: The lowest concentration at which results can be accurately quantitated.
- J: The analyte was positively identified above our Method Detection Limit and is considered detectable and usable; however, the associated numerical value is the approximate concentration of the analyte in the sample.
- ATC: Automatic Temperature Correction. - TNTC: Too Numerous To Count
- TIC: Tentatively Identified Compound (GCMS library search identification, concentration estimated to nearest internal standard).
- SS: (Surrogate Standard): Quality control compound added to the sample by the lab.
-LA: Lab Accident - No valid data to report.
-VO: Insufficient Volume provided
-BR: Received broken
-IP: Invalid Sampling

Method References:
For a complete list of method references please contact us.
- E: USEPA Reference methods
- SW: USEPA, Test Methods for Evaluating Solid Waste (SW-846)
- M: Standard Methods for the Examination of Water and Wastewater
- USP: Latest version of United States Pharmacopeia

Workorder Specific Comments:

Suburban Laboratories, Inc.
1950 S. Batavia Ave., Suite 150 Geneva, IL 60134 (708) 544-3260

Laboratory Results

Client ID: Pace Analytical - WI
Workorder Name: Veolia Biosolids- Cicero IL

Date: *09-Sep-24*
Lab Order: ***2409034***

Lab Sample #: 2409034-001A
Client Sample ID: PCD090324
Matrix: SLUDGE

Collection Date: 9/3/2024 10:30:00 AM
Date Received: 9/3/2024 11:52:43 AM

Analyses	Wet Wt	Dry Wt	RPL	Qual	DF	Date Analyzed
FECAL COLIFORM (MPN), CLASS A		MethodNo: 9221E 18Ed, 1992				Analyst: VA
Fecal Coliform	2.000 MPN/g	<2 MPN/g-dry	0		1	9/3/2024 2:07:00 PM
PERCENT MOISTURE		MethodNo: D2216 2005				Analyst: AMR
Percent Moisture	3.400 wt%	3.4 wt%	1.0		1	9/4/2024 8:37:53 AM

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
C	Value is below Minimum Concentration Limit	c	Analyte not in TNI/NELAC scope of accreditation
E	Estimated, detected above quantitation range	G	Refer to case narrative page for specific comments
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit (QL)
N	Tentatively identified compounds	ND	Not Detected at the Reporting Limit
P	Present	Q	Accreditation is not available from Wisconsin

Suburban Laboratories, Inc.
1950 S. Batavia Ave., Suite 150, Geneva, IL 60134 (708) 544-3260

Qualifier Definitions

WO#: **2409034**
Date: **9/9/2024**

Qualifiers:

*/x	Value exceeds Maximum Contaminant Level
B	Analyte detected in the associated Method Blank
C	Value is below Minimum Concentration Limit
c	Analyte not in TNI/NELAC scope of accreditation
E	Estimated, detected above quantitation range
G	Refer to case narrative page for specific comments
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limit (QL)
N	Tentatively identified compounds
ND	Not Detected at the Reporting Limit
P	Present
Q	Accreditation is not available from Wisconsin
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
T	Analyte detected in sample trip blank
V	EPA requires field analysis/filtration. Lab analysis would be considered past hold time.
WI	This sample was ran at the Wisconsin Laboratory, WI DNR Certified #246179890

SUBURBAN LABORATORIES, Inc.

1950 S. Batavia Ave. Geneva, IL 60134 Tel. 708.544.3260 Fax: 708.544.8587 Toll Free: 800.783.LABS www.suburbanlabs.com

CHAIN OF CUSTODY RECORD

Electronic Version

Company Name: Pace Analytical
Company Address: 1241 Bellevue St
City: Green Bay State: WI Zip: 54302
Phone: 920-321-9455 Fax: ☐ Fax Report
Email Address: cindy.varga@pacelabs.com ☑ Email Report
Project ID / Location: Veolia Biosolids Monthly/Cicero IL
Project Manager (Report to): Cindy Varga
Sample Collector(s):

TURNAROUND TIME REQUESTED

☑ Normal ☐ RUSH* *Additional Rush Charges Approved.

*Date & Time Needed:

Normal TAT is 5-7 work days for most work. Rush work must be pre-approved and additional charges apply.

Specify Regulatory Program: (Required) ☐ None/Info only
☐ LUST ☐ SRP ☐ SDWA
☐ 503 Sludge ☐ NPDES ☐ MWRDGC
☐ Disposal ☐ Other *Please specify in comment section below.

ANALYSIS & METHOD REQUESTED

Enter an "X" in box below for request

Page of
PO No.
Shipping Method
QC Reporting Level ☐ 1 ☐ 2 ☐ 3

LAB USE ONLY

SLI Order No. 2409034
Sample containers supplied by customer? ☐ Yes
Temperature of Received Samples 17.5 °C
Samples received within 24 hours of collection? ☐ Yes

	SAMPLE IDENTIFICATION (Please use 1 line per container type)	COLLECTION DATE	COLLECTION TIME	MATRIX	GRAB/ COMP.	CONTAINERS Qty	CONTAINERS SIZE & TYPE	PRESERVATIVE	9222D Fecal Coliform	R	Condition	Split	LAB #
1	PC B090324	9/3/24	1030	SL	GRAB/	1	120 ml sterile	Nathiosulfate	X				
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

MATRIX: Drinking Water (DW), Soil (S), Waste Water (WW), Surface Water(SW), Ground Water (GW), Solid Waste (WA), Sludge (U), Wipe (P) CONTAINER: 2oz, 4oz, 8oz, 40ml Vial, 500ml, Liter (L), Tube, Glass (G), Plastic (P) PRESERVATIVE: H_2SO_4, HCl, HNO_3, Methanol (MeOH) NaOH, Sodium Bisulfate (NaB), NaThio

COMMENTS & SPECIAL INSTRUCTIONS:

CONDITION CODES
1. Improper/damaged container/cap
2. Improper preservation
3. Insufficient sample volume
4. Headspace/air bubbles for VOCs
5. Received past holding time
6. Received frozen
7. Label conflicts with COC

1. Relinquished By	Date	2. Relinquished By	Date	3. Relinquished By	Date	4. Relinquished By	Date
	9/3/24						
Received By ☐ Ice	Time 11:50	Received By ☐ Ice	Time	Received By ☐ Ice	Time	Received By ☐ Ice	Time

Submission of samples subject to Terms and Conditions on back. Rev. 2/01/05 Please fill out this form completely, print, sign & submit with samples. Keep a copy for your records.

PACE ANALYTICAL SERVICES LLC

WATER EXTRACTABLE PHOSPHORUS (WEP)

MONTHLY – DRY WEIGHT

JULY, AUGUST & SEPTEMBER

2024

PACE ANALYTICAL BIOSOLIDS WEP

DRY WEIGHT

2024 JULY

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

July 28, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS WEP
Pace Project No.: 40280585

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on July 03, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: BIOSOLIDS WEP
Pace Project No.: 40280585

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40280585001	PCD 070224 CLASSIFIER 3	Solid	07/02/24 08:00	07/03/24 09:45

40280585

Pace Analytical™
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To: Same	Attention: Veolia Support Services North
6001 W. Pershing Rd	Copy To: ALL	Company Name: Veolia Support Services North
Cicero, IL 60804		Address: 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To: jon.gibson@veolia.com	Purchase Order No.: 1000361816	Pace Quote Reference
Phone: 708 652 0575 Fax: 708 652 0604	Project Name: BIOSOLIDS WEP	Pace Project Manager: Cindy Varga
Requested Due Date/TAT:	Project Number: NA	Pace Profile #: 6065

REGULATORY AGENCY: __NPDES __GROUND WATER __DRINKING WATER __UST __RCRA OTHER X

SITE LOCATION: __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	Section D Required Client Information — SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives: Unpreserved	Analysis: ICP Water Extractable	Residual Chlorine	Pace Project Number / Lab I.D.
1	PCD 070224 Classifier 3	SL	G	7-2-24	6:00AM			1	1	X		001
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible]	7-2-24	10:[illegible]	TAM [illegible]	7/2/24	1020
[illegible]	7/2/24	1700	CS LOGISTICS	7/2/24	1900
CS Logistics	7/3/24	0945	Veolia Pace	7/3/24	0945

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
2.0	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jon Gibson

SIGNATURE of SAMPLER: Jon A. Gibson DATE Signed (MM/DD/YY): 7/02/2024

Sample Preservation Receipt Form

Client Name: Veolia Project # 40280585

All containers needing preservation have been checked and noted below. ☐Yes ☐No ☒N/A Initial when completed: Date/ Time:

Lab Lot# of pH paper. Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2							
001																				1														2.5 / 5
002																																		2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005			T/3b4																															2.5 / 5
006																																		2.5 / 5
007			GF																															2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
011																																		2.5 / 5
012																																		2.5 / 5
013																																		2.5 / 5
014																																		2.5 / 5
015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

Exceptions to preservation check VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:

Headspace in VOA Vials (>6mm): ☐Yes ☐No ☒N/A *If yes look in headspace column

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4
BP2Z	500 mL plastic NaOH + Zn

VG9C	40 mL clear ascorbic w/ HCl
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN 1	
GN 2	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40280585

40280585

Client Name: Veolia

Courier: ☑ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Custody Seal on Samples Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 130 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr: 2.0 /Corr: 2.0

Temp Blank Present: ☑ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 7/3/24 /Initials: GF

Labeled By Initials: GM

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume:	7/3 GF	8.
For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: Pace Green Bay, Pace IR, Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: S		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

REPORT NUMBER
24-207-4168
REPORT DATE
Jul 25, 2024
SEND TO
27485
RECEIVED DATE
Jul 10, 2024

Midwest Laboratories®
13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770
www.midwestlabs.com

ISSUE DATE
Jul 25, 2024

PACE ANALYTICAL GREEN BAY
PACE ANALYTICAL GREEN BAY
1241 BELLEVUE ST STE 9
GREEN BAY WI 54302

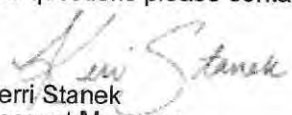
REPORT OF ANALYSIS

For: (27485) PACE ANALYTICAL GREEN BAY
PCD 070224 CLASSIFIER 3

Analysis	Level Found As Received	Level Found Dry Weight	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **40280585001** Lab Number: **70493581**		Date Sampled: **2024-07-02 0800**					
Water Extractable P (1:100)		710	mg/kg	10	Penn State/Soil Soc. Sci *	erw9-2024/07/25	trh1-2024/07/25
P Source Coefficient		0.083	n/a	n/a	Penn State/Soil Soc. Sci *	Auto-2024/07/25	Auto-2024/07/25
Percent solids	96.3		%	0.01	SM 2540 G-(2015) *	Ppj2-2024/07/22	jdb5-2024/07/22

ppm = parts per million, ppm = mg/kg, ppm = mg/L

For questions please contact:



Kerri Stanek
Account Manager
kstanek@midwestlabs.com (402)590-2982

PACE ANALYTICAL BIOSOLIDS WEP

DRY WEIGHT

2024 AUGUST

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

August 29, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS WEP
Pace Project No.: 40282147

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on August 07, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc
Sarah Troyer, OT&T Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: BIOSOLIDS WEP
Pace Project No.: 40282147

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40282147001	PCD Classifier 1 080624	Solid	08/06/24 09:00	08/07/24 10:10

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40282147

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To ALL	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To jon.gibson@veolia.com	Purchase Order No.: 1000361816	Pace Quote Reference
Phone 708 652 0515 Fax 708 652 0604	Project Name: BIOSOLIDS WEP	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 6065

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER___

Filtered (Y/N) N N

Section D Required Client Information

SAMPLE ID
One Character per box
(A-Z, 0-9 / ,-)
Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	Section D SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives Unpreserved	Analysis: ICP Water Extractable T	Residual Chlorine	Pace Project Number Lab I.D
1	PCD Classifier 1 080624	SL	G	8/7/24	9:00am			1	1	X		001
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	8/7/24			8/6/24	1030
	8/6/24	1700	CS Logistics	8/6/24	1900
CS Logistics	8/7/24	1010	E-Jet Pace	8/7/24	1010

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
3.0	Y	Y	Y
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Josef Klovalinski

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 08/06/24

Sample Preservation Receipt Form

Client Name: Veolia Project # 40282147

All containers needing preservation have been checked and noted below. ☐Yes ☐No ☒N/A Initial when completed: Date/ Time:

Lab Lot# of pH paper: Lab Std #ID of preservation (if pH adjusted):

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2							
001																				1														2.5 / 5
002																																		2.5 / 5
003																																		2.5 / 5
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006																																		2.5 / 5
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018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

Exceptions to preservation check VOA, Coliform, TOC,TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm): ☐Yes ☐No ☒N/A *If yes look in headspace column

Ea 8/7/24

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4
BP2Z	500 mL plastic NaOH + Zn

VG9C	40 mL clear ascorbic w/ HCl
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN 1	
GN 2	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40282147

40282147

Client Name: Veolia

Courier: ☑ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 110 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr: 3.0 /Corr: 3.0

Temp Blank Present: ☑ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 8/7/24 /Initials: GA

Labeled By Initials: MH

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used: Correct Type: Pace Green Bay, Pace IR, Non-Pace	☑Yes ☐No	9.
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: S	☑Yes ☐No ☐N/A	12.
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

REPORT NUMBER
24-239-4190
REPORT DATE
Aug 26, 2024
SEND TO
27485
RECEIVED DATE
Aug 08, 2024

Midwest Laboratories®
13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770
www.midwestlabs.com

ISSUE DATE
Aug 26, 2024

PACE ANALYTICAL GREEN BAY
PACE ANALYTICAL GREEN BAY
1241 BELLEVUE ST STE 9
GREEN BAY WI 54302

REPORT OF ANALYSIS

For: (27485) PACE ANALYTICAL GREEN BAY
PCD CLASSIFIER 1 080624

Analysis	Level Found As Received	Level Found Dry Weight	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **40282147001** Lab Number: **70507921** Date Sampled: **2024-08-06 0900**							
Water Extractable P (1:100)		303	mg/kg	10	Penn State/Soil Soc. Sci *	lmh9-2024/08/26	trh1-2024/08/26
P Source Coefficient		0.035	n/a	n/a	Penn State/Soil Soc. Sci *	Auto-2024/08/26	Auto-2024/08/26
Percent solids	96.5		%	0.01	SM 2540 G-(2015) *	jsa6-2024/08/12	jdb5-2024/08/14

ppm = parts per million, ppm = mg/kg, ppm = mg/L

For questions please contact:

Kerri Stanek
Account Manager
kstanek@midwestlabs.com (402)590-2982

PACE ANALYTICAL BIOSOLIDS WEP

DRY WEIGHT

2024 SEPTEMBER

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

September 16, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS WEP
Pace Project No.: 40283471

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 04, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

Some analyses were subcontracted outside of the Pace Network. The test report from the external subcontractor is attached to this report in its entirety.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc
Sarah Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: BIOSOLIDS WEP
Pace Project No.: 40283471

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40283471001	PCD090324 CLASSIFIER 3	Solid	09/03/24 09:11	09/04/24 08:10

40283471

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To ALL	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To jon.gibson@veolia.com	Purchase Order No.: 1000361816	Pace Quote Reference
Phone 708 652 0575 Fax 708 652 0604	Project Name: BIOSOLIDS WEP	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile #. 6065

REGULATORY AGENCY: __NPDES __GROUND WATER __DRINKING WATER __UST __RCRA OTHER X

SITE LOCATION: __GA XIL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N): N N

Section D Required Client Information

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOLID/SOIL SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives: Unpreserved	Analysis: ICP Water Extractable T	Residual Chlor	Pace Project Number Lab I D
1	PCD 090324 CLASSIFIER 3	SL	G	9-3-24	9:11AM			1	1	X		001
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	9-3-24			9/3/24	1030	
	9/3/24	1700	CS LOGISTICS	9/3/24	1900	
CS Logistics	09/04/24	0810	Susan Kilfeather	09/04/24	0810	12

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joseph Novalinski

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 9/3/24

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

Client Name: Veolia

Sample Preservation Receipt Form

Project # 40283471

All containers needing preservation have been checked and noted below: ☐Yes ☐No ☒N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Initial when completed.

Date/ Time:

Pace Lab #	Glass: AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	Plastic: BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	Vials: VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	Jars: JGFU	JG9U	WGFU	WPFU	General: SP5T	ZPLC	GN 1	GN 2	VOA Vials (>6mm)*	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001																				1														2.5 / 5
002																																		2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
006																																		2.5 / 5
007																																		2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
011																																		2.5 / 5
012																																		2.5 / 5
013																																		2.5 / 5
014																																		2.5 / 5
015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

08/04/24 SRC

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:

Headspace in VOA Vials (>6mm): ☐Yes ☐No ☒N/A *If yes look in headspace column

AG1U	1 liter amber glass
BG1U	1 liter clear glass
AG1H	1 liter amber glass HCL
AG4S	125 mL amber glass H2SO4
AG5U	100 mL amber glass unpres
AG2S	500 mL amber glass H2SO4
BG3U	250 mL clear glass unpres

BP1U	1 liter plastic unpres
BP3U	250 mL plastic unpres
BP3B	250 mL plastic NaOH
BP3N	250 mL plastic HNO3
BP3S	250 mL plastic H2SO4
BP2Z	500 mL plastic NaOH + Zn

VG9C	40 mL clear ascorbic w/ HCl
DG9T	40 mL amber Na Thio
VG9U	40 mL clear vial unpres
VG9H	40 mL clear vial HCL
VG9M	40 mL clear vial MeOH
VG9D	40 mL clear vial DI

JGFU	4 oz amber jar unpres
JG9U	9 oz amber jar unpres
WGFU	4 oz clear jar unpres
WPFU	4 oz plastic jar unpres
SP5T	120 mL plastic Na Thiosulfate
ZPLC	ziploc bag
GN 1	
GN 2	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Client Name: Veolia

Project #: **WO# : 40283471**

40283471

Courier: ☒ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 129 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr: 1.0 /Corr: 1.0

Temp Blank Present: ☐ yes ☒ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Person examining contents: Date: 09/04/24 /Initials: SKW

Labeled By Initials: DB

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: (Pace Green Bay) Pace IR, Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: S	☑Yes ☐No ☐N/A	12.
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

REPORT NUMBER
24-257-4160
REPORT DATE
Sep 13, 2024
SEND TO
27485
RECEIVED DATE
Sep 05, 2024

Midwest Laboratories®
13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770
www.midwestlabs.com

ISSUE DATE
Sep 13, 2024

PACE ANALYTICAL GREEN BAY
PACE ANALYTICAL GREEN BAY
1241 BELLEVUE ST STE 9
GREEN BAY WI 54302

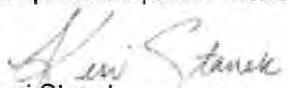
REPORT OF ANALYSIS

For: (27485) PACE ANALYTICAL GREEN BAY
PCD090324 CLASSIFIER 3

Analysis	Level Found As Received	Level Found Dry Weight	Units	Reporting Limit	Method	Analyst-Date	Verified-Date
Sample ID: **40283471001** Lab Number: **70520581**		Date Sampled: **2024-09-03 0911**					
Water Extractable P (1:100)		772	mg/kg	10	Penn State/Soil Soc. Sci *	lmh9-2024/09/13	trh1-2024/09/13
P Source Coefficient		0.090	n/a	n/a	Penn State/Soil Soc. Sci *	Auto-2024/09/13	Auto-2024/09/13
Percent solids	95.2		%	0.01	SM 2540 G-(2015) *	Ppj2-2024/09/09	jdb5-2024/09/09

ppm = parts per million, ppm = mg/kg, ppm = mg/L

For questions please contact:



Kerri Stanek
Account Manager
kstanek@midwestlabs.com (402)590-2982

A & L GREAT LAKES LABORATORIES

MONTHLY NUTRIENT REPORTS

JULY, AUGUST & SEPTEMBER 2024

A & L GREAT LAKES LABORATORIES

2024-JULY

Report Number
F24187-7004
Account Number
89508

a&lgreatlakes LABORATORIES
Scientists who don't mind getting dirty.™

3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: VEOLIA WATER NA SITE ID 11226
6001 W PERSHING RD
CICERO, IL 60804-4112

Lab Number: 82863
Purchase Order: 1000316367

Attn: VEOLIA BUILDING
Sample ID: PCD070224
Expected Analysis: 4-4-0

REPORT OF ANALYSIS

Date Received: 7/8/2024
Date Reported: 7/12/2024

Analysis	Result		Unit	Reporting Limit (As-Received Basis)	Method Reference
	As-Received Basis	Dry Basis			
Moisture (105 deg. C)	3.6	0.0	%	0.1	AOAC 950.01
Solids	96.4	100.0	%	0.1	AOAC 950.01
Total Nitrogen (N)	3.45	3.58	%	0.10	AOAC 993.13
Total Kjeldahl Nitrogen (N)	3.195	3.314	%	0.001	UW A3769 III.3.2
Ammoniacal Nitrogen (NH4-N)	0.18	0.19	%	0.01	Lachat 12-107-06-1-B
Nitrate Nitrogen (NO3-N)	<0.01	<0.01	%	0.01	Lachat QCM 12-107-04-1-B
Organic Nitrogen	3.27	3.39	%	0.01	Calculation
PAN - New Jersey DEQ	15.7	16.2	lb/T	0.1	NJ Technical Manual for Residuals Mgmt
Total Phosphate (P2O5)	4.41	4.57	%	0.01	AOAC 965.09/ICP
Available Phosphate (P2O5)	4.00	4.15	%	0.01	AOAC 993.31/ICP
Potash (K2O)	0.31	0.32	%	0.01	AOAC 965.09/ICP
Aluminum (Al)	1.34	1.39	%	0.01	AOAC 965.09/ICP
Boron (B)	<0.01	<0.01	%	0.01	AOAC 965.09/ICP
Calcium (Ca)	4.48	4.65	%	0.01	AOAC 965.09/ICP
Copper (Cu)	0.04	0.04	%	0.01	AOAC 965.09/ICP

Report Approved By: David C Henry

David Henry - Agronomist / Technical Services - CCA

Approval Date: 7/12/2024

Report Number
F24187-7004
Account Number
89508

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3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: VEOLIA WATER NA SITE ID 11226
6001 W PERSHING RD
CICERO, IL 60804-4112

Lab Number: 82863
Purchase Order: 1000316367

Attn: VEOLIA BUILDING
Sample ID: PCD070224
Expected Analysis: 4-4-0

REPORT OF ANALYSIS

Date Received: 7/8/2024
Date Reported: 7/12/2024

Analysis	Result		Unit	Reporting Limit (As-Received Basis)	Method Reference
	As-Received Basis	Dry Basis			
Iron (Fe)	1.84	1.91	%	0.01	AOAC 965.09/ICP
Magnesium (Mg)	2.20	2.28	%	0.01	AOAC 965.09/ICP
Manganese (Mn)	0.04	0.04	%	0.01	AOAC 965.09/ICP
Sodium (Na)	0.09	0.09	%	0.01	AOAC 965.09/ICP
Sulfur (S)	1.02	1.06	%	0.01	AOAC 965.09/ICP
Zinc (Zn)	0.11	0.11	%	0.01	AOAC 965.09/ICP
pH	6.55		Std. Unit	0.01	ALGL SOP 7.01
Bulk Density	49.7		lb/cu ft	0.1	TFI (4th) Method IV.C

pH was read on a 1:1 sample:water slurry after 1 hour.
Bulk Density is the average of Apparent (48.3 lb/cu ft) and Tapped (51.2 lb/ cu ft).

A & L GREAT LAKES LABORATORIES

2024-AUGUST

Report Number
F24221-7004
Account Number
89508

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3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: VEOLIA WATER NA SITE ID 11226
6001 W PERSHING RD
CICERO, IL 60804-4112

Lab Number: 83161
Purchase Order: 1000316367

Attn: VEOLIA BUILDING
Sample ID: PCD080624
Expected Analysis: 4-4-0

REPORT OF ANALYSIS

Date Received: 8/8/2024
Date Reported: 8/16/2024

Analysis	Result		Unit	Reporting Limit (As-Received Basis)	Method Reference
	As-Received Basis	Dry Basis			
Moisture (105 deg. C)	4.9	0.0	%	0.1	AOAC 950.01
Solids	95.1	100.0	%	0.1	AOAC 950.01
Total Nitrogen (N)	3.81	4.00	%	0.10	AOAC 993.13
Total Kjeldahl Nitrogen (N)	3.253	3.419	%	0.001	UW A3769 III.3.2
Ammoniacal Nitrogen (NH4-N)	0.23	0.24	%	0.01	Lachat 12-107-06-1-B
Nitrate Nitrogen (NO3-N)	<0.01	<0.01	%	0.01	Lachat QCM 12-107-04-1-B
Organic Nitrogen	3.58	3.76	%	0.01	Calculation
PAN - New Jersey DEQ	16.7	17.5	lb/T	0.1	NJ Technical Manual for Residuals Mgmt
Total Phosphate (P2O5)	4.41	4.63	%	0.01	AOAC 965.09/ICP
Available Phosphate (P2O5)	4.04	4.25	%	0.01	AOAC 993.31/ICP
Potash (K2O)	0.23	0.24	%	0.01	AOAC 965.09/ICP
Aluminum (Al)	1.25	1.31	%	0.01	AOAC 965.09/ICP
Boron (B)	<0.01	<0.01	%	0.01	AOAC 965.09/ICP
Calcium (Ca)	4.16	4.37	%	0.01	AOAC 965.09/ICP
Copper (Cu)	0.05	0.05	%	0.01	AOAC 965.09/ICP

Report Approved By: David Henry - Agronomist / Technical Services - CCA

Approval Date: 8/16/2024

Report Number
F24221-7004
Account Number
89508

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Fort Wayne, IN 46808
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To: VEOLIA WATER NA SITE ID 11226
6001 W PERSHING RD
CICERO, IL 60804-4112

Lab Number: 83161
Purchase Order: 1000316367

Attn: VEOLIA BUILDING
Sample ID: PCD080624
Expected Analysis: 4-4-0

REPORT OF ANALYSIS

Date Received: 8/8/2024
Date Reported: 8/16/2024

Analysis	Result		Unit	Reporting Limit (As-Received Basis)	Method Reference
	As-Received Basis	Dry Basis			
Iron (Fe)	1.81	1.90	%	0.01	AOAC 965.09/ICP
Magnesium (Mg)	1.93	2.03	%	0.01	AOAC 965.09/ICP
Manganese (Mn)	0.06	0.06	%	0.01	AOAC 965.09/ICP
Sodium (Na)	0.09	0.09	%	0.01	AOAC 965.09/ICP
Sulfur (S)	1.01	1.06	%	0.01	AOAC 965.09/ICP
Zinc (Zn)	0.10	0.11	%	0.01	AOAC 965.09/ICP
pH	6.68		Std. Unit	0.01	ALGL SOP 7.01
Bulk Density	48.3		lb/cu ft	0.1	TFI (4th) Method IV.C

pH was read on a 1:2 sample:water slurry after 1 hour.
Bulk Density is the average of Apparent (47.1 lb/cu ft) and Tapped (49.5 lb/ cu ft).

A & L GREAT LAKES LABORATORIES

2024-SEPTEMBER

Report Number
F24249-7009
Account Number
89508

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3505 Conestoga Dr.
Fort Wayne, IN 46808
260.483.4759
algreatlakes.com

To: VEOLIA WATER NA SITE ID 11226
6001 W PERSHING RD
CICERO, IL 60804-4112

Lab Number: 83446
Purchase Order: 1000316367

Attn: VEOLIA BUILDING
Sample ID: PCD090324
Expected Analysis: 4-4-0

Date Received: 9/5/2024
Date Reported: 9/12/2024

REPORT OF ANALYSIS

Analysis	Result		Unit	Reporting Limit (As-Received Basis)	Method Reference
	As-Received Basis	Dry Basis			
Moisture (105 deg. C)	4.3	0.0	%	0.1	AOAC 950.01
Solids	95.7	100.0	%	0.1	AOAC 950.01
Total Nitrogen (N)	3.86	4.03	%	0.10	AOAC 993.13
Total Kjeldahl Nitrogen (N)	3.098	3.237	%	0.001	UW A3769 III.3.2
Ammoniacal Nitrogen (NH4-N)	0.17	0.18	%	0.01	Lachat 12-107-06-1-B
Nitrate Nitrogen (NO3-N)	<0.01	<0.01	%	0.01	Lachat QCM 12-107-04-1-B
Organic Nitrogen	3.69	3.86	%	0.01	Calculation
PAN - New Jersey DEQ	15.1	15.8	lb/T	0.1	NJ Technical Manual for Residuals Mgmt
Total Phosphate (P2O5)	5.45	5.69	%	0.01	AOAC 965.09/ICP
Available Phosphate (P2O5)	4.91	5.13	%	0.01	AOAC 993.31/ICP
Potash (K2O)	0.18	0.19	%	0.01	AOAC 965.09/ICP
Aluminum (Al)	1.29	1.35	%	0.01	AOAC 965.09/ICP
Boron (B)	<0.01	<0.01	%	0.01	AOAC 965.09/ICP
Calcium (Ca)	4.23	4.42	%	0.01	AOAC 965.09/ICP
Copper (Cu)	0.01	0.01	%	0.01	AOAC 965.09/ICP

Report Approved By: David Henry - Agronomist / Technical Services - CCA

Approval Date: 9/12/2024

Report Number
F24249-7009
Account Number
89508

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3505 Conestoga Dr.
Fort Wayne, IN 46808
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algreatlakes.com

To: VEOLIA WATER NA SITE ID 11226
6001 W PERSHING RD
CICERO, IL 60804-4112

Lab Number: 83446
Purchase Order: 1000316367

Attn: VEOLIA BUILDING
Sample ID: PCD090324
Expected Analysis: 4-4-0

REPORT OF ANALYSIS

Date Received: 9/5/2024
Date Reported: 9/12/2024

Analysis	Result		Unit	Reporting Limit (As-Received Basis)	Method Reference
	As-Received Basis	Dry Basis			
Iron (Fe)	2.12	2.21	%	0.01	AOAC 965.09/ICP
Magnesium (Mg)	2.06	2.15	%	0.01	AOAC 965.09/ICP
Manganese (Mn)	0.02	0.02	%	0.01	AOAC 965.09/ICP
Sodium (Na)	0.09	0.09	%	0.01	AOAC 965.09/ICP
Sulfur (S)	1.12	1.17	%	0.01	AOAC 965.09/ICP
Zinc (Zn)	0.08	0.08	%	0.01	AOAC 965.09/ICP
pH	6.89		Std. Unit	0.01	ALGL SOP 7.01
Bulk Density	43.1		lb/cu ft	0.1	TFI (4th) Method IV.C

pH was read on a 1:2 sample:water slurry after 1 hour.
Bulk Density is the average of Apparent (38.3 lb/cu ft) and Tapped (47.9 lb/ cu ft).

PACE ANALYTICAL SERVICES LLC

TCLP-DRY WEIGHT

MARCH 2024

PACE ANALYTICAL SERVICES LLC

TCLP-DRY WEIGHT

2024 MARCH

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

April 04, 2024

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: TCLP PCD DRY
Pace Project No.: 40275724

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on March 20, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Indianapolis
- Pace Analytical Services - New Orleans

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Jennfier Garcia, Veolia
Jon Gibson, Veolia
Sara King, Veolia North America

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

CERTIFICATIONS

Project: TCLP PCD DRY
Pace Project No.: 40275724

Pace Analytical Services New Orleans

Florida Department of Health (NELAC): E87595
Illinois Environmental Protection Agency: 2000662023-7
Kansas Department of Health and Environment (NELAC): E-10266
Louisiana Dept. of Environmental Quality (NELAC/LELAP): 02006
Texas Commission on Env. Quality (NELAC): T104704405-23-18
U.S. Dept. of Agriculture Foreign Soil Import: 525-23-117-89728

Pace Analytical Services Green Bay

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

Pace Analytical Services Indianapolis

7726 Moller Road, Indianapolis, IN 46268
Illinois Accreditation #: 200074
Indiana Drinking Water Laboratory #: C-49-06
Kansas/TNI Certification #: E-10177
Kentucky UST Agency Interest #: 80226
Kentucky WW Laboratory ID #: 98019
Michigan Drinking Water Laboratory #9050
Ohio VAP Certified Laboratory #: CL0065
Oklahoma Laboratory #: 9204
Texas Certification #: T104704355
Washington Dept of Ecology #: C1081
Wisconsin Laboratory #: 999788130
USDA Foreign Soil Permit #: 525-23-13-23119
USDA Compliance Agreement #: IN-SL-22-001

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: TCLP PCD DRY
Pace Project No.: 40275724

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40275724001	**PCD DRY 03192024**	Solid	03/19/24 06:45	03/20/24 08:25

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE ANALYTE COUNT

Project: TCLP PCD DRY
Pace Project No.: 40275724

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40275724001	**PCD DRY 03192024**	EPA 8081	KAV	8	PASI-I
		EPA 8082A	BDS	9	PASI-G
		EPA 8151A	CPH	3	PASI-I
		EPA 6010D	SIS	7	PASI-G
		EPA 7470	AJT	1	PASI-G
		EPA 8270E	RJN	16	PASI-G
		EPA 8260	NB	13	PASI-G
		ASTM D2974-87	MYH	1	PASI-G
		EPA 1010	HML	1	PASI-G
		SW-846 7.3.4.2	TMO	1	PASI-N
		EPA 9045	HML	1	PASI-G
		EPA 9095	HML	1	PASI-G
		SW-846 7.3.3.2	MHM	1	PASI-N
		EPA 9066	ZM	1	PASI-I

PASI-G = Pace Analytical Services - Green Bay
PASI-I = Pace Analytical Services - Indianapolis
PASI-N = Pace Analytical Services - New Orleans

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: TCLP PCD DRY
Pace Project No.: 40275724

Sample: PCD DRY 03192024 **Lab ID: 40275724001** Collected: 03/19/24 06:45 Received: 03/20/24 08:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8081 GCS Pest RV, TCLP	Analytical Method: EPA 8081 Preparation Method: EPA 3510								
	Leachate Method/Date: EPA 1311; 03/28/24 15:55 Initial pH: 7.46; Final pH: 5.35								
	Pace Analytical Services - Indianapolis								
gamma-BHC (Lindane)	**<0.00025**	mg/L	0.00025	0.00025	1	04/02/24 15:09	04/02/24 18:53	58-89-9	
Chlordane (Technical)	**<0.0050**	mg/L	0.0050	0.0050	1	04/02/24 15:09	04/02/24 18:53	57-74-9	
Endrin	**<0.00050**	mg/L	0.00050	0.00050	1	04/02/24 15:09	04/02/24 18:53	72-20-8	
Heptachlor	**<0.00025**	mg/L	0.00025	0.00025	1	04/02/24 15:09	04/02/24 18:53	76-44-8	
Heptachlor epoxide	**<0.00025**	mg/L	0.00025	0.00025	1	04/02/24 15:09	04/02/24 18:53	1024-57-3	
Methoxychlor	**<0.0025**	mg/L	0.0025	0.0025	1	04/02/24 15:09	04/02/24 18:53	72-43-5	
Toxaphene	**<0.0050**	mg/L	0.0050	0.0050	1	04/02/24 15:09	04/02/24 18:53	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	31	%.	10-124		1	04/02/24 15:09	04/02/24 18:53	2051-24-3	
8082A GCS PCB	Analytical Method: EPA 8082A Preparation Method: EPA 3541								
	Pace Analytical Services - Green Bay								
PCB-1016 (Aroclor 1016)	**<0.016**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	12674-11-2	
PCB-1221 (Aroclor 1221)	**<0.016**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	11104-28-2	
PCB-1232 (Aroclor 1232)	**<0.016**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	11141-16-5	
PCB-1242 (Aroclor 1242)	**0.12**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	53469-21-9	
PCB-1248 (Aroclor 1248)	**<0.016**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	12672-29-6	
PCB-1254 (Aroclor 1254)	**0.092**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	11097-69-1	
PCB-1260 (Aroclor 1260)	**0.065**	mg/kg	0.052	0.016	1	03/22/24 10:47	03/23/24 02:31	11096-82-5	
Surrogates									
Tetrachloro-m-xylene (S)	92	%	44-120		1	03/22/24 10:47	03/23/24 02:31	877-09-8	
Decachlorobiphenyl (S)	87	%	34-120		1	03/22/24 10:47	03/23/24 02:31	2051-24-3	
8151A Cl Acid Herbicides TCLP	Analytical Method: EPA 8151A Preparation Method: EPA 8151								
	Leachate Method/Date: EPA 1311; 03/28/24 15:55 Initial pH: 7.46; Final pH: 5.35								
	Pace Analytical Services - Indianapolis								
2,4-D	**<0.010**	mg/L	0.010	0.010	1	04/02/24 15:53	04/03/24 16:33	94-75-7	
2,4,5-TP (Silvex)	**<0.010**	mg/L	0.010	0.010	1	04/02/24 15:53	04/03/24 16:33	93-72-1	
Surrogates									
2,4-DCAA (S)	82	%.	22-132		1	04/02/24 15:53	04/03/24 16:33	19719-28-9	
6010D MET ICP, TCLP	Analytical Method: EPA 6010D Preparation Method: EPA 3015A								
	Leachate Method/Date: EPA 1311; 03/20/24 12:05								
	Pace Analytical Services - Green Bay								
Arsenic	**0.015J**	mg/L	0.025	0.0083	1	03/21/24 11:03	03/21/24 14:19	7440-38-2	
Barium	**0.30**	mg/L	0.0050	0.0015	1	03/21/24 11:03	03/21/24 14:19	7440-39-3	
Cadmium	**<0.0013**	mg/L	0.0050	0.0013	1	03/21/24 11:03	03/21/24 14:19	7440-43-9	
Chromium	**0.0045J**	mg/L	0.010	0.0025	1	03/21/24 11:03	03/21/24 14:19	7440-47-3	
Lead	**<0.0059**	mg/L	0.020	0.0059	1	03/21/24 11:03	03/21/24 14:19	7439-92-1	
Selenium	**<0.012**	mg/L	0.040	0.012	1	03/21/24 11:03	03/21/24 14:19	7782-49-2	
Silver	**<0.0032**	mg/L	0.010	0.0032	1	03/21/24 11:03	03/21/24 14:19	7440-22-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
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ANALYTICAL RESULTS

Project: TCLP PCD DRY
Pace Project No.: 40275724

Sample: PCD DRY 03192024 **Lab ID: 40275724001** Collected: 03/19/24 06:45 Received: 03/20/24 08:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
7470 Mercury, TCLP	Analytical Method: EPA 7470 Preparation Method: EPA 7470 Leachate Method/Date: EPA 1311; 03/20/24 12:05 Pace Analytical Services - Green Bay								
Mercury	**0.00015J**	mg/L	0.00020	0.000066	1	03/22/24 07:40	03/22/24 12:16	7439-97-6	M0
8270E MSSV TCLP Sep Funnel	Analytical Method: EPA 8270E Preparation Method: EPA 3510 Leachate Method/Date: EPA 1311; 03/20/24 12:05 Pace Analytical Services - Green Bay								
1,4-Dichlorobenzene	**<0.018**	mg/L	0.050	0.018	1	03/21/24 09:48	03/26/24 14:34	106-46-7	
2,4-Dinitrotoluene	**<0.012**	mg/L	0.050	0.012	1	03/21/24 09:48	03/26/24 14:34	121-14-2	
Hexachloro-1,3-butadiene	**<0.016**	mg/L	0.050	0.016	1	03/21/24 09:48	03/26/24 14:34	87-68-3	
Hexachlorobenzene	**<0.025**	mg/L	0.050	0.025	1	03/21/24 09:48	03/26/24 14:34	118-74-1	
Hexachloroethane	**<0.015**	mg/L	0.050	0.015	1	03/21/24 09:48	03/26/24 14:34	67-72-1	
2-Methylphenol(o-Cresol)	**<0.0077**	mg/L	0.050	0.0077	1	03/21/24 09:48	03/26/24 14:34	95-48-7	
3&4-Methylphenol(m&p Cresol)	**<0.0060**	mg/L	0.050	0.0060	1	03/21/24 09:48	03/26/24 14:34		
Nitrobenzene	**<0.016**	mg/L	0.050	0.016	1	03/21/24 09:48	03/26/24 14:34	98-95-3	
Pentachlorophenol	**<0.016**	mg/L	0.050	0.016	1	03/21/24 09:48	03/26/24 14:34	87-86-5	
Pyridine	**<0.073**	mg/L	0.10	0.073	1	03/21/24 09:48	03/26/24 14:34	110-86-1	
2,4,5-Trichlorophenol	**<0.018**	mg/L	0.050	0.018	1	03/21/24 09:48	03/26/24 14:34	95-95-4	
2,4,6-Trichlorophenol	**<0.020**	mg/L	0.050	0.020	1	03/21/24 09:48	03/26/24 14:34	88-06-2	
Surrogates									
Nitrobenzene-d5 (S)	63	%	38-130		1	03/21/24 09:48	03/26/24 14:34	4165-60-0	
2-Fluorobiphenyl (S)	43	%	23-130		1	03/21/24 09:48	03/26/24 14:34	321-60-8	
2,4,6-Tribromophenol (S)	72	%	10-141		1	03/21/24 09:48	03/26/24 14:34	118-79-6	
Phenol-d6 (S)	31	%	11-130		1	03/21/24 09:48	03/26/24 14:34	13127-88-3	
8260 MSV TCLP	Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 03/20/24 12:05 Pace Analytical Services - Green Bay								
Benzene	**<0.0030**	mg/L	0.010	0.0030	10		03/22/24 17:30	71-43-2	
2-Butanone (MEK)	**<0.065**	mg/L	0.25	0.065	10		03/22/24 17:30	78-93-3	
Carbon tetrachloride	**<0.0037**	mg/L	0.010	0.0037	10		03/22/24 17:30	56-23-5	
Chlorobenzene	**<0.0086**	mg/L	0.010	0.0086	10		03/22/24 17:30	108-90-7	
Chloroform	**<0.0050**	mg/L	0.050	0.0050	10		03/22/24 17:30	67-66-3	
1,2-Dichloroethane	**<0.0029**	mg/L	0.010	0.0029	10		03/22/24 17:30	107-06-2	
1,1-Dichloroethene	**<0.0058**	mg/L	0.010	0.0058	10		03/22/24 17:30	75-35-4	
Tetrachloroethene	**<0.0041**	mg/L	0.010	0.0041	10		03/22/24 17:30	127-18-4	
Trichloroethene	**<0.0032**	mg/L	0.010	0.0032	10		03/22/24 17:30	79-01-6	
Vinyl chloride	**<0.0017**	mg/L	0.010	0.0017	10		03/22/24 17:30	75-01-4	
Surrogates									
Toluene-d8 (S)	105	%	70-130		10		03/22/24 17:30	2037-26-5	
4-Bromofluorobenzene (S)	103	%	70-130		10		03/22/24 17:30	460-00-4	
1,2-Dichlorobenzene-d4 (S)	97	%	70-130		10		03/22/24 17:30	2199-69-1	
Percent Moisture	Analytical Method: ASTM D2974-87 Pace Analytical Services - Green Bay								
Percent Moisture	**4.5**	%	0.10	0.10	1		03/20/24 15:04		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

ANALYTICAL RESULTS

Project: TCLP PCD DRY
Pace Project No.: 40275724

Sample: PCD DRY 03192024 **Lab ID: 40275724001** Collected: 03/19/24 06:45 Received: 03/20/24 08:25 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
1010 Flashpoint,Closed Cup	Analytical Method: EPA 1010 Pace Analytical Services - Green Bay								
Flashpoint	**>200**	deg F			1		03/25/24 16:12		1q
734S Reactive Sulfide	Analytical Method: SW-846 7.3.4.2 Preparation Method: SW-846 7.3.4.2 Pace Analytical Services - New Orleans								
Sulfide, Reactive	**<50.0**	mg/kg	50.0	50.0	1	03/28/24 08:45	03/28/24 11:58		
9045 pH Soil	Analytical Method: EPA 9045 Pace Analytical Services - Green Bay								
pH at 25 Degrees C	**6.51**	Std. Units	0.100	0.0100	1		03/21/24 14:29		H6
9095 Paint Filter Liquid Test	Analytical Method: EPA 9095 Pace Analytical Services - Green Bay								
Free Liquids	**PASS**	no units			1		03/25/24 15:14		
733C S Reactive Cyanide	Analytical Method: SW-846 7.3.3.2 Preparation Method: SW-846 7.3.3.2 Pace Analytical Services - New Orleans								
Cyanide, Reactive	**<25.0**	mg/kg	25.0	25.0	1	03/28/24 08:45	03/28/24 13:32		
9066 Phenolics, Total	Analytical Method: EPA 9066 Preparation Method: EPA 9066 Pace Analytical Services - Indianapolis								
Phenolics, Total Recoverable	**10.0J**	mg/kg	10.3	4.9	1	04/01/24 11:30	04/02/24 14:23	64743-03-9	D3

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469836
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: 7470 Mercury TCLP
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40275724001

METHOD BLANK: 2691650 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	<0.000066	0.00020	0.000066	03/22/24 10:53	

METHOD BLANK: 2689705 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	<0.000066	0.00020	0.000066	03/22/24 11:13	

METHOD BLANK: 2689706 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	<0.000066	0.00020	0.000066	03/22/24 11:34	

METHOD BLANK: 2690182 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	<0.000066	0.00020	0.000066	03/22/24 12:04	

METHOD BLANK: 2690696 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	<0.000066	0.00020	0.000066	03/22/24 12:21	

LABORATORY CONTROL SAMPLE: 2691651

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.005	0.0057	113	85-115	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
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(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE SAMPLE: 2691653

Parameter	Units	40275592001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000066	0.005	0.0061	121	85-115	M0

MATRIX SPIKE SAMPLE: 2691655

Parameter	Units	40275592002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000066	0.005	0.0058	116	85-115	M0

MATRIX SPIKE SAMPLE: 2691656

Parameter	Units	40275592003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.00011J	0.005	0.0055	108	85-115	

MATRIX SPIKE SAMPLE: 2691657

Parameter	Units	40275624001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.000077J	0.005	0.0063	125	85-115	M0

MATRIX SPIKE SAMPLE: 2691658

Parameter	Units	40275624002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000066	0.005	0.0064	127	85-115	M0

MATRIX SPIKE SAMPLE: 2691659

Parameter	Units	40275624003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000066	0.005	0.0063	126	85-115	M0

MATRIX SPIKE SAMPLE: 2691660

Parameter	Units	40275624004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.000066	0.005	0.0062	124	85-115	M0

MATRIX SPIKE SAMPLE: 2691661

Parameter	Units	40275578001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	<0.066 ug/L	0.005	0.0059	119	85-115	M0

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE SAMPLE: 2691662

Parameter	Units	40275723001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.00037	0.005	0.0057	106	85-115	

MATRIX SPIKE SAMPLE: 2691663

Parameter	Units	40275724001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.00015J	0.005	0.0059	116	85-115	M0

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469769
QC Batch Method: EPA 3015A
Analysis Method: EPA 6010D
Analysis Description: 6010D MET TCLP
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40275724001

METHOD BLANK: 2691277 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	0.0083	03/21/24 13:47	
Barium	mg/L	<0.0015	0.0050	0.0015	03/21/24 13:47	
Cadmium	mg/L	<0.0013	0.0050	0.0013	03/21/24 13:47	
Chromium	mg/L	<0.0025	0.010	0.0025	03/21/24 13:47	
Lead	mg/L	<0.0059	0.020	0.0059	03/21/24 13:47	
Selenium	mg/L	<0.012	0.040	0.012	03/21/24 13:47	
Silver	mg/L	<0.0032	0.010	0.0032	03/21/24 13:47	

METHOD BLANK: 2690604 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	0.0083	03/21/24 14:13	
Barium	mg/L	0.0019J	0.0050	0.0015	03/21/24 14:13	
Cadmium	mg/L	<0.0013	0.0050	0.0013	03/21/24 14:13	
Chromium	mg/L	0.0039J	0.010	0.0025	03/21/24 14:13	
Lead	mg/L	0.0070J	0.020	0.0059	03/21/24 14:13	
Selenium	mg/L	<0.012	0.040	0.012	03/21/24 14:13	
Silver	mg/L	<0.0032	0.010	0.0032	03/21/24 14:13	

METHOD BLANK: 2690695 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	<0.0083	0.025	0.0083	03/21/24 14:22	
Barium	mg/L	<0.0015	0.0050	0.0015	03/21/24 14:22	
Cadmium	mg/L	<0.0013	0.0050	0.0013	03/21/24 14:22	
Chromium	mg/L	<0.0025	0.010	0.0025	03/21/24 14:22	
Lead	mg/L	<0.0059	0.020	0.0059	03/21/24 14:22	
Selenium	mg/L	<0.012	0.040	0.012	03/21/24 14:22	
Silver	mg/L	<0.0032	0.010	0.0032	03/21/24 14:22	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
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(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

LABORATORY CONTROL SAMPLE: 2691278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.28	0.27	96	80-120	
Barium	mg/L	0.28	0.28	100	80-120	
Cadmium	mg/L	0.28	0.29	104	80-120	
Chromium	mg/L	0.28	0.28	102	80-120	
Lead	mg/L	0.28	0.29	106	80-120	
Selenium	mg/L	0.28	0.29	103	80-120	
Silver	mg/L	0.14	0.14	104	80-120	

MATRIX SPIKE SAMPLE: 2691279

Parameter	Units	40275660001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	<0.017	0.28	0.28	100	75-125	
Barium	mg/L	0.40	0.28	0.69	102	75-125	
Cadmium	mg/L	0.015	0.28	0.31	105	75-125	
Chromium	mg/L	0.0061J	0.28	0.29	104	75-125	
Lead	mg/L	0.21	0.28	0.50	103	75-125	
Selenium	mg/L	<0.024	0.28	0.30	110	75-125	
Silver	mg/L	<0.0064	0.14	0.15	105	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2691280 2691281

Parameter	Units	40275660002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/L	<0.0083	0.28	0.28	0.28	0.29	99	102	75-125	2	20	
Barium	mg/L	0.11	0.28	0.28	0.40	0.40	103	103	75-125	0	20	
Cadmium	mg/L	0.0031J	0.28	0.28	0.30	0.30	106	107	75-125	1	20	
Chromium	mg/L	<0.0025	0.28	0.28	0.29	0.29	103	104	75-125	2	20	
Lead	mg/L	<0.0059	0.28	0.28	0.29	0.29	103	104	75-125	1	20	
Selenium	mg/L	<0.012	0.28	0.28	0.31	0.31	109	108	75-125	0	20	
Silver	mg/L	<0.0032	0.14	0.14	0.15	0.15	105	106	75-125	1	20	

MATRIX SPIKE SAMPLE: 2691282

Parameter	Units	40275723001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.045	0.28	0.34	105	75-125	
Barium	mg/L	0.52	0.28	0.79	98	75-125	
Cadmium	mg/L	<0.0013	0.28	0.30	107	75-125	
Chromium	mg/L	0.022	0.28	0.31	105	75-125	
Lead	mg/L	0.0067J	0.28	0.31	109	75-125	
Selenium	mg/L	0.015J	0.28	0.32	110	75-125	
Silver	mg/L	<0.0032	0.14	0.15	106	75-125	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE SAMPLE: 2691283

Parameter	Units	40275724001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.015J	0.28	0.30	102	75-125	
Barium	mg/L	0.30	0.28	0.58	100	75-125	
Cadmium	mg/L	<0.0013	0.28	0.29	105	75-125	
Chromium	mg/L	0.0045J	0.28	0.29	103	75-125	
Lead	mg/L	<0.0059	0.28	0.30	105	75-125	
Selenium	mg/L	<0.012	0.28	0.30	106	75-125	
Silver	mg/L	<0.0032	0.14	0.15	105	75-125	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469900
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV TCLP
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40275724001

METHOD BLANK: 2692234 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.00058	0.0010	0.00058	03/22/24 10:41	
1,2-Dichloroethane	mg/L	<0.00029	0.0010	0.00029	03/22/24 10:41	
2-Butanone (MEK)	mg/L	<0.0065	0.025	0.0065	03/22/24 10:41	
Benzene	mg/L	<0.00030	0.0010	0.00030	03/22/24 10:41	
Carbon tetrachloride	mg/L	<0.00037	0.0010	0.00037	03/22/24 10:41	
Chlorobenzene	mg/L	<0.00086	0.0010	0.00086	03/22/24 10:41	
Chloroform	mg/L	<0.00050	0.0050	0.00050	03/22/24 10:41	
Tetrachloroethene	mg/L	<0.00041	0.0010	0.00041	03/22/24 10:41	
Trichloroethene	mg/L	<0.00032	0.0010	0.00032	03/22/24 10:41	
Vinyl chloride	mg/L	<0.00017	0.0010	0.00017	03/22/24 10:41	
1,2-Dichlorobenzene-d4 (S)	%	97	70-130		03/22/24 10:41	
4-Bromofluorobenzene (S)	%	100	70-130		03/22/24 10:41	
Toluene-d8 (S)	%	103	70-130		03/22/24 10:41	

METHOD BLANK: 2689708 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.0058	0.010	0.0058	03/22/24 13:02	
1,2-Dichloroethane	mg/L	<0.0029	0.010	0.0029	03/22/24 13:02	
2-Butanone (MEK)	mg/L	<0.065	0.25	0.065	03/22/24 13:02	
Benzene	mg/L	<0.0030	0.010	0.0030	03/22/24 13:02	
Carbon tetrachloride	mg/L	<0.0037	0.010	0.0037	03/22/24 13:02	
Chlorobenzene	mg/L	<0.0086	0.010	0.0086	03/22/24 13:02	
Chloroform	mg/L	<0.0050	0.050	0.0050	03/22/24 13:02	
Tetrachloroethene	mg/L	<0.0041	0.010	0.0041	03/22/24 13:02	
Trichloroethene	mg/L	<0.0032	0.010	0.0032	03/22/24 13:02	
Vinyl chloride	mg/L	<0.0017	0.010	0.0017	03/22/24 13:02	
1,2-Dichlorobenzene-d4 (S)	%	98	70-130		03/22/24 13:02	
4-Bromofluorobenzene (S)	%	101	70-130		03/22/24 13:02	
Toluene-d8 (S)	%	102	70-130		03/22/24 13:02	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

METHOD BLANK: 2690184 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.0058	0.010	0.0058	03/22/24 13:18	
1,2-Dichloroethane	mg/L	<0.0029	0.010	0.0029	03/22/24 13:18	
2-Butanone (MEK)	mg/L	<0.065	0.25	0.065	03/22/24 13:18	
Benzene	mg/L	<0.0030	0.010	0.0030	03/22/24 13:18	
Carbon tetrachloride	mg/L	<0.0037	0.010	0.0037	03/22/24 13:18	
Chlorobenzene	mg/L	<0.0086	0.010	0.0086	03/22/24 13:18	
Chloroform	mg/L	<0.0050	0.050	0.0050	03/22/24 13:18	
Tetrachloroethene	mg/L	<0.0041	0.010	0.0041	03/22/24 13:18	
Trichloroethene	mg/L	<0.0032	0.010	0.0032	03/22/24 13:18	
Vinyl chloride	mg/L	<0.0017	0.010	0.0017	03/22/24 13:18	
1,2-Dichlorobenzene-d4 (S)	%	98	70-130		03/22/24 13:18	
4-Bromofluorobenzene (S)	%	102	70-130		03/22/24 13:18	
Toluene-d8 (S)	%	104	70-130		03/22/24 13:18	

METHOD BLANK: 2690606 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1-Dichloroethene	mg/L	<0.0058	0.010	0.0058	03/22/24 13:34	
1,2-Dichloroethane	mg/L	<0.0029	0.010	0.0029	03/22/24 13:34	
2-Butanone (MEK)	mg/L	<0.065	0.25	0.065	03/22/24 13:34	
Benzene	mg/L	<0.0030	0.010	0.0030	03/22/24 13:34	
Carbon tetrachloride	mg/L	<0.0037	0.010	0.0037	03/22/24 13:34	
Chlorobenzene	mg/L	<0.0086	0.010	0.0086	03/22/24 13:34	
Chloroform	mg/L	<0.0050	0.050	0.0050	03/22/24 13:34	
Tetrachloroethene	mg/L	<0.0041	0.010	0.0041	03/22/24 13:34	
Trichloroethene	mg/L	<0.0032	0.010	0.0032	03/22/24 13:34	
Vinyl chloride	mg/L	<0.0017	0.010	0.0017	03/22/24 13:34	
1,2-Dichlorobenzene-d4 (S)	%	98	70-130		03/22/24 13:34	
4-Bromofluorobenzene (S)	%	102	70-130		03/22/24 13:34	
Toluene-d8 (S)	%	103	70-130		03/22/24 13:34	

LABORATORY CONTROL SAMPLE: 2692235

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	mg/L	0.05	0.047	95	73-140	
1,2-Dichloroethane	mg/L	0.05	0.051	103	70-130	
Benzene	mg/L	0.05	0.051	102	70-130	
Carbon tetrachloride	mg/L	0.05	0.046	93	70-135	
Chlorobenzene	mg/L	0.05	0.053	107	70-130	
Chloroform	mg/L	0.05	0.051	101	80-124	
Tetrachloroethene	mg/L	0.05	0.047	95	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

LABORATORY CONTROL SAMPLE: 2692235

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	mg/L	0.05	0.050	101	70-130	
Vinyl chloride	mg/L	0.05	0.052	104	51-145	
1,2-Dichlorobenzene-d4 (S)	%			97	70-130	
4-Bromofluorobenzene (S)	%			105	70-130	
Toluene-d8 (S)	%			103	70-130	

MATRIX SPIKE SAMPLE: 2691432

Parameter	Units	40275723001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	mg/L	<0.0058	0.5	0.46	92	69-146	
1,2-Dichloroethane	mg/L	<0.0029	0.5	0.51	102	70-130	
Benzene	mg/L	<0.0030	0.5	0.50	100	70-130	
Carbon tetrachloride	mg/L	<0.0037	0.5	0.45	91	70-135	
Chlorobenzene	mg/L	<0.0086	0.5	0.52	104	70-130	
Chloroform	mg/L	<0.0050	0.5	0.50	100	80-126	
Tetrachloroethene	mg/L	<0.0041	0.5	0.46	92	70-131	
Trichloroethene	mg/L	<0.0032	0.5	0.49	98	70-130	
Vinyl chloride	mg/L	<0.0017	0.5	0.49	99	45-147	
1,2-Dichlorobenzene-d4 (S)	%				97	70-130	
4-Bromofluorobenzene (S)	%				104	70-130	
Toluene-d8 (S)	%				105	70-130	

MATRIX SPIKE SAMPLE: 2691433

Parameter	Units	40275724001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	mg/L	<0.0058	0.5	0.48	96	69-146	
1,2-Dichloroethane	mg/L	<0.0029	0.5	0.52	103	70-130	
Benzene	mg/L	<0.0030	0.5	0.51	102	70-130	
Carbon tetrachloride	mg/L	<0.0037	0.5	0.47	94	70-135	
Chlorobenzene	mg/L	<0.0086	0.5	0.54	107	70-130	
Chloroform	mg/L	<0.0050	0.5	0.51	102	80-126	
Tetrachloroethene	mg/L	<0.0041	0.5	0.48	96	70-131	
Trichloroethene	mg/L	<0.0032	0.5	0.51	102	70-130	
Vinyl chloride	mg/L	<0.0017	0.5	0.50	100	45-147	
1,2-Dichlorobenzene-d4 (S)	%				97	70-130	
4-Bromofluorobenzene (S)	%				103	70-130	
Toluene-d8 (S)	%				105	70-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2692242 2692243

Parameter	Units	40275718001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	mg/L	<10.0 ug/L	0.5	0.5	0.45	0.48	91	95	69-146	5	20	
1,2-Dichloroethane	mg/L	<10.0 ug/L	0.5	0.5	0.51	0.54	102	107	70-130	5	20	
Benzene	mg/L	<0.010	0.5	0.5	0.49	0.52	98	103	70-130	5	20	
Carbon tetrachloride	mg/L	<10.0 ug/L	0.5	0.5	0.45	0.48	91	95	70-135	5	20	
Chlorobenzene	mg/L	<10.0 ug/L	0.5	0.5	0.52	0.54	105	109	70-130	4	20	
Chloroform	mg/L	<50.0 ug/L	0.5	0.5	0.49	0.52	99	103	80-126	4	20	
Tetrachloroethene	mg/L	<10.0 ug/L	0.5	0.5	0.45	0.48	91	96	70-131	5	20	
Trichloroethene	mg/L	<10.0 ug/L	0.5	0.5	0.48	0.51	97	102	70-130	5	20	
Vinyl chloride	mg/L	<10.0 ug/L	0.5	0.5	0.48	0.50	97	100	45-147	4	20	
1,2-Dichlorobenzene-d4 (S)	%						97	96	70-130			
4-Bromofluorobenzene (S)	%						105	106	70-130			
Toluene-d8 (S)	%						104	105	70-130			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 783065
QC Batch Method: EPA 3510
Analysis Method: EPA 8081
Analysis Description: 8081 GCS TCLP Pesticides
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 40275724001

METHOD BLANK: 3583016 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlordane (Technical)	mg/L	<0.0010	0.0010	0.0010	04/02/24 18:27	
Endrin	mg/L	<0.00010	0.00010	0.00010	04/02/24 18:27	
gamma-BHC (Lindane)	mg/L	<0.000050	0.000050	0.000050	04/02/24 18:27	
Heptachlor	mg/L	<0.000050	0.000050	0.000050	04/02/24 18:27	
Heptachlor epoxide	mg/L	<0.000050	0.000050	0.000050	04/02/24 18:27	
Methoxychlor	mg/L	<0.00050	0.00050	0.00050	04/02/24 18:27	
Toxaphene	mg/L	<0.0010	0.0010	0.0010	04/02/24 18:27	
Decachlorobiphenyl (S)	%.	45	10-124		04/02/24 18:27	

LABORATORY CONTROL SAMPLE: 3583017

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endrin	mg/L	0.002	0.0018	90	29-177	
gamma-BHC (Lindane)	mg/L	0.001	0.00076	76	26-163	
Heptachlor	mg/L	0.001	0.00070	70	12-157	
Heptachlor epoxide	mg/L	0.001	0.00081	81	27-168	
Methoxychlor	mg/L	0.01	0.011	109	28-174	
Decachlorobiphenyl (S)	%.			41	10-124	

MATRIX SPIKE SAMPLE: 3583018

Parameter	Units	40275724001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Endrin	mg/L	<0.00050	0.01	0.0081	81	10-179	
gamma-BHC (Lindane)	mg/L	<0.00025	0.005	0.0047	95	11-157	
Heptachlor	mg/L	<0.00025	0.005	0.0031	61	10-154	
Heptachlor epoxide	mg/L	<0.00025	0.005	0.0036	72	10-170	
Methoxychlor	mg/L	<0.0025	0.05	0.055	111	10-162	
Decachlorobiphenyl (S)	%.				32	10-124	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469873
QC Batch Method: EPA 3541
Analysis Method: EPA 8082A
Analysis Description: 8082 GCS PCB
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40275724001

METHOD BLANK: 2691906 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
PCB-1221 (Aroclor 1221)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
PCB-1232 (Aroclor 1232)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
PCB-1242 (Aroclor 1242)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
PCB-1248 (Aroclor 1248)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
PCB-1254 (Aroclor 1254)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
PCB-1260 (Aroclor 1260)	mg/kg	<0.015	0.050	0.015	03/22/24 19:26	
Decachlorobiphenyl (S)	%	91	34-120		03/22/24 19:26	
Tetrachloro-m-xylene (S)	%	90	44-120		03/22/24 19:26	

LABORATORY CONTROL SAMPLE: 2691907

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	mg/kg		<0.015			
PCB-1221 (Aroclor 1221)	mg/kg		<0.015			
PCB-1232 (Aroclor 1232)	mg/kg		<0.015			
PCB-1242 (Aroclor 1242)	mg/kg		<0.015			
PCB-1248 (Aroclor 1248)	mg/kg		<0.015			
PCB-1254 (Aroclor 1254)	mg/kg		<0.015			
PCB-1260 (Aroclor 1260)	mg/kg	0.5	0.39	77	69-120	
Decachlorobiphenyl (S)	%			76	34-120	
Tetrachloro-m-xylene (S)	%			76	44-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2691908 2691909

Parameter	Units	40275735009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	mg/kg	<16.1 ug/kg			<0.016	<0.016					20	
PCB-1221 (Aroclor 1221)	mg/kg	<16.1 ug/kg			<0.016	<0.016					20	
PCB-1232 (Aroclor 1232)	mg/kg	<16.1 ug/kg			<0.016	<0.016					20	
PCB-1242 (Aroclor 1242)	mg/kg	<16.1 ug/kg			<0.016	<0.016					20	
PCB-1248 (Aroclor 1248)	mg/kg	<16.1 ug/kg			<0.016	<0.016					20	
PCB-1254 (Aroclor 1254)	mg/kg	<16.1 ug/kg			<0.016	<0.016					20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2691908 2691909

Parameter	Units	40275735009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1260 (Aroclor 1260)	mg/kg	<16.1 ug/kg	0.53	0.53	0.49	0.49	94	93	51-120	1	20	
Decachlorobiphenyl (S)	%						91	90	34-120			
Tetrachloro-m-xylene (S)	%						92	90	44-120			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 783013
QC Batch Method: EPA 8151
Analysis Method: EPA 8151A
Analysis Description: 8151 GCS TCLP Herbicides
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 40275724001

METHOD BLANK: 3582864 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
2,4,5-TP (Silvex)	mg/L	<0.0010	0.0010	0.0010	04/03/24 15:58	
2,4-D	mg/L	<0.0010	0.0010	0.0010	04/03/24 15:58	
2,4-DCAA (S)	%.	116	22-132		04/03/24 15:58	

LABORATORY CONTROL SAMPLE: 3582865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-TP (Silvex)	mg/L	0.005	0.0041	81	37-122	
2,4-D	mg/L	0.005	0.0042	83	24-129	
2,4-DCAA (S)	%.			89	22-132	

MATRIX SPIKE SAMPLE: 3582866

Parameter	Units	40275724001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
2,4,5-TP (Silvex)	mg/L	<0.010	0.05	0.038	75	20-155	
2,4-D	mg/L	<0.010	0.05	0.24	480	12-159	M0
2,4-DCAA (S)	%.				79	22-132	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469728
QC Batch Method: EPA 3510
Analysis Method: EPA 8270E
Analysis Description: 8270E TCLP MSSV
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40275724001

METHOD BLANK: 2691095 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.0036	0.010	0.0036	03/21/24 14:03	
2,4,5-Trichlorophenol	mg/L	<0.0036	0.010	0.0036	03/21/24 14:03	
2,4,6-Trichlorophenol	mg/L	<0.0040	0.010	0.0040	03/21/24 14:03	
2,4-Dinitrotoluene	mg/L	<0.0024	0.010	0.0024	03/21/24 14:03	
2-Methylphenol(o-Cresol)	mg/L	<0.0015	0.010	0.0015	03/21/24 14:03	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0012	0.010	0.0012	03/21/24 14:03	
Hexachloro-1,3-butadiene	mg/L	<0.0033	0.010	0.0033	03/21/24 14:03	
Hexachlorobenzene	mg/L	<0.0050	0.010	0.0050	03/21/24 14:03	
Hexachloroethane	mg/L	<0.0030	0.010	0.0030	03/21/24 14:03	
Nitrobenzene	mg/L	<0.0031	0.010	0.0031	03/21/24 14:03	
Pentachlorophenol	mg/L	<0.0033	0.010	0.0033	03/21/24 14:03	
Pyridine	mg/L	<0.015	0.020	0.015	03/21/24 14:03	
2,4,6-Tribromophenol (S)	%	102	10-141		03/21/24 14:03	
2-Fluorobiphenyl (S)	%	56	23-130		03/21/24 14:03	
Nitrobenzene-d5 (S)	%	80	38-130		03/21/24 14:03	
Phenol-d6 (S)	%	38	11-130		03/21/24 14:03	

METHOD BLANK: 2689707 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.018	0.050	0.018	03/21/24 18:28	
2,4,5-Trichlorophenol	mg/L	<0.018	0.050	0.018	03/21/24 18:28	
2,4,6-Trichlorophenol	mg/L	<0.020	0.050	0.020	03/21/24 18:28	
2,4-Dinitrotoluene	mg/L	<0.012	0.050	0.012	03/21/24 18:28	
2-Methylphenol(o-Cresol)	mg/L	<0.0077	0.050	0.0077	03/21/24 18:28	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0060	0.050	0.0060	03/21/24 18:28	
Hexachloro-1,3-butadiene	mg/L	<0.016	0.050	0.016	03/21/24 18:28	
Hexachlorobenzene	mg/L	<0.025	0.050	0.025	03/21/24 18:28	
Hexachloroethane	mg/L	<0.015	0.050	0.015	03/21/24 18:28	
Nitrobenzene	mg/L	<0.016	0.050	0.016	03/21/24 18:28	
Pentachlorophenol	mg/L	<0.016	0.050	0.016	03/21/24 18:28	
Pyridine	mg/L	<0.073	0.10	0.073	03/21/24 18:28	
2,4,6-Tribromophenol (S)	%	114	10-141		03/21/24 18:28	
2-Fluorobiphenyl (S)	%	68	23-130		03/21/24 18:28	
Nitrobenzene-d5 (S)	%	88	38-130		03/21/24 18:28	
Phenol-d6 (S)	%	48	11-130		03/21/24 18:28	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

METHOD BLANK: 2690183 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.018	0.050	0.018	03/21/24 18:50	
2,4,5-Trichlorophenol	mg/L	<0.018	0.050	0.018	03/21/24 18:50	
2,4,6-Trichlorophenol	mg/L	<0.020	0.050	0.020	03/21/24 18:50	
2,4-Dinitrotoluene	mg/L	<0.012	0.050	0.012	03/21/24 18:50	
2-Methylphenol(o-Cresol)	mg/L	<0.0077	0.050	0.0077	03/21/24 18:50	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0060	0.050	0.0060	03/21/24 18:50	
Hexachloro-1,3-butadiene	mg/L	<0.016	0.050	0.016	03/21/24 18:50	
Hexachlorobenzene	mg/L	<0.025	0.050	0.025	03/21/24 18:50	
Hexachloroethane	mg/L	<0.015	0.050	0.015	03/21/24 18:50	
Nitrobenzene	mg/L	<0.016	0.050	0.016	03/21/24 18:50	
Pentachlorophenol	mg/L	<0.016	0.050	0.016	03/21/24 18:50	
Pyridine	mg/L	<0.073	0.10	0.073	03/21/24 18:50	
2,4,6-Tribromophenol (S)	%	123	10-141		03/21/24 18:50	
2-Fluorobiphenyl (S)	%	69	23-130		03/21/24 18:50	
Nitrobenzene-d5 (S)	%	94	38-130		03/21/24 18:50	
Phenol-d6 (S)	%	40	11-130		03/21/24 18:50	

METHOD BLANK: 2690697 Matrix: Water
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.018	0.050	0.018	03/21/24 19:12	
2,4,5-Trichlorophenol	mg/L	<0.018	0.050	0.018	03/21/24 19:12	
2,4,6-Trichlorophenol	mg/L	<0.020	0.050	0.020	03/21/24 19:12	
2,4-Dinitrotoluene	mg/L	<0.012	0.050	0.012	03/21/24 19:12	
2-Methylphenol(o-Cresol)	mg/L	<0.0077	0.050	0.0077	03/21/24 19:12	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0060	0.050	0.0060	03/21/24 19:12	
Hexachloro-1,3-butadiene	mg/L	<0.016	0.050	0.016	03/21/24 19:12	
Hexachlorobenzene	mg/L	<0.025	0.050	0.025	03/21/24 19:12	
Hexachloroethane	mg/L	<0.015	0.050	0.015	03/21/24 19:12	
Nitrobenzene	mg/L	<0.016	0.050	0.016	03/21/24 19:12	
Pentachlorophenol	mg/L	<0.016	0.050	0.016	03/21/24 19:12	
Pyridine	mg/L	<0.073	0.10	0.073	03/21/24 19:12	
2,4,6-Tribromophenol (S)	%	117	10-141		03/21/24 19:12	
2-Fluorobiphenyl (S)	%	67	23-130		03/21/24 19:12	
Nitrobenzene-d5 (S)	%	93	38-130		03/21/24 19:12	
Phenol-d6 (S)	%	41	11-130		03/21/24 19:12	

LABORATORY CONTROL SAMPLE: 2691096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	0.05	0.039	77	30-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

LABORATORY CONTROL SAMPLE: 2691096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-Trichlorophenol	mg/L	0.05	0.051	101	47-130	
2,4,6-Trichlorophenol	mg/L	0.05	0.053	105	53-130	
2,4-Dinitrotoluene	mg/L	0.05	0.052	104	61-130	
2-Methylphenol(o-Cresol)	mg/L	0.05	0.051	103	63-130	
3&4-Methylphenol(m&p Cresol)	mg/L	0.05	0.050	101	58-130	
Hexachloro-1,3-butadiene	mg/L	0.05	0.028	56	10-130	
Hexachlorobenzene	mg/L	0.05	0.056	111	61-130	
Hexachloroethane	mg/L	0.05	0.033	66	12-130	
Nitrobenzene	mg/L	0.05	0.051	101	70-130	
Pentachlorophenol	mg/L	0.05	0.050	99	29-130	
Pyridine	mg/L	0.05	0.036	72	24-130	
2,4,6-Tribromophenol (S)	%			114	10-141	
2-Fluorobiphenyl (S)	%			79	23-130	
Nitrobenzene-d5 (S)	%			95	38-130	
Phenol-d6 (S)	%			52	11-130	

MATRIX SPIKE SAMPLE: 2691097

Parameter	Units	40275517001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.018	0.25	0.18	71	30-130	
2,4,5-Trichlorophenol	mg/L	<0.018	0.25	0.18	73	10-136	
2,4,6-Trichlorophenol	mg/L	<0.020	0.25	0.15	58	10-131	
2,4-Dinitrotoluene	mg/L	<0.012	0.25	0.27	108	15-142	
2-Methylphenol(o-Cresol)	mg/L	<0.0077	0.25	0.25	102	36-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0060	0.25	0.22	86	35-130	
Hexachloro-1,3-butadiene	mg/L	<0.016	0.25	0.14	54	10-130	
Hexachlorobenzene	mg/L	<0.025	0.25	0.30	120	58-130	
Hexachloroethane	mg/L	<0.015	0.25	0.14	56	12-130	
Nitrobenzene	mg/L	<0.016	0.25	0.28	113	64-130	
Pentachlorophenol	mg/L	<0.016	0.25	0.12	46	10-147	
Pyridine	mg/L	<0.073	0.25	0.19	75	10-130	
2,4,6-Tribromophenol (S)	%				76	10-141	
2-Fluorobiphenyl (S)	%				71	23-130	
Nitrobenzene-d5 (S)	%				88	38-130	
Phenol-d6 (S)	%				33	11-130	

MATRIX SPIKE SAMPLE: 2691098

Parameter	Units	40275497001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<3550 ug/L	0.25	<3.6	0	30-130	M1
2,4,5-Trichlorophenol	mg/L	<3650 ug/L	0.25	<3.6	0	10-136	M1
2,4,6-Trichlorophenol	mg/L	<4000 ug/L	0.25	<4.0	0	10-131	M1
2,4-Dinitrotoluene	mg/L	<2390 ug/L	0.25	<2.4	0	15-142	M1
2-Methylphenol(o-Cresol)	mg/L	<1550 ug/L	0.25	<1.5	0	36-130	M1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE SAMPLE: 2691098

Parameter	Units	40275497001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
3&4-Methylphenol(m&p Cresol)	mg/L	<1190 ug/L	0.25	<1.2	0	35-130	M1
Hexachloro-1,3-butadiene	mg/L	<3290 ug/L	0.25	<3.3	0	10-130	M1
Hexachlorobenzene	mg/L	<5030 ug/L	0.25	<5.0	0	58-130	M1
Hexachloroethane	mg/L	<3020 ug/L	0.25	<3.0	0	12-130	M1
Nitrobenzene	mg/L	<3130 ug/L	0.25	<3.1	0	64-130	M1
Pentachlorophenol	mg/L	<3250 ug/L	0.25	<3.3	0	10-147	M1
Pyridine	mg/L	<14600 ug/L	0.25	<14.6	0	10-130	M1
2,4,6-Tribromophenol (S)	%				0	10-141	S4
2-Fluorobiphenyl (S)	%				0	23-130	S4
Nitrobenzene-d5 (S)	%				0	38-130	S4
Phenol-d6 (S)	%				0	11-130	S4

MATRIX SPIKE SAMPLE: 2691099

Parameter	Units	40275578001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<17.8 ug/L	0.25	0.18	71	30-130	
2,4,5-Trichlorophenol	mg/L	<18.2 ug/L	0.25	0.26	103	10-136	
2,4,6-Trichlorophenol	mg/L	<20.0 ug/L	0.25	0.28	110	10-131	
2,4-Dinitrotoluene	mg/L	<11.9 ug/L	0.25	0.27	106	15-142	
2-Methylphenol(o-Cresol)	mg/L	<7.7 ug/L	0.25	0.26	102	36-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<6.0 ug/L	0.25	0.24	97	35-130	
Hexachloro-1,3-butadiene	mg/L	<16.4 ug/L	0.25	0.14	56	10-130	
Hexachlorobenzene	mg/L	<25.2 ug/L	0.25	0.27	106	58-130	
Hexachloroethane	mg/L	<15.1 ug/L	0.25	0.17	67	12-130	
Nitrobenzene	mg/L	<15.7 ug/L	0.25	0.28	110	64-130	
Pentachlorophenol	mg/L	<16.3 ug/L	0.25	0.26	105	10-147	
Pyridine	mg/L	<73.0 ug/L	0.25	0.13	52	10-130	
2,4,6-Tribromophenol (S)	%				113	10-141	
2-Fluorobiphenyl (S)	%				79	23-130	
Nitrobenzene-d5 (S)	%				97	38-130	
Phenol-d6 (S)	%				50	11-130	

MATRIX SPIKE SAMPLE: 2691100

Parameter	Units	40275723001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.018	0.25	0.12	48	30-130	
2,4,5-Trichlorophenol	mg/L	<0.018	0.25	0.21	85	10-136	
2,4,6-Trichlorophenol	mg/L	<0.020	0.25	0.23	91	10-131	
2,4-Dinitrotoluene	mg/L	<0.012	0.25	0.24	96	15-142	
2-Methylphenol(o-Cresol)	mg/L	<0.0077	0.25	0.19	78	36-130	
3&4-Methylphenol(m&p Cresol)	mg/L	0.033J	0.25	0.21	71	35-130	
Hexachloro-1,3-butadiene	mg/L	<0.016	0.25	0.10	40	10-130	
Hexachlorobenzene	mg/L	<0.025	0.25	0.23	91	58-130	
Hexachloroethane	mg/L	<0.015	0.25	0.096	38	12-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

MATRIX SPIKE SAMPLE: 2691100

Parameter	Units	40275723001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrobenzene	mg/L	<0.016	0.25	0.19	76	64-130	
Pentachlorophenol	mg/L	<0.016	0.25	0.27	107	10-147	
Pyridine	mg/L	<0.073	0.25	<0.073	21	10-130	
2,4,6-Tribromophenol (S)	%				80	10-141	
2-Fluorobiphenyl (S)	%				62	23-130	
Nitrobenzene-d5 (S)	%				69	38-130	
Phenol-d6 (S)	%				35	11-130	

MATRIX SPIKE SAMPLE: 2691101

Parameter	Units	40275724001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,4-Dichlorobenzene	mg/L	<0.018	0.25	0.11	43	30-130	
2,4,5-Trichlorophenol	mg/L	<0.018	0.25	0.16	64	10-136	
2,4,6-Trichlorophenol	mg/L	<0.020	0.25	0.16	64	10-131	
2,4-Dinitrotoluene	mg/L	<0.012	0.25	0.17	69	15-142	
2-Methylphenol(o-Cresol)	mg/L	<0.0077	0.25	0.19	76	36-130	
3&4-Methylphenol(m&p Cresol)	mg/L	<0.0060	0.25	0.18	72	35-130	
Hexachloro-1,3-butadiene	mg/L	<0.016	0.25	0.084	34	10-130	
Hexachlorobenzene	mg/L	<0.025	0.25	0.17	66	58-130	
Hexachloroethane	mg/L	<0.015	0.25	0.082	33	12-130	
Nitrobenzene	mg/L	<0.016	0.25	0.21	82	64-130	
Pentachlorophenol	mg/L	<0.016	0.25	0.11	44	10-147	
Pyridine	mg/L	<0.073	0.25	0.18	68	10-130	
2,4,6-Tribromophenol (S)	%				72	10-141	
2-Fluorobiphenyl (S)	%				48	23-130	
Nitrobenzene-d5 (S)	%				75	38-130	
Phenol-d6 (S)	%				37	11-130	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469677
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40275724001

SAMPLE DUPLICATE: 2690849

Parameter	Units	40275697001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	6.5	6.8	4	10	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469984
QC Batch Method: EPA 1010
Analysis Method: EPA 1010
Analysis Description: 1010 Flash Point, Closed Cup
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40275724001

LABORATORY CONTROL SAMPLE: 2692716

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Flashpoint	deg F		81.0			

SAMPLE DUPLICATE: 2692927

Parameter	Units	10687027001 Result	Dup Result	RPD	Max RPD	Qualifiers
Flashpoint	deg F	>200	>200			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 323727
QC Batch Method: SW-846 7.3.4.2
Analysis Method: SW-846 7.3.4.2
Analysis Description: 734S Reactive Sulfide
Laboratory: Pace Analytical Services - New Orleans
Associated Lab Samples: 40275724001

METHOD BLANK: 1550437 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Reactive	mg/kg	<50.0	50.0	50.0	03/28/24 11:58	

LABORATORY CONTROL SAMPLE: 1550438

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide, Reactive	mg/kg	500	441	88	1-110	

MATRIX SPIKE SAMPLE: 1550796

Parameter	Units	20311345001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfide, Reactive	mg/kg	ND	500	441	84	1-110	

SAMPLE DUPLICATE: 1550795

Parameter	Units	20311345001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Reactive	mg/kg	ND	<50.0		20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 469760
QC Batch Method: EPA 9045
Analysis Method: EPA 9045
Analysis Description: 9045 pH
Laboratory: Pace Analytical Services - Green Bay

Associated Lab Samples: 40275724001

SAMPLE DUPLICATE: 2691245

Parameter	Units	40275691001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.80	7.77	0	5	H6

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 470009
QC Batch Method: EPA 9095
Analysis Method: EPA 9095
Analysis Description: 9095 PAINT FILTER LIQUID TEST
Laboratory: Pace Analytical Services - Green Bay
Associated Lab Samples: 40275724001

METHOD BLANK: 2692757 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Free Liquids	no units	FAIL			03/25/24 14:48	

LABORATORY CONTROL SAMPLE: 2692758

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Free Liquids	no units		PASS			

SAMPLE DUPLICATE: 2692759

Parameter	Units	40275326001 Result	Dup Result	RPD	Max RPD	Qualifiers
Free Liquids	no units	PASS	PASS			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 323729
QC Batch Method: SW-846 7.3.3.2
Analysis Method: SW-846 7.3.3.2
Analysis Description: 733C Reactive Cyanide
Laboratory: Pace Analytical Services - New Orleans
Associated Lab Samples: 40275724001

METHOD BLANK: 1550443 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Cyanide, Reactive	mg/kg	<25.0	25.0	25.0	03/28/24 13:21	

LABORATORY CONTROL SAMPLE: 1550444

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cyanide, Reactive	mg/kg	100	<25.0	5	1-110	

MATRIX SPIKE SAMPLE: 1550801

Parameter	Units	20311345001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cyanide, Reactive	mg/kg	ND	100	<25.0	1	1-110	

SAMPLE DUPLICATE: 1550800

Parameter	Units	20311345001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyanide, Reactive	mg/kg	ND	<25.0		20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA

Project: TCLP PCD DRY
Pace Project No.: 40275724

QC Batch: 782774
QC Batch Method: EPA 9066
Analysis Method: EPA 9066
Analysis Description: 9066 Phenolics
Laboratory: Pace Analytical Services - Indianapolis
Associated Lab Samples: 40275724001

METHOD BLANK: 3582207 Matrix: Solid
Associated Lab Samples: 40275724001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phenolics, Total Recoverable	mg/kg	<0.44	0.92	0.44	04/02/24 14:21	

LABORATORY CONTROL SAMPLE: 3582208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	mg/kg	2.4	2.4	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3582209 3582210

Parameter	Units	50369460001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenolics, Total Recoverable	mg/kg	ND	2.5	2.3	2.4	2.4	91	97	90-110	1	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALIFIERS

Project: TCLP PCD DRY
Pace Project No.: 40275724

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1q	Use of method EPA 1010A for flash point analysis on solid samples is for informational purposes only. It is the user's responsibility to verify the acceptance of this data for intended use.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
H6	Analysis initiated outside of the 15 minute EPA required holding time.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: TCLP PCD DRY
Pace Project No.: 40275724

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40275724001	**PCD DRY 03192024**	EPA 3510	783065	EPA 8081	783124
40275724001	**PCD DRY 03192024**	EPA 3541	469873	EPA 8082A	469919
40275724001	**PCD DRY 03192024**	EPA 8151	783013	EPA 8151A	783296
40275724001	**PCD DRY 03192024**	EPA 3015A	469769	EPA 6010D	469777
40275724001	**PCD DRY 03192024**	EPA 7470	469836	EPA 7470	469866
40275724001	**PCD DRY 03192024**	EPA 3510	469728	EPA 8270E	469789
40275724001	**PCD DRY 03192024**	EPA 8260	469900		
40275724001	**PCD DRY 03192024**	ASTM D2974-87	469677		
40275724001	**PCD DRY 03192024**	EPA 1010	469984		
40275724001	**PCD DRY 03192024**	SW-846 7.3.4.2	323727	SW-846 7.3.4.2	323810
40275724001	**PCD DRY 03192024**	EPA 9045	469760		
40275724001	**PCD DRY 03192024**	EPA 9095	470009		
40275724001	**PCD DRY 03192024**	SW-846 7.3.3.2	323729	SW-846 7.3.3.2	323812
40275724001	**PCD DRY 03192024**	EPA 9066	782774	EPA 9066	783033

40275724

Pace® Location Requested (City/State):
Pace Analytical Green Bay
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name.	Veolia North America - Cicero	Contact/Report To.	Cletus Ketter
Street Address	6001 W. Pershing Rd, Cicero, IL 60804	Phone #	(708)835-9176
		E-Mail.	cletus.ketter@veolia.com
		Cc E-Mail:	
Customer Project #.			
Project Name:	TCLP	Invoice To:	SITE # 11226
		Invoice E-Mail	us.apinvoices@veolia.com
Site Collection Info/Facility ID (as applicable)		Purchase Order # (if applicable).	1000352176
		Quote #	
Time Zone Collected: [ ] AK [ ] PT [ ] MT [X] CT [ ] ET		County / State origin of sample(s)	Illinois
Data Deliverables: [x] Level II [ ] Level III [ ] Level IV [ ] EQUIS [ ] Other		Regulatory Program (DW, RCRA, etc.) as applicable. Reportable [ ] Yes [ ] No	
		Rush (Pre-approval required): [ ] Same Day [ ] 1 Day [ ] 2 Day [ ] 3 Day [ ] Other _____	DW PWSID # or WW Permit # as applicable
		Date Results Requested:	Field Filtered (if applicable). [ ] Yes [ ] No Analysis.

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk (CK), Leachate (LL), Biosolid (BS), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Composite Start Date	Composite Start Time	Collected or Composite End Date	Collected or Composite End Time	# Cont.	Res. Chlorine Results	Res. Chlorine Units	1010 Flashpoint,Closed Cup, 9045 pH Soil, 9095 Pai	6010D MET ICP, TCLP, 7470 Mercury, TCLP, 8260 MSV, TCLP SVOCs	8082A GCS PCB	9066 phenols	TCLP Pest,Herb	reactive sulfide,reactive cyanide					Sample Comment
PCDDRF 03192024	SL	G	3-19-24	6:45AM			6			X	X	X	X	X	X					001

Specify Container Size **: 10 | 10 | 10 | 10 | 10 | 10

Identify Container Preservative Type***: 1 | 1 | 1 | 1 | 1 | 1

Analysis Requested

**Container Size. (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) 90mL, (10) Other

*** Preservative Types (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Lab Use Only

Proj. Mgr.: **Cindy Varga**
AcctNum / Client ID:
Table #:
Profile / Template: **6140**
Prelog / Bottle Ord ID: **EZ 3084490**

Preservation non-conformance identified for sample

Additional Instructions from Pace®:

Collected By: (Printed Name) THOMAS Murray
Signature: Thomas Murray

Customer Remarks / Special Conditions / Possible Hazards:

# Coolers	Thermometer ID	Correction Factor (°C)	Obs Temp (°C)	Corrected Temp (°C)	On Ice

	Date/Time	Received by/Company (Signature)	Date/Time	Tracking Number
Relinquished by/Company (Signature)	3-19-24 12:12pm		3/19/24 12:12	
Relinquished by/Company (Signature)	3/19/24 5:00	CS Logistics	3/19/24 8:00	Delivered by [ ] In-Person [ ] Courier
Relinquished by/Company (Signature)	3/20/24 0825		3/20/24 0825	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company (Signature)	Date/Time	Received by/Company (Signature)	Date/Time	Page: 1 of 1

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https //www pacelabs com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v02_110123 ©

Client Name: Viola

Sample Preservation Receipt Form

Project # 402757724

All containers needing preservation have been checked and noted below. ☐Yes ☐No ☒N/A

Lab Lot# of pH paper. Lab Std #ID of preservation (if pH adjusted).

Pace Lab #	Glass							Plastic						Vials						Jars				General				VOA Vials (>6mm) *	Initial when completed			Date/ Time		Volume (mL)
	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2		H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	
001																				2	4													2.5 / 5
002																				2	4	3/20/24		SG										2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
006																																		2.5 / 5
007																																		2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
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017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

3/20/24 SG

Exceptions to preservation check VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : ☐Yes ☐No ☒N/A ***If yes look in headspace column**

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	
						GN 2	

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO#: 40275724

40275724

Client Name: Veolia

Courier: ☑ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco
☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR-139 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr. 0.0 /Corr 0.0

Temp Blank Present: ☐ yes ☑ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 3/20/24 /Initials: BG

Labeled By Initials: MVS

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: (Pace Green Bay, Pace IR, Non-Pace)		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CLASS A, EQ CERTIFICATES

JUNE, JULY & AUGUST 2024

MBM-CLASS A, EQ CERTIFICATES

2024-JUNE

M B M

VIA ELECTRONIC MAIL

July 24, 2024
24 – 021

Mr. Glenn Troyer
President
OT&T
6430 Poling Road
Elida, Ohio 45807

Exceptional Quality (EQ) Biosolids Documentation & Certification - June 2024, Rev 0

Subj: Exceptional Quality (EQ) Biosolids Documentation & Certification - June 2024, Revision 0.

Dear Mr. Troyer,

Enclosed, please find Revision 0 to the EQ Biosolids Documentation & Certification for June 2024.

Please contact me with any questions at 708-652-0575.

Sincerely,

DocuSigned by:
JON GIBSON
7D3E13BA0D2D4BE...

Jon A Gibson
General Manager
Metropolitan Biosolids Management, LLC

Encl.: (1) EQ Biosolids Documentation & Certification June 2024, Revision 0

Subj: Exceptional Quality (EQ) Biosolids Documentation & Certification – June 2024, Revision 0

Enclosure 1: Exceptional Quality (EQ) Biosolids Documentation & Certification June 2024, Revision 0

In compliance with 415 ILCS 5/3.560, 415 ILCS 5/22.56A, and EPA 40 CFR Part 503, Metropolitan Biosolids Management, LLC (MBM) certifies that its biosolids drying facility produces EQ biosolids, suitable for use in land application. EQ biosolids meet low pollutant and Class A pathogen reduction limits and have a reduced level of degradable compounds that attract vectors.

Operational standards and management practices at the biosolids drying facility ensure Class A and EQ qualifications are consistently met.

- Biosolids are thermally treated by an effective time-temperature process[1] to achieve low pathogen values. To verify pathogen reduction, biosolids are analyzed to determine the density of fecal coliform[2].
- Thermal treatment results in biosolids with total solids of at least 90% based on moisture content. Drying to this extent severely limits biological activity and strips off or decomposes the volatile compounds that attract vectors[3].
- Biosolids are analyzed for heavy metal pollutants to confirm the results have not exceeded maximum concentration limits[4].
- Biosolids production is recorded as part of the MBM monthly plant operations report.

Recent analytical results[5] are as follows:

		Class A EQ Limit	Reported Value
Percent Total Solids	% dry solids	> 90	97.4
Fecal Coliform	Mean density, MPN/g	< 1000	<2
Arsenic	mg/kg, dry weight	< 41	9.4
Cadmium	mg/kg, dry weight	< 39	1.9
Copper	mg/kg, dry weight	< 1500	418
Chromium	mg/kg, dry weight	< 1200 (DE)	65.8
Lead	mg/kg, dry weight	< 300	91.7
Mercury	mg/kg, dry weight	< 17	0.49
Molybdenum	mg/kg, dry weight	< 75	14.6
Nickel	mg/kg, dry weight	< 420	40.3
Selenium	mg/kg, dry weight	< 100	5.2
Zinc	mg/kg, dry weight	< 2800	861

I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in 503.33(b)(8) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Jon A Gibson
General Manager
Metropolitan Biosolids Management, LLC

[1]§503.32(a)(7)(ii); [2]§503.32(a)(7)(i); [3]§503.33(b)(8); [4]§503.13(b)(1), (b)(3);
[5]Sample results meet all requirements of 40 CFR Part 503 accredited methods.

MBM-CLASS A, EQ CERTIFICATES

2024-JULY

M B M

VIA ELECTRONIC MAIL

August 22, 2024
24 – 024

Mr. Glenn Troyer
President
OT&T
6430 Poling Road
Elida, Ohio 45807

Exceptional Quality (EQ) Biosolids Documentation & Certification - July 2024, Rev 0

Subj: Exceptional Quality (EQ) Biosolids Documentation & Certification - July 2024, Revision 0.

Dear Mr. Troyer,

Enclosed, please find Revision 0 to the EQ Biosolids Documentation & Certification for July 2024.

Please contact me with any questions at 708-652-0575.

Sincerely,

DocuSigned by:
JON GIBSON
7D3E13BA0D2D4BE...

Jon A Gibson
General Manager
Metropolitan Biosolids Management, LLC

Encl.: (1) EQ Biosolids Documentation & Certification July 2024, Revision 0

Subj: Exceptional Quality (EQ) Biosolids Documentation & Certification – July 2024, Revision 0

Enclosure 1: Exceptional Quality (EQ) Biosolids Documentation & Certification July 2024, Revision 0

In compliance with 415 ILCS 5/3.560, 415 ILCS 5/22.56A, and EPA 40 CFR Part 503, Metropolitan Biosolids Management, LLC (MBM) certifies that its biosolids drying facility produces EQ biosolids, suitable for use in land application. EQ biosolids meet low pollutant and Class A pathogen reduction limits and have a reduced level of degradable compounds that attract vectors.

Operational standards and management practices at the biosolids drying facility ensure Class A and EQ qualifications are consistently met.

- Biosolids are thermally treated by an effective time-temperature process[1] to achieve low pathogen values. To verify pathogen reduction, biosolids are analyzed to determine the density of fecal coliform[2].
- Thermal treatment results in biosolids with total solids of at least 90% based on moisture content. Drying to this extent severely limits biological activity and strips off or decomposes the volatile compounds that attract vectors[3].
- Biosolids are analyzed for heavy metal pollutants to confirm the results have not exceeded maximum concentration limits[4] .
- Biosolids production is recorded as part of the MBM monthly plant operations report.

Recent analytical results[5] are as follows:

		Class A EQ Limit	Reported Value
Percent Total Solids	% dry solids	> 90	97.9
Fecal Coliform	Mean density, MPN/g	< 1000	<2
Arsenic	mg/kg, dry weight	< 41	8.9
Cadmium	mg/kg, dry weight	< 39	2.1
Copper	mg/kg, dry weight	< 1500	464
Chromium	mg/kg, dry weight	< 1200 (DE)	80.2
Lead	mg/kg, dry weight	< 300	113
Mercury	mg/kg, dry weight	< 17	0.51
Molybdenum	mg/kg, dry weight	< 75	15.5
Nickel	mg/kg, dry weight	< 420	46.8
Selenium	mg/kg, dry weight	< 100	4.9
Zinc	mg/kg, dry weight	< 2800	951

I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in 503.33(b)(8) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Jon A Gibson
General Manager
Metropolitan Biosolids Management, LLC

[1] §503.32(a)(7)(ii); [2] §503.32(a)(7)(i); [3] §503.33(b)(8); [4] §503.13(b)(1), (b)(3);
[5] Sample results meet all requirements of 40 CFR Part 503 accredited methods.

MBM-CLASS A, EQ CERTIFICATES

2024-AUGUST

M B M

VIA ELECTRONIC MAIL

September 17, 2024
24 – 027

Mr. Glenn Troyer
President
OT&T
6430 Poling Road
Elida, Ohio 45807

Exceptional Quality (EQ) Biosolids Documentation & Certification - August 2024, Rev 0
Subj: Exceptional Quality (EQ) Biosolids Documentation & Certification - August 2024, Revision 0.

Dear Mr. Troyer,

Enclosed, please find Revision 0 to the EQ Biosolids Documentation & Certification for August 2024.

Please contact me with any questions at 708-652-0575.

Sincerely,

DocuSigned by:
JON GIBSON
7D3E13BA0D2D4BE...

Jon A Gibson
General Manager
Metropolitan Biosolids Management, LLC

Encl.: (1) EQ Biosolids Documentation & Certification August 2024, Revision 0

Subj: Exceptional Quality (EQ) Biosolids Documentation & Certification – August 2024, Revision 0

Enclosure 1: Exceptional Quality (EQ) Biosolids Documentation & Certification August 2024, Revision 0

In compliance with 415 ILCS 5/3.560, 415 ILCS 5/22.56A, and EPA 40 CFR Part 503, Metropolitan Biosolids Management, LLC (MBM) certifies that its biosolids drying facility produces EQ biosolids, suitable for use in land application. EQ biosolids meet low pollutant and Class A pathogen reduction limits and have a reduced level of degradable compounds that attract vectors.

Operational standards and management practices at the biosolids drying facility ensure Class A and EQ qualifications are consistently met.

- Biosolids are thermally treated by an effective time-temperature process[1] to achieve low pathogen values. To verify pathogen reduction, biosolids are analyzed to determine the density of fecal coliform[2].
- Thermal treatment results in biosolids with total solids of at least 90% based on moisture content. Drying to this extent severely limits biological activity and strips off or decomposes the volatile compounds that attract vectors[3].
- Biosolids are analyzed for heavy metal pollutants to confirm the results have not exceeded maximum concentration limits[4] .
- Biosolids production is recorded as part of the MBM monthly plant operations report.

Recent analytical results[5] are as follows:

		Class A EQ Limit	Reported Value
Percent Total Solids	% dry solids	> 90	96.4
Fecal Coliform	Mean density, MPN/g	< 1000	2.07
Arsenic	mg/kg, dry weight	< 41	6.3
Cadmium	mg/kg, dry weight	< 39	1.7
Copper	mg/kg, dry weight	< 1500	332
Chromium	mg/kg, dry weight	< 1200 (DE)	56.4
Lead	mg/kg, dry weight	< 300	72.8
Mercury	mg/kg, dry weight	< 17	.52
Molybdenum	mg/kg, dry weight	< 75	12.1
Nickel	mg/kg, dry weight	< 420	33.1
Selenium	mg/kg, dry weight	< 100	4.2
Zinc	mg/kg, dry weight	< 2800	771

I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in 503.32(a) and the vector attraction reduction requirement in 503.33(b)(8) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Jon A Gibson
General Manager
Metropolitan Biosolids Management, LLC

[1] §503.32(a)(7)(ii); [2] §503.32(a)(7)(i); [3] §503.33(b)(8); [4] §503.13(b)(1), (b)(3);
[5] Sample results meet all requirements of 40 CFR Part 503 accredited methods.

PACE ANALYTICAL SERVICES LLC/CON-TEST METROPOLITAN BIOSOLIDS MANAGEMENT LLC PFAS-METHOD 1633 SAMPLING OCTOBER 2023- SEPTEMBER 2024

10

CDPHE PFAS SAMPLING

OCTOBER 3, 2023

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40268905

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

November 09, 2023

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633 BIOSOLIDS
Pace Project No.: 40268905

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on October 03, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jon Gibson, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glen Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633 BIOSOLIDS
Pace Project No.: 40268905

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40268905001	CLASSIFIERS 3 100323	Solid	10/03/23 10:06	10/03/23 12:00
40268905002	FIELD BLANK 1002323	Water	10/03/23 10:06	10/03/23 12:00

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

40268905

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus.ketter@veolia.com	**Purchase Order No: 1000235497**	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	**Project Name: PFAS/1633**	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N) N

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	Section D Required Client Information SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives Unpreserved	Analysis: 1633 PFAS	Residual Chlorine	Pace Project Number Lab I D
1	Classifier3 100323	SL	G	10323	10:00AM			1		X		
2	Field Blank BLANK 100323	W	G	10-3-23	10:06AM			1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO#: 40268905

40268905

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	10-3-23	12:00pm	Mike	10/3/23	12:02
Mike	10/3/23	5:00	Fedex	10/3/23	5:00

SAMPLE CONDITIONS

	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
	Y/N	Y/N	Y/N	
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact	

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jon Gibson

SIGNATURE of SAMPLER: Jon A Gibson

DATE Signed (MM / DD / YY): 10-3-2023

E-File,(ALLQ020rev 3,31Mar05), 13Jun2005

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

November 7, 2023

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633 BIOSOLIDS
Client Job Number:
Project Number: 40268905
Laboratory Work Order Number: 23J0445

Enclosed are results of analyses for samples as received by the laboratory on October 4, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 11/7/2023

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40268905

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23J0445

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

PROJECT LOCATION: PFAS/1633 BIOSOLIDS

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
CLASSIFIERS 3 100323	23J0445-01	Soil		Draft Method 1633	
				SM 2540G	
FIELD BLANK 1002323	23J0445-02	Field Blank		Draft Method 1633	
CLASSIFIERS 3 100323 wet weight	23J0445-03	Soil		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

For PFAS 1633, sample -03 data taken from sample -01 in order to report in wet weight per client request.

Qualifications:

PF-17B

Extracted internal standard is outside of control limits. Insufficient sample volume for re-extraction.

Analyte & Samples(s) Qualified:

13C2-4:2FTS
23J0445-02[FIELD BLANK 1002323]

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FT
23J0445-02[FIELD BLANK 1002323]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

11Cl-PF3OUdS (F53B Major)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C2-4:2FTS
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C2-6:2FTS
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C3-HFPO-DA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C3-PFBS
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C3-PFHxS
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C4-PFBA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C4-PFHpA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C5-PFHxA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C5-PFPeA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C8-PFOA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

13C9-PFNA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FT
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FT
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

9Cl-PF3ONS (F53B Minor)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

D3-NMeFOSA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

D3-NMeFOSAA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

D5-NEtFOSA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

D5-NEtFOSAA
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

D7-NMeFOSE
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

PF-18

Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

D9-NEtFOSE
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Hexafluoropropylene oxide dimer acid (HFPO-DA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

N-EtFOSAA (NEtFOSAA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

N-ethyl perfluorooctanesulfonamide (NEtFOSA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

N-ethylperfluorooctanesulfonamidoethanol (NEtFO
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

N-MeFOSAA (NMeFOSAA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

N-methyl perfluoroocatnesulfonamide (NMeFOSA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

N-methylperfluorooctanesulfonamidoethanol(NMeF
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluoro-3-methoxypropanoic acid (PFMPA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluoro-4-methoxybutanoic acid (PFMBA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluorobutanesulfonic acid (PFBS)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluorobutanoic acid (PFBA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluoroheptanoic acid (PFHpA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluorohexanesulfonic acid (PFHxS)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluorohexanoic acid (PFHxA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluorononanoic acid (PFNA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluorooctanoic acid (PFOA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluoropentanesulfonic acid (PFPeS)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Perfluoropentanoic acid (PFPeA)
23J0445-01[CLASSIFIERS 3 100323], 23J0445-03[CLASSIFIERS 3 100323 wet weight]

Z-01

Analyte detected in method blank >1/3 MRL

Analyte & Samples(s) Qualified:

Perfluorobutanoic acid (PFBA)
23J0445-02[FIELD BLANK 1002323], B354159-BLK1

Z-01a

Extracted internal standard outside of control limits. Analyte is a known difficult compound.

Analyte & Samples(s) Qualified:

13C2-4:2FTS
B354159-MRL1, B356689-MRL1

13C2-6:2FTS
B354159-MRL1

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FT
B354159-MRL1, B356689-MRL1

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
B354159-MRL1

SM 2540G

Qualifications:

H-06

Sample was extracted past the recommended holding time.

Analyte & Samples(s) Qualified:

% Solids
23J0445-01[CLASSIFIERS 3 100323]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Meghan E. Kelley
Reporting Specialist

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A Pace Analytical® Laboratory

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

Project Location: PFAS/1633 BIOSOLIDS | Sample Description: | Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: CLASSIFIERS 3 100323 | Sampled: 10/3/2023 10:06

Sample ID: 23J0445-01

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	0.79	0.14	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoropentanoic acid (PFPeA)	6.4	0.39	0.026	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorohexanoic acid (PFHxA)	1.2	0.20	0.013	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.20	0.015	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorooctanoic acid (PFOA)	0.53	0.20	0.029	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorononanoic acid (PFNA)	0.35	0.20	0.026	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorodecanoic acid (PFDA)	1.7	0.20	0.018	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoroundecanoic acid (PFUnA)	1.1	0.20	0.020	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorododecanoic acid (PFDoA)	2.4	0.20	0.021	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorotridecanoic acid (PFTrDA)	0.65	0.20	0.027	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.72	0.20	0.018	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorobutanesulfonic acid (PFBS)	0.67	0.20	0.020	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.20	0.029	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.20	0.025	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.20	0.022	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorooctanesulfonic acid (PFOS)	7.5	0.20	0.035	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.20	0.030	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.20	0.044	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.20	0.021	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.79	0.074	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.86	0.79	0.081	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.74	0.79	0.073	µg/kg dry	1	J	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorooctanesulfonamide (PFOSA)	0.41	0.20	0.10	µg/kg dry	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.20	0.020	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.20	0.027	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-MeFOSAA (NMeFOSAA)	3.3	0.20	0.028	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-EtFOSAA (NEtFOSAA)	3.1	0.20	0.041	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	2.0	0.15	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	2.1	2.0	0.17	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.79	0.064	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.79	0.080	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
9Cl-PF3ONS (F53B Minor)	ND	0.79	0.076	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
11Cl-PF3OUdS (F53B Major)	ND	0.79	0.10	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	2.0	0.17	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	5.2	9.8	1.2	µg/kg dry	1	PF-18, J	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	6.0	9.8	0.96	µg/kg dry	1	PF-18, J	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.39	0.020	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.39	0.041	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS

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

Project Location: PFAS/1633 BIOSOLIDS | Sample Description: | Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: CLASSIFIERS 3 100323 | Sampled: 10/3/2023 10:06

Sample ID: 23J0445-01

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.39	0.030	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.39	0.040	µg/kg dry	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	**9.36**	*	10-130	PF-18	10/27/23 18:15
13C5-PFPeA	**11.0**	*	35-150	PF-18	10/27/23 18:15
13C5-PFHxA	**21.0**	*	55-150	PF-18	10/27/23 18:15
13C4-PFHpA	**30.7**	*	55-150	PF-18	10/27/23 18:15
13C8-PFOA	**43.4**	*	60-140	PF-18	10/27/23 18:15
13C9-PFNA	**48.2**	*	55-140	PF-18	10/27/23 18:15
13C6-PFDA	56.8		50-140		10/27/23 18:15
13C7-PFUnA	35.6		30-140		10/27/23 18:15
13C2-PFDoA	34.5		10-150		10/27/23 18:15
13C2-PFTeDA	31.2		10-130		10/27/23 18:15
13C3-PFBS	**27.9**	*	55-150	PF-18	10/27/23 18:15
13C3-PFHxS	**45.1**	*	55-150	PF-18	10/27/23 18:15
13C8-PFOS	61.6		45-140		10/27/23 18:15
13C2-4:2FTS	**13.1**	*	60-200	PF-18	10/27/23 18:15
13C2-6:2FTS	**38.3**	*	60-200	PF-18	10/27/23 18:15
13C2-8:2FTS	71.3		50-200		10/27/23 18:15
13C8-PFOSA	40.5		30-130		10/27/23 18:15
D3-NMeFOSA	**9.00**	*	15-130	PF-18	10/27/23 18:15
D5-NEtFOSA	**8.59**	*	10-130	PF-18	10/27/23 18:15
D3-NMeFOSAA	**21.9**	*	45-200	PF-18	10/27/23 18:15
D5-NEtFOSAA	**8.00**	*	10-200	PF-18	10/27/23 18:15
D7-NMeFOSE	**2.52**	*	10-150	PF-18	10/27/23 18:15
D9-NEtFOSE	**7.26**	*	10-150	PF-18	10/27/23 18:15
13C3-HFPO-DA	**20.0**	*	25-160	PF-18	10/27/23 18:15

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: CLASSIFIERS 3 100323
Sampled: 10/3/2023 10:06

Sample ID: 23J0445-01

Sample Matrix: Soil

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	94.1		% Wt	1	H-06	SM 2540G	10/13/23	10/13/23 7:48	AV

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Project Location: PFAS/1633 BIOSOLIDS | Sample Description: | Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: FIELD BLANK 1002323 | Sampled: 10/3/2023 10:06

Sample ID: 23J0445-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	3.2	7.1	2.6	ng/L	1	Z-01, J	Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoropentanoic acid (PFPeA)	ND	3.5	0.62	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorohexanoic acid (PFHxA)	ND	1.8	0.38	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.8	0.45	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorooctanoic acid (PFOA)	ND	1.8	0.40	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorononanoic acid (PFNA)	ND	1.8	0.34	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorodecanoic acid (PFDA)	ND	1.8	0.33	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.48	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.46	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.48	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	1.8	0.44	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.46	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.42	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.36	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.54	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	0.56	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.52	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.55	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.47	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.1	1.2	ng/L	1	PF-17B	Draft Method 1633	10/10/23	10/10/23 22:40	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.1	1.7	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.1	1.9	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	1.8	0.54	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	0.74	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.55	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
N-MeFOSAA (NMeFOSAA)	ND	1.8	0.78	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
N-EtFOSAA (NEtFOSAA)	ND	1.8	0.39	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	4.7	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	4.3	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.1	1.9	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.1	1.2	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.1	1.5	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.1	1.7	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	3.2	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	89	18	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	89	16	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.5	0.87	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.5	0.88	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS

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Project Location: PFAS/1633 BIOSOLIDS | Sample Description: | Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: FIELD BLANK 1002323 | Sampled: 10/3/2023 10:06

Sample ID: 23J0445-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.5	0.71	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.5	1.5	ng/L	1		Draft Method 1633	10/10/23	10/10/23 22:40	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	73.3		10-130		10/10/23 22:40
13C5-PFPeA	70.2		35-150		10/10/23 22:40
13C5-PFHxA	72.7		55-150		10/10/23 22:40
13C4-PFHpA	72.9		55-150		10/10/23 22:40
13C8-PFOA	70.1		60-140		10/10/23 22:40
13C9-PFNA	68.8		55-140		10/10/23 22:40
13C6-PFDA	69.2		50-140		10/10/23 22:40
13C7-PFUnA	66.0		30-140		10/10/23 22:40
13C2-PFDoA	67.6		10-150		10/10/23 22:40
13C2-PFTeDA	66.5		10-130		10/10/23 22:40
13C3-PFBS	72.2		55-150		10/10/23 22:40
13C3-PFHxS	75.5		55-150		10/10/23 22:40
13C8-PFOS	68.6		45-140		10/10/23 22:40
13C2-4:2FTS	**57.3**	*	60-200	PF-17B	10/10/23 22:40
13C2-6:2FTS	67.6		60-200		10/10/23 22:40
13C2-8:2FTS	67.4		50-200		10/10/23 22:40
13C8-PFOSA	66.7		30-130		10/10/23 22:40
D3-NMeFOSA	63.8		15-130		10/10/23 22:40
D5-NEtFOSA	64.0		10-130		10/10/23 22:40
D3-NMeFOSAA	68.2		45-200		10/10/23 22:40
D5-NEtFOSAA	64.1		10-200		10/10/23 22:40
D7-NMeFOSE	70.5		10-150		10/10/23 22:40
D9-NEtFOSE	75.4		10-150		10/10/23 22:40
13C3-HFPO-DA	72.5		25-160		10/10/23 22:40

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Project Location: PFAS/1633 BIOSOLIDS | Sample Description: | Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: FIELD BLANK 1002323 | Sampled: 10/3/2023 10:06

Sample ID: 23J0445-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	10/4/23	10/4/23 14:30	LL

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Project Location: PFAS/1633 BIOSOLIDS Sample Description: Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: CLASSIFIERS 3 100323 wet weight Sampled: 10/3/2023 10:06

Sample ID: 23J0445-03

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	0.74	0.13	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoropentanoic acid (PFPeA)	6.0	0.37	0.024	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorohexanoic acid (PFHxA)	1.1	0.19	0.013	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.19	0.014	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorooctanoic acid (PFOA)	0.50	0.19	0.027	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorononanoic acid (PFNA)	0.33	0.19	0.024	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorodecanoic acid (PFDA)	1.6	0.19	0.017	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoroundecanoic acid (PFUnA)	1.0	0.19	0.019	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorododecanoic acid (PFDoA)	2.3	0.19	0.020	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorotridecanoic acid (PFTrDA)	0.62	0.19	0.025	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.68	0.19	0.017	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorobutanesulfonic acid (PFBS)	0.63	0.19	0.018	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.19	0.028	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.19	0.023	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.19	0.021	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorooctanesulfonic acid (PFOS)	7.1	0.19	0.033	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.19	0.028	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.19	0.042	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.19	0.020	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.74	0.069	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.81	0.74	0.076	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.69	0.74	0.069	µg/kg wet	1	J	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluorooctanesulfonamide (PFOSA)	0.39	0.19	0.097	µg/kg wet	1		Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.19	0.019	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.19	0.026	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-MeFOSAA (NMeFOSAA)	3.1	0.19	0.026	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-EtFOSAA (NEtFOSAA)	2.9	0.19	0.039	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	1.9	0.14	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	2.0	1.9	0.16	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.74	0.061	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.74	0.075	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
9Cl-PF3ONS (F53B Minor)	ND	0.74	0.071	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
11Cl-PF3OUdS (F53B Major)	ND	0.74	0.097	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	1.9	0.16	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	4.9	9.3	1.1	µg/kg wet	1	PF-18, J	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	5.6	9.3	0.90	µg/kg wet	1	PF-18, J	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.37	0.019	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.37	0.039	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS

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Project Location: PFAS/1633 BIOSOLIDS Sample Description: Work Order: 23J0445

Date Received: 10/4/2023

Field Sample #: CLASSIFIERS 3 100323 wet weight Sampled: 10/3/2023 10:06

Sample ID: 23J0445-03

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.37	0.029	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.37	0.038	µg/kg wet	1	PF-18	Draft Method 1633	10/26/23	10/27/23 18:15	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	**9.36**	*	10-130	PF-18	10/27/23 18:15
13C5-PFPeA	**11.0**	*	35-150	PF-18	10/27/23 18:15
13C5-PFHxA	**21.0**	*	55-150	PF-18	10/27/23 18:15
13C4-PFHpA	**30.7**	*	55-150	PF-18	10/27/23 18:15
13C8-PFOA	**43.4**	*	60-140	PF-18	10/27/23 18:15
13C9-PFNA	**48.2**	*	55-140	PF-18	10/27/23 18:15
13C6-PFDA	56.8		50-140		10/27/23 18:15
13C7-PFUnA	35.6		30-140		10/27/23 18:15
13C2-PFDoA	34.5		10-150		10/27/23 18:15
13C2-PFTeDA	31.2		10-130		10/27/23 18:15
13C3-PFBS	**27.9**	*	55-150	PF-18	10/27/23 18:15
13C3-PFHxS	**45.1**	*	55-150	PF-18	10/27/23 18:15
13C8-PFOS	61.6		45-140		10/27/23 18:15
13C2-4:2FTS	**13.1**	*	60-200	PF-18	10/27/23 18:15
13C2-6:2FTS	**38.3**	*	60-200	PF-18	10/27/23 18:15
13C2-8:2FTS	71.3		50-200		10/27/23 18:15
13C8-PFOSA	40.5		30-130		10/27/23 18:15
D3-NMeFOSA	**9.00**	*	15-130	PF-18	10/27/23 18:15
D5-NEtFOSA	**8.59**	*	10-130	PF-18	10/27/23 18:15
D3-NMeFOSAA	**21.9**	*	45-200	PF-18	10/27/23 18:15
D5-NEtFOSAA	**8.00**	*	10-200	PF-18	10/27/23 18:15
D7-NMeFOSE	**2.52**	*	10-150	PF-18	10/27/23 18:15
D9-NEtFOSE	**7.26**	*	10-150	PF-18	10/27/23 18:15
13C3-HFPO-DA	**20.0**	*	25-160	PF-18	10/27/23 18:15

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23J0445-01 [CLASSIFIERS 3 100323]	B356237	5.40	5.00	10/26/23
23J0445-03 [CLASSIFIERS 3 100323 wet weight]	B356237	5.40	5.00	10/26/23

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
23J0445-02 [FIELD BLANK 1002323]	B353964	50.0	10/04/23

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 10/4/2023 per NO PREP in Batch B353964**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23J0445-02 [FIELD BLANK 1002323]	B354159	282	5.00	10/10/23

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

Lab Number [Field ID]	Batch	Date
23J0445-01 [CLASSIFIERS 3 100323]	B354989	10/13/23

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B354159 - Draft Method 1633										
Blank (B354159-BLK1)				Prepared & Analyzed: 10/10/23						
Perfluorobutanoic acid (PFBA)	1.6	3.9	ng/L							Z-01, J
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.97	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.97	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.97	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.97	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.97	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.97	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.97	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.97	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.97	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.97	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.97	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.97	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.97	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.97	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.97	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.97	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.97	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.97	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.97	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.97	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.97	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.97	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.7	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.7	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.7	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L							
Surrogate: 13C4-PFBA	*85.1*		ng/L	97.5		87.3	10-130			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B354159 - Draft Method 1633										
Blank (B354159-BLK1)				Prepared & Analyzed: 10/10/23						
Surrogate: 13C5-PFPeA	*40.5*		ng/L	48.7		83.1	35-150			
Surrogate: 13C5-PFHxA	*20.7*		ng/L	24.4		84.9	55-150			
Surrogate: 13C4-PFHpA	*20.8*		ng/L	24.4		85.1	55-150			
Surrogate: 13C8-PFOA	*20.1*		ng/L	24.4		82.5	60-140			
Surrogate: 13C9-PFNA	*9.68*		ng/L	12.2		79.4	55-140			
Surrogate: 13C6-PFDA	*10.1*		ng/L	12.2		82.5	50-140			
Surrogate: 13C7-PFUnA	*9.49*		ng/L	12.2		77.9	30-140			
Surrogate: 13C2-PFDoA	*9.73*		ng/L	12.2		79.8	10-150			
Surrogate: 13C2-PFTeDA	*9.69*		ng/L	12.2		79.5	10-130			
Surrogate: 13C3-PFBS	*19.9*		ng/L	24.4		81.8	55-150			
Surrogate: 13C3-PFHxS	*20.2*		ng/L	24.4		82.8	55-150			
Surrogate: 13C8-PFOS	*20.0*		ng/L	24.4		82.1	45-140			
Surrogate: 13C2-4:2FTS	*31.7*		ng/L	48.7		65.0	60-200			
Surrogate: 13C2-6:2FTS	*38.1*		ng/L	48.7		78.3	60-200			
Surrogate: 13C2-8:2FTS	*36.0*		ng/L	48.7		73.9	50-200			
Surrogate: 13C8-PFOSA	*19.3*		ng/L	24.4		79.4	30-130			
Surrogate: D3-NMeFOSA	*15.8*		ng/L	24.4		64.7	15-130			
Surrogate: D5-NEtFOSA	*16.7*		ng/L	24.4		68.7	10-130			
Surrogate: D3-NMeFOSAA	*38.8*		ng/L	48.7		79.7	45-200			
Surrogate: D5-NEtFOSAA	*36.0*		ng/L	48.7		73.8	10-200			
Surrogate: D7-NMeFOSE	*195*		ng/L	244		79.9	10-150			
Surrogate: D9-NEtFOSE	*201*		ng/L	244		82.5	10-150			
Surrogate: 13C3-HFPO-DA	*84.2*		ng/L	97.5		86.4	25-160			
LCS (B354159-BS1)				Prepared & Analyzed: 10/10/23						
Perfluorobutanoic acid (PFBA)	109	4.0	ng/L	95.0		114	58-148			
Perfluoropentanoic acid (PFPeA)	53.3	2.0	ng/L	47.5		112	54-152			
Perfluorohexanoic acid (PFHxA)	26.9	0.99	ng/L	23.7		113	55-152			
Perfluoroheptanoic acid (PFHpA)	25.3	0.99	ng/L	23.7		107	54-154			
Perfluorooctanoic acid (PFOA)	26.4	0.99	ng/L	23.7		111	52-161			
Perfluorononanoic acid (PFNA)	26.4	0.99	ng/L	23.7		111	59-149			
Perfluorodecanoic acid (PFDA)	25.7	0.99	ng/L	23.7		108	52-147			
Perfluoroundecanoic acid (PFUnA)	26.3	0.99	ng/L	23.7		111	48-159			
Perfluorododecanoic acid (PFDoA)	25.9	0.99	ng/L	23.7		109	64-142			
Perfluorotridecanoic acid (PFTrDA)	25.8	0.99	ng/L	23.7		109	49-148			
Perfluorotetradecanoic acid (PFTeDA)	26.3	0.99	ng/L	23.7		111	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.9	0.99	ng/L	21.1		104	62-144			
Perfluoropentanesulfonic acid (PFPeS)	23.9	0.99	ng/L	22.3		107	59-151			
Perfluorohexanesulfonic acid (PFHxS)	21.6	0.99	ng/L	21.7		99.6	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	23.6	0.99	ng/L	22.6		104	55-152			
Perfluorooctanesulfonic acid (PFOS)	21.8	0.99	ng/L	22.0		99.0	58-149			
Perfluorononanesulfonic acid (PFNS)	24.1	0.99	ng/L	22.9		106	52-148			
Perfluorodecanesulfonic acid (PFDS)	22.6	0.99	ng/L	22.9		98.6	51-147			
Perfluorododecanesulfonic acid (PFDoS)	22.0	0.99	ng/L	23.0		95.3	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	102	4.0	ng/L	89.0		115	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	91.4	4.0	ng/L	90.2		101	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	97.4	4.0	ng/L	91.4		107	63-152			
Perfluorooctanesulfonamide (PFOSA)	24.4	0.99	ng/L	23.7		103	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	24.8	0.99	ng/L	23.7		104	63-145			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B354159 - Draft Method 1633										
LCS (B354159-BS1)				Prepared & Analyzed: 10/10/23						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	24.8	0.99	ng/L	23.7		104	65-139			
N-MeFOSAA (NMeFOSAA)	24.8	0.99	ng/L	23.7		104	58-144			
N-EtFOSAA (NEtFOSAA)	26.4	0.99	ng/L	23.7		111	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	234	9.9	ng/L	237		98.6	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	235	9.9	ng/L	237		98.8	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	97.7	4.0	ng/L	95.0		103	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	93.9	4.0	ng/L	89.6		105	68-146			
9Cl-PF3ONS (F53B Minor)	90.0	4.0	ng/L	89.0		101	56-156			
11Cl-PF3OUdS (F53B Major)	84.3	4.0	ng/L	89.6		94.0	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	222	9.9	ng/L	237		93.5	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1130	49	ng/L	1190		95.4	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1080	49	ng/L	1190		90.7	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	52.6	2.0	ng/L	42.3		124	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	52.6	2.0	ng/L	47.5		111	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	61.3	2.0	ng/L	47.5		129	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	54.8	2.0	ng/L	47.5		115	48-161			
Surrogate: 13C4-PFBA	*77.9*		ng/L	98.9		78.8	10-130			
Surrogate: 13C5-PFPeA	*37.1*		ng/L	49.5		74.9	35-150			
Surrogate: 13C5-PFHxA	*18.9*		ng/L	24.7		76.5	55-150			
Surrogate: 13C4-PFHpA	*19.4*		ng/L	24.7		78.4	55-150			
Surrogate: 13C8-PFOA	*18.8*		ng/L	24.7		76.1	60-140			
Surrogate: 13C9-PFNA	*9.39*		ng/L	12.4		76.0	55-140			
Surrogate: 13C6-PFDA	*9.62*		ng/L	12.4		77.8	50-140			
Surrogate: 13C7-PFUnA	*8.44*		ng/L	12.4		68.2	30-140			
Surrogate: 13C2-PFDoA	*8.66*		ng/L	12.4		70.0	10-150			
Surrogate: 13C2-PFTeDA	*8.46*		ng/L	12.4		68.4	10-130			
Surrogate: 13C3-PFBS	*19.1*		ng/L	24.7		77.0	55-150			
Surrogate: 13C3-PFHxS	*19.9*		ng/L	24.7		80.4	55-150			
Surrogate: 13C8-PFOS	*18.9*		ng/L	24.7		76.4	45-140			
Surrogate: 13C2-4:2FTS	*33.5*		ng/L	49.5		67.6	60-200			
Surrogate: 13C2-6:2FTS	*37.4*		ng/L	49.5		75.5	60-200			
Surrogate: 13C2-8:2FTS	*38.0*		ng/L	49.5		76.8	50-200			
Surrogate: 13C8-PFOSA	*17.9*		ng/L	24.7		72.2	30-130			
Surrogate: D3-NMeFOSA	*14.2*		ng/L	24.7		57.6	15-130			
Surrogate: D5-NEtFOSA	*15.0*		ng/L	24.7		60.6	10-130			
Surrogate: D3-NMeFOSAA	*35.7*		ng/L	49.5		72.2	45-200			
Surrogate: D5-NEtFOSAA	*32.9*		ng/L	49.5		66.5	10-200			
Surrogate: D7-NMeFOSE	*182*		ng/L	247		73.5	10-150			
Surrogate: D9-NEtFOSE	*185*		ng/L	247		74.9	10-150			
Surrogate: 13C3-HFPO-DA	*77.7*		ng/L	98.9		78.5	25-160			
MRL Check (B354159-MRL1)				Prepared & Analyzed: 10/10/23						
Perfluorobutanoic acid (PFBA)	10.7	4.0	ng/L	7.92		136	44-157			
Perfluoropentanoic acid (PFPeA)	4.71	2.0	ng/L	3.96		119	57-148			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B354159 - Draft Method 1633										
MRL Check (B354159-MRL1)				Prepared & Analyzed: 10/10/23						
Perfluorohexanoic acid (PFHxA)	2.25	0.99	ng/L	1.98		114	62-149			
Perfluoroheptanoic acid (PFHpA)	2.04	0.99	ng/L	1.98		103	56-150			
Perfluorooctanoic acid (PFOA)	2.26	0.99	ng/L	1.98		114	57-161			
Perfluorononanoic acid (PFNA)	2.21	0.99	ng/L	1.98		112	53-157			
Perfluorodecanoic acid (PFDA)	1.96	0.99	ng/L	1.98		99.2	43-158			
Perfluoroundecanoic acid (PFUnA)	2.29	0.99	ng/L	1.98		115	50-155			
Perfluorododecanoic acid (PFDoA)	2.08	0.99	ng/L	1.98		105	60-141			
Perfluorotridecanoic acid (PFTrDA)	2.04	0.99	ng/L	1.98		103	52-140			
Perfluorotetradecanoic acid (PFTeDA)	2.19	0.99	ng/L	1.98		111	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.92	0.99	ng/L	1.76		110	63-145			
Perfluoropentanesulfonic acid (PFPeS)	2.03	0.99	ng/L	1.86		109	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.91	0.99	ng/L	1.81		106	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	2.13	0.99	ng/L	1.89		113	51-150			
Perfluorooctanesulfonic acid (PFOS)	2.11	0.99	ng/L	1.84		115	43-162			
Perfluorononanesulfonic acid (PFNS)	2.09	0.99	ng/L	1.90		109	46-151			
Perfluorodecanesulfonic acid (PFDS)	2.07	0.99	ng/L	1.91		108	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.87	0.99	ng/L	1.92		97.7	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	8.15	4.0	ng/L	7.42		110	52-158			Z-01a
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.96	4.0	ng/L	7.52		106	48-158			Z-01a
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	8.16	4.0	ng/L	7.62		107	46-165			
Perfluorooctanesulfonamide (PFOSA)	2.08	0.99	ng/L	1.98		105	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	2.33	0.99	ng/L	1.98		118	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	2.26	0.99	ng/L	1.98		114	49-156			
N-MeFOSAA (NMeFOSAA)	2.10	0.99	ng/L	1.98		106	32-160			
N-EtFOSAA (NEtFOSAA)	2.19	0.99	ng/L	1.98		111	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	22.2	9.9	ng/L	19.8		112	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	21.9	9.9	ng/L	19.8		111	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.36	4.0	ng/L	7.92		106	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.81	4.0	ng/L	7.47		105	61-148			
9Cl-PF3ONS (F53B Minor)	7.42	4.0	ng/L	7.42		99.9	44-167			
11Cl-PF3OUdS (F53B Major)	7.05	4.0	ng/L	7.47		94.3	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	19.1	9.9	ng/L	19.8		96.7	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	97.8	49	ng/L	99.0		98.9	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	91.4	49	ng/L	99.0		92.4	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	4.24	2.0	ng/L	3.52		120	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.94	2.0	ng/L	3.96		99.6	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.73	2.0	ng/L	3.96		119	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.58	2.0	ng/L	3.96		116	47-160			
Surrogate: 13C4-PFBA	*63.5*		ng/L	99.0		64.2	10-130			
Surrogate: 13C5-PFPeA	*30.8*		ng/L	49.5		62.3	35-150			
Surrogate: 13C5-PFHxA	*15.7*		ng/L	24.7		63.3	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B354159 - Draft Method 1633											
MRL Check (B354159-MRL1)				Prepared & Analyzed: 10/10/23							
Surrogate: 13C4-PFHpA	*16.0*		ng/L	24.7		64.8		55-150			
Surrogate: 13C8-PFOA	*14.9*		ng/L	24.7		60.1		60-140			
Surrogate: 13C9-PFNA	*7.59*		ng/L	12.4		61.4		55-140			
Surrogate: 13C6-PFDA	*8.02*		ng/L	12.4		64.8		50-140			
Surrogate: 13C7-PFUnA	*7.01*		ng/L	12.4		56.7		30-140			
Surrogate: 13C2-PFDoA	*7.30*		ng/L	12.4		59.0		10-150			
Surrogate: 13C2-PFTeDA	*7.08*		ng/L	12.4		57.2		10-130			
Surrogate: 13C3-PFBS	*14.9*		ng/L	24.7		60.3		55-150			
Surrogate: 13C3-PFHxS	*16.1*		ng/L	24.7		65.0		55-150			
Surrogate: 13C8-PFOS	*15.1*		ng/L	24.7		61.0		45-140			
Surrogate: 13C2-4:2FTS	*24.1*		ng/L	49.5		**48.6**	*	60-200			Z-01a
Surrogate: 13C2-6:2FTS	*28.8*		ng/L	49.5		**58.3**	*	60-200			Z-01a
Surrogate: 13C2-8:2FTS	*29.0*		ng/L	49.5		58.6		50-200			
Surrogate: 13C8-PFOSA	*14.8*		ng/L	24.7		59.7		30-130			
Surrogate: D3-NMeFOSA	*11.9*		ng/L	24.7		48.1		15-130			
Surrogate: D5-NEtFOSA	*12.3*		ng/L	24.7		49.8		10-130			
Surrogate: D3-NMeFOSAA	*29.7*		ng/L	49.5		60.0		45-200			
Surrogate: D5-NEtFOSAA	*28.6*		ng/L	49.5		57.7		10-200			
Surrogate: D7-NMeFOSE	*149*		ng/L	247		60.4		10-150			
Surrogate: D9-NEtFOSE	*155*		ng/L	247		62.7		10-150			
Surrogate: 13C3-HFPO-DA	*64.6*		ng/L	99.0		65.3		25-160			
Batch B356237 - Draft Method 1633											
Blank (B356237-BLK1)				Prepared: 10/26/23 Analyzed: 10/27/23							
Perfluorobutanoic acid (PFBA)	0.21	0.79	µg/kg wet								J
Perfluoropentanoic acid (PFPeA)	0.029	0.39	µg/kg wet								J
Perfluorohexanoic acid (PFHxA)	ND	0.20	µg/kg wet								
Perfluoroheptanoic acid (PFHpA)	ND	0.20	µg/kg wet								
Perfluorooctanoic acid (PFOA)	ND	0.20	µg/kg wet								
Perfluorononanoic acid (PFNA)	ND	0.20	µg/kg wet								
Perfluorodecanoic acid (PFDA)	ND	0.20	µg/kg wet								
Perfluoroundecanoic acid (PFUnA)	ND	0.20	µg/kg wet								
Perfluorododecanoic acid (PFDoA)	ND	0.20	µg/kg wet								
Perfluorotridecanoic acid (PFTrDA)	ND	0.20	µg/kg wet								
Perfluorotetradecanoic acid (PFTeDA)	ND	0.20	µg/kg wet								
Perfluorobutanesulfonic acid (PFBS)	ND	0.20	µg/kg wet								
Perfluoropentanesulfonic acid (PFPeS)	ND	0.20	µg/kg wet								
Perfluorohexanesulfonic acid (PFHxS)	ND	0.20	µg/kg wet								
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.20	µg/kg wet								
Perfluorooctanesulfonic acid (PFOS)	ND	0.20	µg/kg wet								
Perfluorononanesulfonic acid (PFNS)	ND	0.20	µg/kg wet								
Perfluorodecanesulfonic acid (PFDS)	ND	0.20	µg/kg wet								
Perfluorododecanesulfonic acid (PFDoS)	ND	0.20	µg/kg wet								
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.79	µg/kg wet								
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	0.79	µg/kg wet								
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	0.79	µg/kg wet								
Perfluorooctanesulfonamide (PFOSA)	ND	0.20	µg/kg wet								
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.20	µg/kg wet								

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356237 - Draft Method 1633										
Blank (B356237-BLK1)				Prepared: 10/26/23 Analyzed: 10/27/23						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.20	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	0.20	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	0.20	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	2.0	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	2.0	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.79	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.79	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	0.79	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	0.79	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	2.0	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	9.9	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	9.9	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.39	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.39	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.39	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.39	µg/kg wet							
Surrogate: 13C4-PFBA	*8.20*		µg/kg wet	9.87		83.0	10-130			
Surrogate: 13C5-PFPeA	*3.81*		µg/kg wet	4.94		77.2	35-150			
Surrogate: 13C5-PFHxA	*2.08*		µg/kg wet	2.47		84.3	55-150			
Surrogate: 13C4-PFHpA	*2.02*		µg/kg wet	2.47		81.7	55-150			
Surrogate: 13C8-PFOA	*2.16*		µg/kg wet	2.47		87.5	60-140			
Surrogate: 13C9-PFNA	*0.958*		µg/kg wet	1.23		77.7	55-140			
Surrogate: 13C6-PFDA	*1.05*		µg/kg wet	1.23		84.9	50-140			
Surrogate: 13C7-PFUnA	*1.01*		µg/kg wet	1.23		81.8	30-140			
Surrogate: 13C2-PFDoA	*0.952*		µg/kg wet	1.23		77.1	10-150			
Surrogate: 13C2-PFTeDA	*0.915*		µg/kg wet	1.23		74.2	10-130			
Surrogate: 13C3-PFBS	*2.21*		µg/kg wet	2.47		89.6	55-150			
Surrogate: 13C3-PFHxS	*2.14*		µg/kg wet	2.47		86.9	55-150			
Surrogate: 13C8-PFOS	*1.88*		µg/kg wet	2.47		76.1	45-140			
Surrogate: 13C2-4:2FTS	*3.50*		µg/kg wet	4.94		70.9	60-200			
Surrogate: 13C2-6:2FTS	*2.96*		µg/kg wet	4.94		60.0	60-200			
Surrogate: 13C2-8:2FTS	*2.80*		µg/kg wet	4.94		56.6	50-200			
Surrogate: 13C8-PFOSA	*1.96*		µg/kg wet	2.47		79.5	30-130			
Surrogate: D3-NMeFOSA	*1.66*		µg/kg wet	2.47		67.2	15-130			
Surrogate: D5-NEtFOSA	*1.56*		µg/kg wet	2.47		63.4	10-130			
Surrogate: D3-NMeFOSAA	*3.52*		µg/kg wet	4.94		71.4	45-200			
Surrogate: D5-NEtFOSAA	*3.15*		µg/kg wet	4.94		63.8	10-200			
Surrogate: D7-NMeFOSE	*18.7*		µg/kg wet	24.7		75.7	10-150			
Surrogate: D9-NEtFOSE	*17.7*		µg/kg wet	24.7		71.8	10-150			
Surrogate: 13C3-HFPO-DA	*8.16*		µg/kg wet	9.87		82.7	25-160			
LCS (B356237-BS1)				Prepared: 10/26/23 Analyzed: 10/27/23						
Perfluorobutanoic acid (PFBA)	11.9	0.77	µg/kg wet	9.28		128	58-148			
Perfluoropentanoic acid (PFPeA)	5.76	0.39	µg/kg wet	4.64		124	54-152			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356237 - Draft Method 1633										
LCS (B356237-BS1)				Prepared: 10/26/23 Analyzed: 10/27/23						
Perfluorohexanoic acid (PFHxA)	2.85	0.19	µg/kg wet	2.32		123	55-152			
Perfluoroheptanoic acid (PFHpA)	2.88	0.19	µg/kg wet	2.32		124	54-154			
Perfluorooctanoic acid (PFOA)	2.78	0.19	µg/kg wet	2.32		120	52-161			
Perfluorononanoic acid (PFNA)	2.91	0.19	µg/kg wet	2.32		126	59-149			
Perfluorodecanoic acid (PFDA)	2.96	0.19	µg/kg wet	2.32		128	52-147			
Perfluoroundecanoic acid (PFUnA)	2.86	0.19	µg/kg wet	2.32		123	48-159			
Perfluorododecanoic acid (PFDoA)	2.86	0.19	µg/kg wet	2.32		123	64-142			
Perfluorotridecanoic acid (PFTrDA)	2.90	0.19	µg/kg wet	2.32		125	49-148			
Perfluorotetradecanoic acid (PFTeDA)	2.83	0.19	µg/kg wet	2.32		122	47-161			
Perfluorobutanesulfonic acid (PFBS)	2.52	0.19	µg/kg wet	2.06		122	62-144			
Perfluoropentanesulfonic acid (PFPeS)	2.64	0.19	µg/kg wet	2.18		121	59-151			
Perfluorohexanesulfonic acid (PFHxS)	2.45	0.19	µg/kg wet	2.12		115	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	2.83	0.19	µg/kg wet	2.21		128	55-152			
Perfluorooctanesulfonic acid (PFOS)	2.58	0.19	µg/kg wet	2.15		120	58-149			
Perfluorononanesulfonic acid (PFNS)	2.83	0.19	µg/kg wet	2.23		127	52-148			
Perfluorodecanesulfonic acid (PFDS)	2.72	0.19	µg/kg wet	2.24		121	51-147			
Perfluorododecanesulfonic acid (PFDoS)	2.61	0.19	µg/kg wet	2.25		116	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	10.7	0.77	µg/kg wet	8.70		124	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	11.4	0.77	µg/kg wet	8.82		129	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	11.6	0.77	µg/kg wet	8.93		130	63-152			
Perfluorooctanesulfonamide (PFOSA)	2.96	0.19	µg/kg wet	2.32		128	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	2.51	0.19	µg/kg wet	2.32		108	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	2.53	0.19	µg/kg wet	2.32		109	65-139			
N-MeFOSAA (NMeFOSAA)	2.98	0.19	µg/kg wet	2.32		128	58-144			
N-EtFOSAA (NEtFOSAA)	2.62	0.19	µg/kg wet	2.32		113	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	27.1	1.9	µg/kg wet	23.2		117	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	27.8	1.9	µg/kg wet	23.2		120	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.44	0.77	µg/kg wet	9.28		102	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	8.33	0.77	µg/kg wet	8.76		95.2	68-146			
9Cl-PF3ONS (F53B Minor)	8.22	0.77	µg/kg wet	8.70		94.5	56-156			
11Cl-PF3OUdS (F53B Major)	8.16	0.77	µg/kg wet	8.76		93.2	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	24.0	1.9	µg/kg wet	23.2		104	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	118	9.7	µg/kg wet	116		102	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	111	9.7	µg/kg wet	116		95.7	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	4.09	0.39	µg/kg wet	4.13		99.0	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.27	0.39	µg/kg wet	4.64		92.1	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.79	0.39	µg/kg wet	4.64		103	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.41	0.39	µg/kg wet	4.64		95.0	48-161			
Surrogate: 13C4-PFBA	*8.06*		µg/kg wet	9.67		83.4	10-130			
Surrogate: 13C5-PFPeA	*3.79*		µg/kg wet	4.83		78.4	35-150			
Surrogate: 13C5-PFHxA	*2.06*		µg/kg wet	2.42		85.1	55-150			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356237 - Draft Method 1633										
LCS (B356237-BS1)				Prepared: 10/26/23 Analyzed: 10/27/23						
Surrogate: 13C4-PFHpA	*2.00*		µg/kg wet	2.42		82.6	55-150			
Surrogate: 13C8-PFOA	*2.12*		µg/kg wet	2.42		87.6	60-140			
Surrogate: 13C9-PFNA	*0.975*		µg/kg wet	1.21		80.7	55-140			
Surrogate: 13C6-PFDA	*1.01*		µg/kg wet	1.21		84.0	50-140			
Surrogate: 13C7-PFUnA	*1.02*		µg/kg wet	1.21		84.1	30-140			
Surrogate: 13C2-PFDoA	*0.975*		µg/kg wet	1.21		80.7	10-150			
Surrogate: 13C2-PFTeDA	*0.910*		µg/kg wet	1.21		75.3	10-130			
Surrogate: 13C3-PFBS	*2.06*		µg/kg wet	2.42		85.4	55-150			
Surrogate: 13C3-PFHxS	*2.13*		µg/kg wet	2.42		88.3	55-150			
Surrogate: 13C8-PFOS	*1.96*		µg/kg wet	2.42		81.2	45-140			
Surrogate: 13C2-4:2FTS	*3.70*		µg/kg wet	4.83		76.5	60-200			
Surrogate: 13C2-6:2FTS	*3.93*		µg/kg wet	4.83		81.3	60-200			
Surrogate: 13C2-8:2FTS	*3.75*		µg/kg wet	4.83		77.6	50-200			
Surrogate: 13C8-PFOSA	*1.88*		µg/kg wet	2.42		77.8	30-130			
Surrogate: D3-NMeFOSA	*1.62*		µg/kg wet	2.42		66.9	15-130			
Surrogate: D5-NEtFOSA	*1.67*		µg/kg wet	2.42		69.2	10-130			
Surrogate: D3-NMeFOSAA	*3.97*		µg/kg wet	4.83		82.1	45-200			
Surrogate: D5-NEtFOSAA	*3.78*		µg/kg wet	4.83		78.3	10-200			
Surrogate: D7-NMeFOSE	*18.6*		µg/kg wet	24.2		77.0	10-150			
Surrogate: D9-NEtFOSE	*18.2*		µg/kg wet	24.2		75.3	10-150			
Surrogate: 13C3-HFPO-DA	*8.55*		µg/kg wet	9.67		88.5	25-160			
MRL Check (B356237-MRL1)				Prepared: 10/26/23 Analyzed: 10/27/23						
Perfluorobutanoic acid (PFBA)	1.04	0.79	µg/kg wet	0.793		131	44-157			
Perfluoropentanoic acid (PFPeA)	0.430	0.40	µg/kg wet	0.397		108	57-148			
Perfluorohexanoic acid (PFHxA)	0.220	0.20	µg/kg wet	0.198		111	62-149			
Perfluoroheptanoic acid (PFHpA)	0.209	0.20	µg/kg wet	0.198		105	56-150			
Perfluorooctanoic acid (PFOA)	0.193	0.20	µg/kg wet	0.198		97.2	57-161			J
Perfluorononanoic acid (PFNA)	0.206	0.20	µg/kg wet	0.198		104	53-157			
Perfluorodecanoic acid (PFDA)	0.193	0.20	µg/kg wet	0.198		97.3	43-158			J
Perfluoroundecanoic acid (PFUnA)	0.195	0.20	µg/kg wet	0.198		98.1	50-155			J
Perfluorododecanoic acid (PFDoA)	0.196	0.20	µg/kg wet	0.198		98.8	60-141			J
Perfluorotridecanoic acid (PFTrDA)	0.199	0.20	µg/kg wet	0.198		101	52-140			
Perfluorotetradecanoic acid (PFTeDA)	0.194	0.20	µg/kg wet	0.198		97.7	52-156			J
Perfluorobutanesulfonic acid (PFBS)	0.171	0.20	µg/kg wet	0.176		97.0	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	0.184	0.20	µg/kg wet	0.186		98.7	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	0.187	0.20	µg/kg wet	0.181		103	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	0.200	0.20	µg/kg wet	0.189		106	51-150			
Perfluorooctanesulfonic acid (PFOS)	0.187	0.20	µg/kg wet	0.184		102	43-162			J
Perfluorononanesulfonic acid (PFNS)	0.198	0.20	µg/kg wet	0.191		104	46-151			J
Perfluorodecanesulfonic acid (PFDS)	0.184	0.20	µg/kg wet	0.191		96.1	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	0.176	0.20	µg/kg wet	0.192		91.5	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	0.691	0.79	µg/kg wet	0.744		92.9	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.763	0.79	µg/kg wet	0.754		101	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.783	0.79	µg/kg wet	0.764		103	46-165			J
Perfluorooctanesulfonamide (PFOSA)	0.213	0.20	µg/kg wet	0.198		107	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	0.165	0.20	µg/kg wet	0.198		83.4	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	0.188	0.20	µg/kg wet	0.198		94.9	49-156			J
N-MeFOSAA (NMeFOSAA)	0.213	0.20	µg/kg wet	0.198		107	32-160			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356237 - Draft Method 1633										
MRL Check (B356237-MRL1)				Prepared: 10/26/23 Analyzed: 10/27/23						
N-EtFOSAA (NEtFOSAA)	0.191	0.20	µg/kg wet	0.198		96.2	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	1.83	2.0	µg/kg wet	1.98		92.1	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.85	2.0	µg/kg wet	1.98		93.1	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.719	0.79	µg/kg wet	0.793		90.6	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.659	0.79	µg/kg wet	0.749		88.0	61-148			J
9Cl-PF3ONS (F53B Minor)	0.678	0.79	µg/kg wet	0.744		91.1	44-167			J
11Cl-PF3OUdS (F53B Major)	0.642	0.79	µg/kg wet	0.749		85.8	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	1.79	2.0	µg/kg wet	1.98		90.4	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	8.83	9.9	µg/kg wet	9.92		89.1	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	8.38	9.9	µg/kg wet	9.92		84.5	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	0.344	0.40	µg/kg wet	0.353		97.4	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.372	0.40	µg/kg wet	0.397		93.8	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0.404	0.40	µg/kg wet	0.397		102	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.387	0.40	µg/kg wet	0.397		97.7	47-160			J
Surrogate: 13C4-PFBA	*8.16*		µg/kg wet	9.92		82.3	10-130			
Surrogate: 13C5-PFPeA	*3.80*		µg/kg wet	4.96		76.7	35-150			
Surrogate: 13C5-PFHxA	*2.08*		µg/kg wet	2.48		84.0	55-150			
Surrogate: 13C4-PFHpA	*2.05*		µg/kg wet	2.48		82.6	55-150			
Surrogate: 13C8-PFOA	*2.13*		µg/kg wet	2.48		86.0	60-140			
Surrogate: 13C9-PFNA	*1.00*		µg/kg wet	1.24		81.0	55-140			
Surrogate: 13C6-PFDA	*1.03*		µg/kg wet	1.24		83.1	50-140			
Surrogate: 13C7-PFUnA	*1.01*		µg/kg wet	1.24		81.3	30-140			
Surrogate: 13C2-PFDoA	*0.969*		µg/kg wet	1.24		78.2	10-150			
Surrogate: 13C2-PFTeDA	*0.902*		µg/kg wet	1.24		72.8	10-130			
Surrogate: 13C3-PFBS	*2.11*		µg/kg wet	2.48		85.3	55-150			
Surrogate: 13C3-PFHxS	*2.10*		µg/kg wet	2.48		84.6	55-150			
Surrogate: 13C8-PFOS	*1.97*		µg/kg wet	2.48		79.3	45-140			
Surrogate: 13C2-4:2FTS	*3.38*		µg/kg wet	4.96		68.1	60-200			
Surrogate: 13C2-6:2FTS	*3.38*		µg/kg wet	4.96		68.2	60-200			
Surrogate: 13C2-8:2FTS	*3.33*		µg/kg wet	4.96		67.2	50-200			
Surrogate: 13C8-PFOSA	*1.84*		µg/kg wet	2.48		74.2	30-130			
Surrogate: D3-NMeFOSA	*1.45*		µg/kg wet	2.48		58.5	15-130			
Surrogate: D5-NEtFOSA	*1.29*		µg/kg wet	2.48		51.9	10-130			
Surrogate: D3-NMeFOSAA	*3.69*		µg/kg wet	4.96		74.5	45-200			
Surrogate: D5-NEtFOSAA	*3.33*		µg/kg wet	4.96		67.2	10-200			
Surrogate: D7-NMeFOSE	*16.9*		µg/kg wet	24.8		68.0	10-150			
Surrogate: D9-NEtFOSE	*16.2*		µg/kg wet	24.8		65.2	10-150			
Surrogate: 13C3-HFPO-DA	*8.30*		µg/kg wet	9.92		83.7	25-160			
Batch B356689 - Draft Method 1633										
Blank (B356689-BLK1)				Prepared: 10/31/23 Analyzed: 11/01/23						
Perfluorobutanoic acid (PFBA)	ND	0.77	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	0.38	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	0.19	µg/kg wet							

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356689 - Draft Method 1633										
Blank (B356689-BLK1)				Prepared: 10/31/23 Analyzed: 11/01/23						
Perfluoroheptanoic acid (PFHpA)	ND	0.19	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	0.19	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	0.19	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	0.19	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	0.19	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	0.19	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	0.19	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.19	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	0.19	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.19	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.19	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.19	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	0.19	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	0.19	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	0.19	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.19	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.77	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	0.77	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	0.77	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	0.19	µg/kg wet							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.19	µg/kg wet							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.19	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	0.19	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	0.19	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	1.9	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	1.9	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.77	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.77	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	0.77	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	0.77	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	1.9	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	9.6	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	9.6	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.38	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.38	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.38	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.38	µg/kg wet							
Surrogate: 13C4-PFBA	*7.59*		µg/kg wet	9.62		79.0	10-130			
Surrogate: 13C5-PFPeA	*3.32*		µg/kg wet	4.81		69.0	35-150			
Surrogate: 13C5-PFHxA	*1.92*		µg/kg wet	2.40		80.0	55-150			
Surrogate: 13C4-PFHpA	*2.06*		µg/kg wet	2.40		85.8	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356689 - Draft Method 1633										
Blank (B356689-BLK1)				Prepared: 10/31/23 Analyzed: 11/01/23						
Surrogate: 13C8-PFOA	*2.18*		µg/kg wet	2.40		90.9	60-140			
Surrogate: 13C9-PFNA	*0.879*		µg/kg wet	1.20		73.1	55-140			
Surrogate: 13C6-PFDA	*0.903*		µg/kg wet	1.20		75.1	50-140			
Surrogate: 13C7-PFUnA	*0.929*		µg/kg wet	1.20		77.3	30-140			
Surrogate: 13C2-PFDoA	*0.870*		µg/kg wet	1.20		72.4	10-150			
Surrogate: 13C2-PFTeDA	*0.796*		µg/kg wet	1.20		66.3	10-130			
Surrogate: 13C3-PFBS	*2.03*		µg/kg wet	2.40		84.3	55-150			
Surrogate: 13C3-PFHxS	*1.93*		µg/kg wet	2.40		80.3	55-150			
Surrogate: 13C8-PFOS	*1.79*		µg/kg wet	2.40		74.6	45-140			
Surrogate: 13C2-4:2FTS	*3.11*		µg/kg wet	4.81		64.6	60-200			
Surrogate: 13C2-6:2FTS	*3.30*		µg/kg wet	4.81		68.5	60-200			
Surrogate: 13C2-8:2FTS	*3.03*		µg/kg wet	4.81		63.1	50-200			
Surrogate: 13C8-PFOSA	*2.07*		µg/kg wet	2.40		86.1	30-130			
Surrogate: D3-NMeFOSA	*1.37*		µg/kg wet	2.40		56.9	15-130			
Surrogate: D5-NEtFOSA	*1.33*		µg/kg wet	2.40		55.3	10-130			
Surrogate: D3-NMeFOSAA	*3.61*		µg/kg wet	4.81		75.1	45-200			
Surrogate: D5-NEtFOSAA	*3.69*		µg/kg wet	4.81		76.8	10-200			
Surrogate: D7-NMeFOSE	*19.6*		µg/kg wet	24.0		81.4	10-150			
Surrogate: D9-NEtFOSE	*18.4*		µg/kg wet	24.0		76.5	10-150			
Surrogate: 13C3-HFPO-DA	*6.89*		µg/kg wet	9.62		71.6	25-160			
LCS (B356689-BS1)				Prepared: 10/31/23 Analyzed: 11/01/23						
Perfluorobutanoic acid (PFBA)	11.4	0.77	µg/kg wet	9.26		123	58-148			
Perfluoropentanoic acid (PFPeA)	5.53	0.39	µg/kg wet	4.63		119	54-152			
Perfluorohexanoic acid (PFHxA)	2.62	0.19	µg/kg wet	2.31		113	55-152			
Perfluoroheptanoic acid (PFHpA)	2.77	0.19	µg/kg wet	2.31		120	54-154			
Perfluorooctanoic acid (PFOA)	2.43	0.19	µg/kg wet	2.31		105	52-161			
Perfluorononanoic acid (PFNA)	2.85	0.19	µg/kg wet	2.31		123	59-149			
Perfluorodecanoic acid (PFDA)	2.72	0.19	µg/kg wet	2.31		117	52-147			
Perfluoroundecanoic acid (PFUnA)	2.67	0.19	µg/kg wet	2.31		115	48-159			
Perfluorododecanoic acid (PFDoA)	2.75	0.19	µg/kg wet	2.31		119	64-142			
Perfluorotridecanoic acid (PFTrDA)	2.59	0.19	µg/kg wet	2.31		112	49-148			
Perfluorotetradecanoic acid (PFTeDA)	2.86	0.19	µg/kg wet	2.31		123	47-161			
Perfluorobutanesulfonic acid (PFBS)	2.34	0.19	µg/kg wet	2.05		114	62-144			
Perfluoropentanesulfonic acid (PFPeS)	2.70	0.19	µg/kg wet	2.18		124	59-151			
Perfluorohexanesulfonic acid (PFHxS)	2.65	0.19	µg/kg wet	2.12		125	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	2.75	0.19	µg/kg wet	2.20		125	55-152			
Perfluorooctanesulfonic acid (PFOS)	2.59	0.19	µg/kg wet	2.15		121	58-149			
Perfluorononanesulfonic acid (PFNS)	2.87	0.19	µg/kg wet	2.23		129	52-148			
Perfluorodecanesulfonic acid (PFDS)	2.76	0.19	µg/kg wet	2.23		124	51-147			
Perfluorododecanesulfonic acid (PFDoS)	2.79	0.19	µg/kg wet	2.25		124	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	10.1	0.77	µg/kg wet	8.68		116	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	11.1	0.77	µg/kg wet	8.80		127	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	10.0	0.77	µg/kg wet	8.91		113	63-152			
Perfluorooctanesulfonamide (PFOSA)	2.84	0.19	µg/kg wet	2.31		123	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	2.65	0.19	µg/kg wet	2.31		115	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	2.73	0.19	µg/kg wet	2.31		118	65-139			
N-MeFOSAA (NMeFOSAA)	2.79	0.19	µg/kg wet	2.31		120	58-144			
N-EtFOSAA (NEtFOSAA)	2.25	0.19	µg/kg wet	2.31		97.0	59-146			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356689 - Draft Method 1633										
LCS (B356689-BS1)				Prepared: 10/31/23 Analyzed: 11/01/23						
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	25.1	1.9	µg/kg wet	23.1		109	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	25.8	1.9	µg/kg wet	23.1		112	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10.7	0.77	µg/kg wet	9.26		115	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	10.5	0.77	µg/kg wet	8.74		120	68-146			
9Cl-PF3ONS (F53B Minor)	10.8	0.77	µg/kg wet	8.68		124	56-156			
11Cl-PF3OUdS (F53B Major)	9.90	0.77	µg/kg wet	8.74		113	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	26.2	1.9	µg/kg wet	23.1		113	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	135	9.6	µg/kg wet	116		117	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	126	9.6	µg/kg wet	116		109	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	4.56	0.39	µg/kg wet	4.12		111	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	5.12	0.39	µg/kg wet	4.63		111	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	5.82	0.39	µg/kg wet	4.63		126	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.82	0.39	µg/kg wet	4.63		82.5	48-161			
Surrogate: 13C4-PFBA	*6.44*		µg/kg wet	9.65		66.8	10-130			
Surrogate: 13C5-PFPeA	*2.93*		µg/kg wet	4.82		60.8	35-150			
Surrogate: 13C5-PFHxA	*1.72*		µg/kg wet	2.41		71.2	55-150			
Surrogate: 13C4-PFHpA	*1.83*		µg/kg wet	2.41		76.0	55-150			
Surrogate: 13C8-PFOA	*1.95*		µg/kg wet	2.41		80.9	60-140			
Surrogate: 13C9-PFNA	*0.778*		µg/kg wet	1.21		64.5	55-140			
Surrogate: 13C6-PFDA	*0.831*		µg/kg wet	1.21		68.9	50-140			
Surrogate: 13C7-PFUnA	*0.806*		µg/kg wet	1.21		66.9	30-140			
Surrogate: 13C2-PFDoA	*0.760*		µg/kg wet	1.21		63.0	10-150			
Surrogate: 13C2-PFTeDA	*0.637*		µg/kg wet	1.21		52.9	10-130			
Surrogate: 13C3-PFBS	*1.80*		µg/kg wet	2.41		74.6	55-150			
Surrogate: 13C3-PFHxS	*1.72*		µg/kg wet	2.41		71.2	55-150			
Surrogate: 13C8-PFOS	*1.56*		µg/kg wet	2.41		64.9	45-140			
Surrogate: 13C2-4:2FTS	*3.07*		µg/kg wet	4.82		63.6	60-200			
Surrogate: 13C2-6:2FTS	*3.62*		µg/kg wet	4.82		75.0	60-200			
Surrogate: 13C2-8:2FTS	*3.42*		µg/kg wet	4.82		71.0	50-200			
Surrogate: 13C8-PFOSA	*1.80*		µg/kg wet	2.41		74.5	30-130			
Surrogate: D3-NMeFOSA	*1.30*		µg/kg wet	2.41		54.0	15-130			
Surrogate: D5-NEtFOSA	*1.31*		µg/kg wet	2.41		54.5	10-130			
Surrogate: D3-NMeFOSAA	*3.63*		µg/kg wet	4.82		75.3	45-200			
Surrogate: D5-NEtFOSAA	*3.61*		µg/kg wet	4.82		74.9	10-200			
Surrogate: D7-NMeFOSE	*16.5*		µg/kg wet	24.1		68.6	10-150			
Surrogate: D9-NEtFOSE	*15.8*		µg/kg wet	24.1		65.7	10-150			
Surrogate: 13C3-HFPO-DA	*6.29*		µg/kg wet	9.65		65.2	25-160			
MRL Check (B356689-MRL1)				Prepared: 10/31/23 Analyzed: 11/01/23						
Perfluorobutanoic acid (PFBA)	0.786	0.77	µg/kg wet	0.770		102	44-157			
Perfluoropentanoic acid (PFPeA)	0.423	0.38	µg/kg wet	0.385		110	57-148			
Perfluorohexanoic acid (PFHxA)	0.212	0.19	µg/kg wet	0.192		110	62-149			
Perfluoroheptanoic acid (PFHpA)	0.211	0.19	µg/kg wet	0.192		109	56-150			
Perfluorooctanoic acid (PFOA)	0.173	0.19	µg/kg wet	0.192		89.8	57-161			J
Perfluorononanoic acid (PFNA)	0.197	0.19	µg/kg wet	0.192		102	53-157			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B356689 - Draft Method 1633										
MRL Check (B356689-MRL1)				Prepared: 10/31/23 Analyzed: 11/01/23						
Perfluorodecanoic acid (PFDA)	0.191	0.19	µg/kg wet	0.192		99.3	43-158			J
Perfluoroundecanoic acid (PFUnA)	0.185	0.19	µg/kg wet	0.192		96.1	50-155			J
Perfluorododecanoic acid (PFDoA)	0.202	0.19	µg/kg wet	0.192		105	60-141			
Perfluorotridecanoic acid (PFTrDA)	0.185	0.19	µg/kg wet	0.192		96.3	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	0.202	0.19	µg/kg wet	0.192		105	52-156			
Perfluorobutanesulfonic acid (PFBS)	0.182	0.19	µg/kg wet	0.171		107	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	0.198	0.19	µg/kg wet	0.181		109	58-144			
Perfluorohexanesulfonic acid (PFHxS)	0.209	0.19	µg/kg wet	0.176		119	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	0.216	0.19	µg/kg wet	0.183		118	51-150			
Perfluorooctanesulfonic acid (PFOS)	0.217	0.19	µg/kg wet	0.179		122	43-162			
Perfluorononanesulfonic acid (PFNS)	0.206	0.19	µg/kg wet	0.185		111	46-151			
Perfluorodecanesulfonic acid (PFDS)	0.195	0.19	µg/kg wet	0.186		105	50-144			
Perfluorododecanesulfonic acid (PFDoS)	0.212	0.19	µg/kg wet	0.187		113	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	0.724	0.77	µg/kg wet	0.722		100	52-158			Z-01a, J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.848	0.77	µg/kg wet	0.731		116	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.738	0.77	µg/kg wet	0.741		99.6	46-165			J
Perfluorooctanesulfonamide (PFOSA)	0.218	0.19	µg/kg wet	0.192		113	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	0.206	0.19	µg/kg wet	0.192		107	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	0.210	0.19	µg/kg wet	0.192		109	49-156			
N-MeFOSAA (NMeFOSAA)	0.234	0.19	µg/kg wet	0.192		122	32-160			
N-EtFOSAA (NEtFOSAA)	0.172	0.19	µg/kg wet	0.192		89.2	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	1.80	1.9	µg/kg wet	1.92		93.6	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.85	1.9	µg/kg wet	1.92		96.2	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.796	0.77	µg/kg wet	0.770		103	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.776	0.77	µg/kg wet	0.727		107	61-148			
9Cl-PF3ONS (F53B Minor)	0.768	0.77	µg/kg wet	0.722		106	44-167			J
11Cl-PF3OUdS (F53B Major)	0.723	0.77	µg/kg wet	0.727		99.5	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	1.87	1.9	µg/kg wet	1.92		97.0	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	9.68	9.6	µg/kg wet	9.62		101	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	8.90	9.6	µg/kg wet	9.62		92.4	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	0.323	0.38	µg/kg wet	0.343		94.3	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.376	0.38	µg/kg wet	0.385		97.6	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0.400	0.38	µg/kg wet	0.385		104	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.273	0.38	µg/kg wet	0.385		70.9	47-160			J
Surrogate: 13C4-PFBA	*6.84*		µg/kg wet	9.62		71.1	10-130			
Surrogate: 13C5-PFPeA	*2.93*		µg/kg wet	4.81		60.8	35-150			
Surrogate: 13C5-PFHxA	*1.72*		µg/kg wet	2.41		71.3	55-150			
Surrogate: 13C4-PFHpA	*1.80*		µg/kg wet	2.41		74.7	55-150			
Surrogate: 13C8-PFOA	*1.92*		µg/kg wet	2.41		79.7	60-140			
Surrogate: 13C9-PFNA	*0.806*		µg/kg wet	1.20		67.0	55-140			
Surrogate: 13C6-PFDA	*0.865*		µg/kg wet	1.20		71.9	50-140			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B356689 - Draft Method 1633											
MRL Check (B356689-MRL1)				Prepared: 10/31/23 Analyzed: 11/01/23							
Surrogate: 13C7-PFUnA	*0.858*		µg/kg wet	1.20		71.3		30-140			
Surrogate: 13C2-PFDoA	*0.782*		µg/kg wet	1.20		65.0		10-150			
Surrogate: 13C2-PFTeDA	*0.686*		µg/kg wet	1.20		57.0		10-130			
Surrogate: 13C3-PFBS	*1.80*		µg/kg wet	2.41		75.0		55-150			
Surrogate: 13C3-PFHxS	*1.78*		µg/kg wet	2.41		73.8		55-150			
Surrogate: 13C8-PFOS	*1.59*		µg/kg wet	2.41		66.1		45-140			
Surrogate: 13C2-4:2FTS	*2.80*		µg/kg wet	4.81		**58.2**	*	60-200			Z-01a
Surrogate: 13C2-6:2FTS	*3.23*		µg/kg wet	4.81		67.2		60-200			
Surrogate: 13C2-8:2FTS	*2.92*		µg/kg wet	4.81		60.7		50-200			
Surrogate: 13C8-PFOSA	*1.71*		µg/kg wet	2.41		71.1		30-130			
Surrogate: D3-NMeFOSA	*1.15*		µg/kg wet	2.41		47.8		15-130			
Surrogate: D5-NEtFOSA	*1.17*		µg/kg wet	2.41		48.7		10-130			
Surrogate: D3-NMeFOSAA	*3.45*		µg/kg wet	4.81		71.7		45-200			
Surrogate: D5-NEtFOSAA	*3.45*		µg/kg wet	4.81		71.7		10-200			
Surrogate: D7-NMeFOSE	*16.2*		µg/kg wet	24.1		67.3		10-150			
Surrogate: D9-NEtFOSE	*15.5*		µg/kg wet	24.1		64.5		10-150			
Surrogate: 13C3-HFPO-DA	*6.36*		µg/kg wet	9.62		66.1		25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-06	Sample was extracted past the recommended holding time.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-17B	Extracted internal standard is outside of control limits. Insufficient sample volume for re-extraction.
PF-18	Duplicate analysis confirmed Extracted Internal Standard failure due to matrix effects.
Z-01	Analyte detected in method blank >1/3 MRL
Z-01a	Extracted internal standard outside of control limits. Analyte is a known difficult compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Soil	
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV
Perfluorotetradecanoic acid (PFTeDA)	NH-P,PA,WV
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA,WV
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA,WV
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA,WV
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA,WV
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV
N-EtFOSAA (NEtFOSAA)	NH-P,PA,WV
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA,WV
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA,WV
9Cl-PF3ONS (F53B Minor)	NH-P,PA,WV
11Cl-PF3OUdS (F53B Major)	NH-P,PA,WV
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA,WV
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,PA,WV
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2024
RI	Rhode Island Department of Health	LAO00373	12/30/2023
NC	North Carolina Div. of Water Quality	652	12/31/2023
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2023
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

2310445 HF

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier_____X

☐ Samples Pre-Logged into eCOC

State Of Origin: IL

Cert. Needed: [X] Yes ☐ No

Workorder: 40268905 Workorder Name: PFAS/1633 BIOSOLIDS

Owner Received Date: 10/3/2023 Results Requested By: 10/31/2023

Report To

Cindy Varga
Pace Analytical Green Bay
1241 Bellevue Street
Suite 9
Green Bay, WI 54302
Phone (920)469-2436

Subcontract To

Pace New England
39 Spruce St.
East Longmeadow, MA 01028
Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: 1633 PFAS	LAB USE ONLY
1	CLASSIFIERS 3 100323	PS	10/3/2023 10:06	40268905001	Solid	1	X	
2	FIELD BLANK 1002323	PS	10/3/2023 10:06	40268905002	Water	1	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	10/3/23 5:00	FedEx	10/3/23 5:00
2			[signature]	10-4-23 0954
3				

Comments

Need dry weight and wet weight report

Cooler Temperature on Receipt 3.2 °C | Custody Seal Y or (N) AAK | Received on Ice (Y) or N | Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

Fed Sign

FedEx® Tracking Track Another Shipment Local Scan Time Help

DELIVERED

Wednesday

10/4/23 at 9:54 AM

Signed for by: L.ARROYO

Obtain proof of delivery

DELIVERY STATUS

Delivered

TRACKING ID

621806445619

FROM
Schaumburg, IL US
Label Created
10/3/23 4:08 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
10/3/23 4:44 PM

IN TRANSIT
WINDSOR LOCKS, CT
10/4/23 7:26 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
10/4/23 7:34 AM

DELIVERED
east longmeadow, MA US
Delivered
10/4/23 at 9:54 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL
Contestlab39

SUBMIT

MORE OPTIONS

Manage Delivery

Shipment facts

Shipment overview

TRACKING NUMBER	621806445619
DELIVERED TO	Shipping/Receiving
SHIP DATE	10/3/23
STANDARD TRANSIT	10/4/23 before 10:30 AM
ACTUAL DELIVERY	10/4/23 at 9:54 AM

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client Pace

Project PFAS/1633 Biosolids

MCP/RCP Required MA

Deliverable Package Requirement MA

Location PFAS/1633 Biosolids

PWSID# (When Applicable) N/A

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time AM 10/4/23 937

Back-Sheet By / Date / Time LA 10/4/23 1339

Temperature Method Gun #3

Temp ☑ < 6° C Actual Temperature 3.2

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client	☑	Analysis	☑
Project	☑	IDs	☑
Sampler Name	☐		
Collection Date/Time	☑		

All Samples Proper pH: (N/A) ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Sample			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16oz Amb/Clear	Soils Jars	(Circle Amb/Clear)																				
8oz Amb/Clear																						
4oz Amb/Clear																						
2oz Amb/Clear																						
Unpreserved	Ambers	1 Liter																				
HCL																						
Sulfuric																						
Sulfuric		250mL																				
Phosphoric																						
HCl																						
Unpreserved		100mL																				
Unpreserved	Plastics	1 Liter																				
Sulfuric																						
Unpreserved		500mL																				
Sulfuric																						
Unpreserved		250mL	X	1																		
Trizma			(A)																			
Sulfuric																						
Nitric																						
NaOH																						
Ammonium Acetate																						
NaOH/Zinc																						
Unpreserved	VOA Vials																					
HCl																						
MeOH																						
D.I. Water																						
BiSulfate																						
Col/Bact	Other / Fill in																					
125mL Plastic			-																			

Qualtrax ID: 120836

11

CDPHE PFAS SAMPLING

NOVEMBER 7, 2023

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40270684

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

December 12, 2023

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633 BIOSOLIDS
Pace Project No.: 40270684

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on November 07, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jon Gibson, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glen Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633 BIOSOLIDS
Pace Project No.: 40270684

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40270684001	**CLASSIFIER 1 110723**	Solid	11/07/23 08:00	11/07/23 10:45
40270684002	**FIELD BLANK 110723**	Water	11/07/23 08:00	11/07/23 10:45

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To: Same	Attention: Veolia Support Services North
6001 W. Pershing Rd	Copy To:	Company Name: Veolia Support Services North
Cicero, IL 60804		Address: 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To: cletus.ketter@veolia.com	Purchase Order No: 1000235497	Pace Quote Reference: na
Phone: 708 652 0575 Fax: N/A	Project Name: PFAS/1633	Pace Project Manager: Cindy Varga
Requested Due Date/TAT:	Project Number: NA	Pace Profile #: 5083

REGULATORY AGENCY

_NPDES _GROUND WATER _DRINKING WATER

_UST _RCRA OTHER X

SITE LOCATION: _GA X IL _IN _MI _NC _OH _SC _WI OTHER

Filtered (Y/N): N

Section D Required Client Information

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER / DW; WATER / WT; WASTE WATER / WW; PRODUCT / P; SOIL/SOLID / SL; OIL / OL; WIPE / WP; AIR / AR; OTHER / OT; TISSUE / TS

ITEM #	SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives: Unpreserved	Analysis: 1633 PFAS	Residual Chlorine	Pace Project Number / Lab I.D
1	Classifier1_110723	SL	G	11-7-23	8:00AM			1		X		
2	Field Blank BLANK_110723	W		11-7-23	8:00AM			1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO#: 40270684

40270684

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Mike K	11-7-23	10:45am	Mike K	11/7/23	10:45
Mike K	11/7/23	5:00	FedEx	11/7/23	5:00
CS Gibson	11/8/23	0900	[signature]	11/8/23	0900

SAMPLE CONDITIONS

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	(Y)	(Y)	(Y)
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jon A. Gibson

SIGNATURE of SAMPLER: Jon A. Gibson

DATE Signed (MM / DD / YY): 11-7-2023

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December 12, 2023

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633 BIOSOLIDS
Client Job Number:
Project Number: 40270684
Laboratory Work Order Number: 23K0982

Enclosed are results of analyses for samples as received by the laboratory on November 8, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 12/12/2023

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40270684

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23K0982

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

PROJECT LOCATION: PFAS/1633 BIOSOLIDS

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
CLASSIFIER 1 110723	23K0982-01	Biosolids		Draft Method 1633	
				SM 2540G	
FIELD BLANK 110723	23K0982-02	Field Blank		Draft Method 1633	
CLASSIFIER 1 110723- Wet	23K0982-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C8-PFOA
23K0982-02[FIELD BLANK 110723]

Perfluorooctanoic acid (PFOA)
23K0982-02[FIELD BLANK 110723]

V-20

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

Analyte & Samples(s) Qualified:

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
S097280-CCV2

N-EtFOSAA (NEtFOSAA)
S097280-CCV4

V-32

Opening calibration verification was within control criteria. Closing calibration verification was outside of criteria and biased on the high side. Re-analysis yielded similar non-conformance, matrix interference confirmed.

Analyte & Samples(s) Qualified:

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
S097181-CCV2

Z-01

Analyte detected in method blank >1/3 MRL

Analyte & Samples(s) Qualified:

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
B357563-BLK1

Z-01a

Extracted internal standard outside of control limits. Analyte is a known difficult compound.

Analyte & Samples(s) Qualified:

13C2-4:2FTS
23K0982-01RE1[CLASSIFIER 1 110723], 23K0982-02[FIELD BLANK 110723], 23K0982-03[CLASSIFIER 1 110723- Wet], B359064-BLK1, B359064-BS1, B359064-MRL1

13C2-6:2FTS
23K0982-02[FIELD BLANK 110723]

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FT
23K0982-01RE1[CLASSIFIER 1 110723], 23K0982-02[FIELD BLANK 110723], 23K0982-03[CLASSIFIER 1 110723- Wet], B359064-BLK1, B359064-BS1, B359064-MRL1

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
23K0982-02[FIELD BLANK 110723]

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

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test®
A Pace Analytical® Laboratory

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

Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: CLASSIFIER 1 110723
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	1.7	7.7	1.3	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoropentanoic acid (PFPeA)	ND	3.9	0.18	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorohexanoic acid (PFHxA)	1.1	1.9	0.097	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoroheptanoic acid (PFHpA)	ND	1.9	0.15	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorooctanoic acid (PFOA)	0.50	1.9	0.28	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorononanoic acid (PFNA)	0.38	1.9	0.25	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorodecanoic acid (PFDA)	1.2	1.9	0.15	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoroundecanoic acid (PFUnA)	0.75	1.9	0.14	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorododecanoic acid (PFDoA)	1.7	1.9	0.15	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorotridecanoic acid (PFTrDA)	0.40	1.9	0.26	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorotetradecanoic acid (PFTeDA)	0.51	1.9	0.13	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	0.14	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	0.19	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	0.24	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoroheptanesulfonic acid (PFHpS)	41	1.9	0.16	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorooctanesulfonic acid (PFOS)	7.4	1.9	0.15	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorononanesulfonic acid (PFNS)	1.8	1.9	0.29	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.16	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorododecanesulfonic acid (PFDoS)	ND	1.9	0.17	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.7	0.37	µg/kg dry	1	Z-01a	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.7	0.79	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.89	7.7	0.35	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluorooctanesulfonamide (PFOSA)	0.36	1.9	0.087	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.9	0.18	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.9	0.14	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
N-MeFOSAA (NMeFOSAA)	2.4	1.9	0.27	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
N-EtFOSAA (NEtFOSAA)	2.3	1.9	0.41	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	1.5	19	0.91	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	2.2	19	1.6	µg/kg dry	1	J	Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.7	0.47	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.7	0.78	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
9Cl-PF3ONS (F53B Minor)	ND	7.7	0.75	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
11Cl-PF3OUdS (F53B Major)	ND	7.7	1.0	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	19	1.6	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	97	12	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	97	9.0	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.9	0.19	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.9	0.41	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW

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Project Location: PFAS/1633 BIOSOLIDS | Sample Description: | Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: CLASSIFIER 1 110723 | Sampled: 11/7/2023 08:00

Sample ID: 23K0982-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.9	0.30	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.9	0.34	µg/kg dry	1		Draft Method 1633	12/6/23	12/8/23 16:18	QNW

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	40.5		10-130		12/8/23 16:18
13C5-PFPeA	50.4		35-150		12/8/23 16:18
13C5-PFHxA	61.1		55-150		12/8/23 16:18
13C4-PFHpA	64.3		55-150		12/8/23 16:18
13C8-PFOA	61.5		60-140		12/8/23 16:18
13C9-PFNA	60.1		55-140		12/8/23 16:18
13C6-PFDA	62.2		50-140		12/8/23 16:18
13C7-PFUnA	51.5		30-140		12/8/23 16:18
13C2-PFDoA	52.5		10-150		12/8/23 16:18
13C2-PFTeDA	46.9		10-130		12/8/23 16:18
13C3-PFBS	61.4		55-150		12/8/23 16:18
13C3-PFHxS	64.6		55-150		12/8/23 16:18
13C8-PFOS	62.6		45-150		12/8/23 16:18
13C2-4:2FTS	**52.9**	*	60-200	Z-01a	12/8/23 16:18
13C2-6:2FTS	71.9		60-200		12/8/23 16:18
13C2-8:2FTS	110		50-200		12/8/23 16:18
13C8-PFOSA	50.7		30-130		12/8/23 16:18
D3-NMeFOSA	31.4		15-130		12/8/23 16:18
D5-NEtFOSA	21.9		10-130		12/8/23 16:18
D3-NMeFOSAA	53.5		45-200		12/8/23 16:18
D5-NEtFOSAA	33.2		10-200		12/8/23 16:18
D7-NMeFOSE	15.0		10-150		12/8/23 16:18
D9-NEtFOSE	26.2		10-150		12/8/23 16:18
13C3-HFPO-DA	57.8		25-160		12/8/23 16:18

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: CLASSIFIER 1 110723
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	96.5		% Wt	1		SM 2540G	11/9/23	11/9/23 9:06	DV

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: FIELD BLANK 110723
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.9	2.8	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoropentanoic acid (PFPeA)	ND	3.9	0.68	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorohexanoic acid (PFHxA)	ND	2.0	0.42	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoroheptanoic acid (PFHpA)	ND	2.0	0.50	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorooctanoic acid (PFOA)	ND	2.0	0.44	ng/L	1	S-29	Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorononanoic acid (PFNA)	ND	2.0	0.38	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorodecanoic acid (PFDA)	ND	2.0	0.36	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoroundecanoic acid (PFUnA)	ND	2.0	0.54	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorododecanoic acid (PFDoA)	ND	2.0	0.51	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	0.53	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	2.0	0.49	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	0.51	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	0.47	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	0.40	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	0.60	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	0.62	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorononanesulfonic acid (PFNS)	ND	2.0	0.58	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	0.61	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	2.0	0.52	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.9	1.4	ng/L	1	Z-01a	Draft Method 1633	11/30/23	12/1/23 16:30	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.9	1.9	ng/L	1	Z-01a	Draft Method 1633	11/30/23	12/1/23 16:30	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.9	2.1	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	2.0	0.60	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	2.0	0.82	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	2.0	0.61	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
N-MeFOSAA (NMeFOSAA)	ND	2.0	0.86	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
N-EtFOSAA (NEtFOSAA)	ND	2.0	0.43	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	20	5.2	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	20	4.8	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.9	2.1	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.9	1.3	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.9	1.7	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.9	1.9	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	20	3.5	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	98	20	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	98	17	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.9	0.96	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.9	0.98	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: FIELD BLANK 110723
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.9	0.79	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.9	1.7	ng/L	1		Draft Method 1633	11/30/23	12/1/23 16:30	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	65.0		10-130		12/1/23 16:30
13C5-PFPeA	62.3		35-150		12/1/23 16:30
13C5-PFHxA	60.4		55-150		12/1/23 16:30
13C4-PFHpA	57.6		55-150		12/1/23 16:30
13C8-PFOA	**56.7**	*	60-140	S-29	12/1/23 16:30
13C9-PFNA	58.1		55-140		12/1/23 16:30
13C6-PFDA	56.4		50-140		12/1/23 16:30
13C7-PFUnA	58.4		30-140		12/1/23 16:30
13C2-PFDoA	53.9		10-150		12/1/23 16:30
13C2-PFTeDA	46.6		10-130		12/1/23 16:30
13C3-PFBS	66.7		55-150		12/1/23 16:30
13C3-PFHxS	64.2		55-150		12/1/23 16:30
13C8-PFOS	59.6		45-140		12/1/23 16:30
13C2-4:2FTS	**47.0**	*	60-200	Z-01a	12/1/23 16:30
13C2-6:2FTS	**55.0**	*	60-200	Z-01a	12/1/23 16:30
13C2-8:2FTS	54.2		50-200		12/1/23 16:30
13C8-PFOSA	47.9		30-130		12/1/23 16:30
D3-NMeFOSA	46.3		15-130		12/1/23 16:30
D5-NEtFOSA	48.2		10-130		12/1/23 16:30
D3-NMeFOSAA	58.3		45-200		12/1/23 16:30
D5-NEtFOSAA	55.6		10-200		12/1/23 16:30
D7-NMeFOSE	49.1		10-150		12/1/23 16:30
D9-NEtFOSE	47.5		10-150		12/1/23 16:30
13C3-HFPO-DA	59.3		25-160		12/1/23 16:30

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: FIELD BLANK 110723
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	11/14/23	11/14/23 6:21	LL

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: CLASSIFIER 1 110723- Wet
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	1.5	6.8	1.2	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoropentanoic acid (PFPeA)	ND	3.4	0.16	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorohexanoic acid (PFHxA)	0.93	1.7	0.085	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.13	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorooctanoic acid (PFOA)	0.44	1.7	0.25	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorononanoic acid (PFNA)	0.34	1.7	0.22	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorodecanoic acid (PFDA)	1.0	1.7	0.14	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoroundecanoic acid (PFUnA)	0.66	1.7	0.12	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorododecanoic acid (PFDoA)	1.5	1.7	0.14	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorotridecanoic acid (PFTrDA)	0.35	1.7	0.23	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.45	1.7	0.11	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.12	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	0.17	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.21	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoroheptanesulfonic acid (PFHpS)	36	1.7	0.15	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorooctanesulfonic acid (PFOS)	6.5	1.7	0.14	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorononanesulfonic acid (PFNS)	1.6	1.7	0.26	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.15	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.7	0.15	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.8	0.32	µg/kg wet	1	Z-01a	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.8	0.70	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.78	6.8	0.31	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluorooctanesulfonamide (PFOSA)	0.32	1.7	0.077	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.7	0.16	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.7	0.12	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
N-MeFOSAA (NMeFOSAA)	2.1	1.7	0.24	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
N-EtFOSAA (NEtFOSAA)	2.0	1.7	0.36	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	1.3	17	0.80	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.9	17	1.4	µg/kg wet	1	J	Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.8	0.42	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.8	0.69	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.8	0.66	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.8	0.90	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	17	1.4	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	85	10	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	85	7.9	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.4	0.17	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.4	0.36	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS

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Project Location: PFAS/1633 BIOSOLIDS
Sample Description:
Work Order: 23K0982

Date Received: 11/8/2023

Field Sample #: CLASSIFIER 1 110723- Wet
Sampled: 11/7/2023 08:00

Sample ID: 23K0982-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.4	0.26	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.4	0.30	µg/kg wet	1		Draft Method 1633	11/13/23	12/8/23 16:18	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	40.5		10-130		12/8/23 16:18
13C5-PFPeA	50.4		35-150		12/8/23 16:18
13C5-PFHxA	61.1		55-150		12/8/23 16:18
13C4-PFHpA	64.3		55-150		12/8/23 16:18
13C8-PFOA	61.5		60-140		12/8/23 16:18
13C9-PFNA	60.1		55-140		12/8/23 16:18
13C6-PFDA	62.2		50-140		12/8/23 16:18
13C7-PFUnA	51.5		30-140		12/8/23 16:18
13C2-PFDoA	52.5		10-150		12/8/23 16:18
13C2-PFTeDA	46.9		10-130		12/8/23 16:18
13C3-PFBS	61.4		55-150		12/8/23 16:18
13C3-PFHxS	64.6		55-150		12/8/23 16:18
13C8-PFOS	62.6		45-150		12/8/23 16:18
13C2-4:2FTS	**52.9**	*	60-200	Z-01a	12/8/23 16:18
13C2-6:2FTS	71.9		60-200		12/8/23 16:18
13C2-8:2FTS	110		50-200		12/8/23 16:18
13C8-PFOSA	50.7		30-130		12/8/23 16:18
D3-NMeFOSA	31.4		15-130		12/8/23 16:18
D5-NEtFOSA	21.9		10-130		12/8/23 16:18
D3-NMeFOSAA	53.5		45-200		12/8/23 16:18
D5-NEtFOSAA	33.2		10-200		12/8/23 16:18
D7-NMeFOSE	15.0		10-150		12/8/23 16:18
D9-NEtFOSE	26.2		10-150		12/8/23 16:18
13C3-HFPO-DA	57.8		25-160		12/8/23 16:18

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23K0982-03 [CLASSIFIER 1 110723- Wet]	B357563	0.586	5.00	11/13/23

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23K0982-01RE1 [CLASSIFIER 1 110723]	B359064	0.535	5.00	12/06/23

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 11/14/2023 per NO PREP in Batch B358043**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23K0982-02 [FIELD BLANK 110723]	B357821	255	5.00	11/30/23

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
23K0982-02 [FIELD BLANK 110723]	B358043	50.0	11/14/23

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

Lab Number [Field ID]	Batch	Date
23K0982-01 [CLASSIFIER 1 110723]	B357627	11/09/23

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357563 - Draft Method 1633										
Blank (B357563-BLK1)				Prepared: 11/13/23 Analyzed: 11/14/23						
Perfluorobutanoic acid (PFBA)	1.6	7.8	µg/kg wet							J
Perfluoropentanoic acid (PFPeA)	ND	3.9	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	2.0	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	2.0	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	2.0	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	2.0	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	2.0	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	2.0	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	2.0	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	2.0	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.8	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	5.5	7.8	µg/kg wet							Z-01, J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.8	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	2.0	µg/kg wet							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	2.0	µg/kg wet							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	2.0	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	2.0	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	2.0	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	20	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	20	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.8	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.8	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	7.8	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	7.8	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	20	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	98	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	98	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.9	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.9	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.9	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.9	µg/kg wet							
Surrogate: 13C4-PFBA	78.7		µg/kg wet	98.0		80.3	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357563 - Draft Method 1633										
Blank (B357563-BLK1)				Prepared: 11/13/23 Analyzed: 11/14/23						
Surrogate: 13C5-PFPeA	*35.2*		µg/kg wet	49.0		71.8	35-150			
Surrogate: 13C5-PFHxA	*20.3*		µg/kg wet	24.5		82.7	55-150			
Surrogate: 13C4-PFHpA	*21.3*		µg/kg wet	24.5		86.9	55-150			
Surrogate: 13C8-PFOA	*21.4*		µg/kg wet	24.5		87.2	60-140			
Surrogate: 13C9-PFNA	*9.52*		µg/kg wet	12.3		77.7	55-140			
Surrogate: 13C6-PFDA	*9.98*		µg/kg wet	12.3		81.5	50-140			
Surrogate: 13C7-PFUnA	*10.2*		µg/kg wet	12.3		83.4	30-140			
Surrogate: 13C2-PFDoA	*9.28*		µg/kg wet	12.3		75.7	10-150			
Surrogate: 13C2-PFTeDA	*8.41*		µg/kg wet	12.3		68.6	10-130			
Surrogate: 13C3-PFBS	*20.3*		µg/kg wet	24.5		83.0	55-150			
Surrogate: 13C3-PFHxS	*20.3*		µg/kg wet	24.5		82.9	55-150			
Surrogate: 13C8-PFOS	*19.3*		µg/kg wet	24.5		78.8	45-150			
Surrogate: 13C2-4:2FTS	*31.8*		µg/kg wet	49.0		64.8	60-200			
Surrogate: 13C2-6:2FTS	*41.3*		µg/kg wet	49.0		84.3	60-200			
Surrogate: 13C2-8:2FTS	*38.6*		µg/kg wet	49.0		78.7	50-200			
Surrogate: 13C8-PFOSA	*20.1*		µg/kg wet	24.5		82.2	30-130			
Surrogate: D3-NMeFOSA	*13.6*		µg/kg wet	24.5		55.5	15-130			
Surrogate: D5-NEtFOSA	*14.1*		µg/kg wet	24.5		57.5	10-130			
Surrogate: D3-NMeFOSAA	*45.3*		µg/kg wet	49.0		92.5	45-200			
Surrogate: D5-NEtFOSAA	*42.9*		µg/kg wet	49.0		87.5	10-200			
Surrogate: D7-NMeFOSE	*171*		µg/kg wet	245		69.7	10-150			
Surrogate: D9-NEtFOSE	*162*		µg/kg wet	245		66.0	10-150			
Surrogate: 13C3-HFPO-DA	*80.0*		µg/kg wet	98.0		81.6	25-160			
LCS (B357563-BS1)				Prepared: 11/13/23 Analyzed: 11/14/23						
Perfluorobutanoic acid (PFBA)	80.2	6.0	µg/kg wet	72.5		111	58-148			
Perfluoropentanoic acid (PFPeA)	37.9	3.0	µg/kg wet	36.3		104	54-152			
Perfluorohexanoic acid (PFHxA)	18.3	1.5	µg/kg wet	18.1		101	55-152			
Perfluoroheptanoic acid (PFHpA)	19.1	1.5	µg/kg wet	18.1		105	54-154			
Perfluorooctanoic acid (PFOA)	17.5	1.5	µg/kg wet	18.1		96.5	52-161			
Perfluorononanoic acid (PFNA)	18.9	1.5	µg/kg wet	18.1		104	59-149			
Perfluorodecanoic acid (PFDA)	19.2	1.5	µg/kg wet	18.1		106	52-147			
Perfluoroundecanoic acid (PFUnA)	19.2	1.5	µg/kg wet	18.1		106	48-159			
Perfluorododecanoic acid (PFDoA)	19.3	1.5	µg/kg wet	18.1		106	64-142			
Perfluorotridecanoic acid (PFTrDA)	19.1	1.5	µg/kg wet	18.1		105	49-148			
Perfluorotetradecanoic acid (PFTeDA)	19.3	1.5	µg/kg wet	18.1		107	47-161			
Perfluorobutanesulfonic acid (PFBS)	16.2	1.5	µg/kg wet	16.1		101	62-144			
Perfluoropentanesulfonic acid (PFPeS)	17.8	1.5	µg/kg wet	17.0		104	59-151			
Perfluorohexanesulfonic acid (PFHxS)	17.7	1.5	µg/kg wet	16.6		107	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	18.9	1.5	µg/kg wet	17.3		109	55-152			
Perfluorooctanesulfonic acid (PFOS)	17.9	1.5	µg/kg wet	16.8		107	58-149			
Perfluorononanesulfonic acid (PFNS)	19.0	1.5	µg/kg wet	17.4		109	52-148			
Perfluorodecanesulfonic acid (PFDS)	19.1	1.5	µg/kg wet	17.5		109	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.9	1.5	µg/kg wet	17.6		107	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	67.4	6.0	µg/kg wet	68.0		99.1	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	75.0	6.0	µg/kg wet	68.9		109	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	72.2	6.0	µg/kg wet	69.8		103	63-152			
Perfluorooctanesulfonamide (PFOSA)	19.5	1.5	µg/kg wet	18.1		108	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	18.7	1.5	µg/kg wet	18.1		103	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357563 - Draft Method 1633										
LCS (B357563-BS1)				Prepared: 11/13/23 Analyzed: 11/14/23						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	19.3	1.5	µg/kg wet	18.1		107	65-139			
N-MeFOSAA (NMeFOSAA)	19.0	1.5	µg/kg wet	18.1		105	58-144			
N-EtFOSAA (NEtFOSAA)	17.0	1.5	µg/kg wet	18.1		93.5	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	193	15	µg/kg wet	181		107	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	200	15	µg/kg wet	181		111	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	77.9	6.0	µg/kg wet	72.5		107	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	70.5	6.0	µg/kg wet	68.4		103	68-146			
9Cl-PF3ONS (F53B Minor)	71.9	6.0	µg/kg wet	68.0		106	56-156			
11Cl-PF3OUdS (F53B Major)	71.6	6.0	µg/kg wet	68.4		105	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	178	15	µg/kg wet	181		98.3	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	852	76	µg/kg wet	906		94.0	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	824	76	µg/kg wet	906		90.9	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	33.4	3.0	µg/kg wet	32.3		103	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	35.3	3.0	µg/kg wet	36.3		97.3	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.8	3.0	µg/kg wet	36.3		112	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	31.4	3.0	µg/kg wet	36.3		86.7	48-161			
Surrogate: 13C4-PFBA	*57.7*		µg/kg wet	75.5		76.3	10-130			
Surrogate: 13C5-PFPeA	*25.2*		µg/kg wet	37.8		66.7	35-150			
Surrogate: 13C5-PFHxA	*14.6*		µg/kg wet	18.9		77.5	55-150			
Surrogate: 13C4-PFHpA	*15.3*		µg/kg wet	18.9		81.2	55-150			
Surrogate: 13C8-PFOA	*16.2*		µg/kg wet	18.9		85.6	60-140			
Surrogate: 13C9-PFNA	*7.03*		µg/kg wet	9.44		74.5	55-140			
Surrogate: 13C6-PFDA	*7.29*		µg/kg wet	9.44		77.3	50-140			
Surrogate: 13C7-PFUnA	*7.23*		µg/kg wet	9.44		76.6	30-140			
Surrogate: 13C2-PFDoA	*6.82*		µg/kg wet	9.44		72.2	10-150			
Surrogate: 13C2-PFTeDA	*6.23*		µg/kg wet	9.44		66.0	10-130			
Surrogate: 13C3-PFBS	*15.0*		µg/kg wet	18.9		79.6	55-150			
Surrogate: 13C3-PFHxS	*15.0*		µg/kg wet	18.9		79.3	55-150			
Surrogate: 13C8-PFOS	*13.9*		µg/kg wet	18.9		73.9	45-150			
Surrogate: 13C2-4:2FTS	*25.1*		µg/kg wet	37.8		66.4	60-200			
Surrogate: 13C2-6:2FTS	*32.1*		µg/kg wet	37.8		85.1	60-200			
Surrogate: 13C2-8:2FTS	*29.8*		µg/kg wet	37.8		79.0	50-200			
Surrogate: 13C8-PFOSA	*14.6*		µg/kg wet	18.9		77.1	30-130			
Surrogate: D3-NMeFOSA	*11.0*		µg/kg wet	18.9		58.1	15-130			
Surrogate: D5-NEtFOSA	*11.0*		µg/kg wet	18.9		58.4	10-130			
Surrogate: D3-NMeFOSAA	*33.0*		µg/kg wet	37.8		87.3	45-200			
Surrogate: D5-NEtFOSAA	*31.1*		µg/kg wet	37.8		82.2	10-200			
Surrogate: D7-NMeFOSE	*127*		µg/kg wet	189		67.5	10-150			
Surrogate: D9-NEtFOSE	*114*		µg/kg wet	189		60.4	10-150			
Surrogate: 13C3-HFPO-DA	*57.9*		µg/kg wet	75.5		76.7	25-160			
MRL Check (B357563-MRL1)				Prepared: 11/13/23 Analyzed: 11/14/23						
Perfluorobutanoic acid (PFBA)	8.66	6.5	µg/kg wet	6.47		134	44-157			
Perfluoropentanoic acid (PFPeA)	3.44	3.2	µg/kg wet	3.24		106	57-148			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357563 - Draft Method 1633										
MRL Check (B357563-MRL1)				Prepared: 11/13/23 Analyzed: 11/14/23						
Perfluorohexanoic acid (PFHxA)	1.67	1.6	µg/kg wet	1.62		103	62-149			
Perfluoroheptanoic acid (PFHpA)	1.77	1.6	µg/kg wet	1.62		109	56-150			
Perfluorooctanoic acid (PFOA)	1.48	1.6	µg/kg wet	1.62		91.6	57-161			J
Perfluorononanoic acid (PFNA)	1.73	1.6	µg/kg wet	1.62		107	53-157			
Perfluorodecanoic acid (PFDA)	1.70	1.6	µg/kg wet	1.62		105	43-158			
Perfluoroundecanoic acid (PFUnA)	1.53	1.6	µg/kg wet	1.62		94.3	50-155			J
Perfluorododecanoic acid (PFDoA)	1.71	1.6	µg/kg wet	1.62		105	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.67	1.6	µg/kg wet	1.62		103	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.66	1.6	µg/kg wet	1.62		103	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.45	1.6	µg/kg wet	1.44		101	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.69	1.6	µg/kg wet	1.52		111	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.65	1.6	µg/kg wet	1.48		111	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.55	1.6	µg/kg wet	1.54		101	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.73	1.6	µg/kg wet	1.50		115	43-162			
Perfluorononanesulfonic acid (PFNS)	1.89	1.6	µg/kg wet	1.56		122	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.62	1.6	µg/kg wet	1.56		104	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.64	1.6	µg/kg wet	1.57		105	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	5.97	6.5	µg/kg wet	6.07		98.3	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.71	6.5	µg/kg wet	6.15		109	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.24	6.5	µg/kg wet	6.23		100	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.75	1.6	µg/kg wet	1.62		108	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.52	1.6	µg/kg wet	1.62		93.9	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.44	1.6	µg/kg wet	1.62		88.9	49-156			J
N-MeFOSAA (NMeFOSAA)	1.78	1.6	µg/kg wet	1.62		110	32-160			
N-EtFOSAA (NEtFOSAA)	1.45	1.6	µg/kg wet	1.62		89.5	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	15.0	16	µg/kg wet	16.2		92.8	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	15.7	16	µg/kg wet	16.2		97.2	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.93	6.5	µg/kg wet	6.47		107	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.40	6.5	µg/kg wet	6.11		105	61-148			J
9Cl-PF3ONS (F53B Minor)	6.59	6.5	µg/kg wet	6.07		109	44-167			
11Cl-PF3OUdS (F53B Major)	6.45	6.5	µg/kg wet	6.11		106	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	14.7	16	µg/kg wet	16.2		90.7	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	70.2	81	µg/kg wet	80.9		86.8	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	66.1	81	µg/kg wet	80.9		81.7	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.86	3.2	µg/kg wet	2.88		99.2	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.20	3.2	µg/kg wet	3.24		98.9	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.49	3.2	µg/kg wet	3.24		108	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.77	3.2	µg/kg wet	3.24		85.6	47-160			J
Surrogate: 13C4-PFBA	*62.5*		µg/kg wet	80.9		77.3	10-130			
Surrogate: 13C5-PFPeA	*27.0*		µg/kg wet	40.5		66.8	35-150			
Surrogate: 13C5-PFHxA	*15.5*		µg/kg wet	20.2		76.4	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357563 - Draft Method 1633										
MRL Check (B357563-MRL1)				Prepared: 11/13/23 Analyzed: 11/14/23						
Surrogate: 13C4-PFHpA	*16.4*		µg/kg wet	20.2		80.9	55-150			
Surrogate: 13C8-PFOA	*17.3*		µg/kg wet	20.2		85.4	60-140			
Surrogate: 13C9-PFNA	*7.61*		µg/kg wet	10.1		75.3	55-140			
Surrogate: 13C6-PFDA	*7.84*		µg/kg wet	10.1		77.6	50-140			
Surrogate: 13C7-PFUnA	*8.04*		µg/kg wet	10.1		79.5	30-140			
Surrogate: 13C2-PFDoA	*7.29*		µg/kg wet	10.1		72.1	10-150			
Surrogate: 13C2-PFTeDA	*6.36*		µg/kg wet	10.1		62.9	10-130			
Surrogate: 13C3-PFBS	*16.3*		µg/kg wet	20.2		80.7	55-150			
Surrogate: 13C3-PFHxS	*16.1*		µg/kg wet	20.2		79.6	55-150			
Surrogate: 13C8-PFOS	*15.9*		µg/kg wet	20.2		78.8	45-150			
Surrogate: 13C2-4:2FTS	*26.0*		µg/kg wet	40.5		64.4	60-200			
Surrogate: 13C2-6:2FTS	*33.6*		µg/kg wet	40.5		83.0	60-200			
Surrogate: 13C2-8:2FTS	*31.8*		µg/kg wet	40.5		78.6	50-200			
Surrogate: 13C8-PFOSA	*16.4*		µg/kg wet	20.2		80.9	30-130			
Surrogate: D3-NMeFOSA	*11.4*		µg/kg wet	20.2		56.1	15-130			
Surrogate: D5-NEtFOSA	*11.3*		µg/kg wet	20.2		55.7	10-130			
Surrogate: D3-NMeFOSAA	*37.0*		µg/kg wet	40.5		91.5	45-200			
Surrogate: D5-NEtFOSAA	*35.2*		µg/kg wet	40.5		86.9	10-200			
Surrogate: D7-NMeFOSE	*132*		µg/kg wet	202		65.4	10-150			
Surrogate: D9-NEtFOSE	*118*		µg/kg wet	202		58.3	10-150			
Surrogate: 13C3-HFPO-DA	*61.5*		µg/kg wet	80.9		76.0	25-160			
Batch B357821 - Draft Method 1633										
Blank (B357821-BLK1)				Prepared: 11/30/23 Analyzed: 12/01/23						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.98	ng/L							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357821 - Draft Method 1633										
Blank (B357821-BLK1)				Prepared: 11/30/23 Analyzed: 12/01/23						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*86.7*		ng/L	97.6		88.8	10-130			
Surrogate: 13C5-PFPeA	*42.4*		ng/L	48.8		86.8	35-150			
Surrogate: 13C5-PFHxA	*21.6*		ng/L	24.4		88.6	55-150			
Surrogate: 13C4-PFHpA	*21.4*		ng/L	24.4		87.8	55-150			
Surrogate: 13C8-PFOA	*20.8*		ng/L	24.4		85.4	60-140			
Surrogate: 13C9-PFNA	*10.8*		ng/L	12.2		88.9	55-140			
Surrogate: 13C6-PFDA	*10.6*		ng/L	12.2		86.6	50-140			
Surrogate: 13C7-PFUnA	*10.8*		ng/L	12.2		88.4	30-140			
Surrogate: 13C2-PFDoA	*10.0*		ng/L	12.2		82.1	10-150			
Surrogate: 13C2-PFTeDA	*9.87*		ng/L	12.2		80.8	10-130			
Surrogate: 13C3-PFBS	*21.0*		ng/L	24.4		86.2	55-150			
Surrogate: 13C3-PFHxS	*21.6*		ng/L	24.4		88.5	55-150			
Surrogate: 13C8-PFOS	*20.9*		ng/L	24.4		85.5	45-140			
Surrogate: 13C2-4:2FTS	*33.5*		ng/L	48.8		68.6	60-200			
Surrogate: 13C2-6:2FTS	*42.5*		ng/L	48.8		87.0	60-200			
Surrogate: 13C2-8:2FTS	*40.2*		ng/L	48.8		82.3	50-200			
Surrogate: 13C8-PFOSA	*18.4*		ng/L	24.4		75.3	30-130			
Surrogate: D3-NMeFOSA	*16.0*		ng/L	24.4		65.6	15-130			
Surrogate: D5-NEtFOSA	*17.7*		ng/L	24.4		72.5	10-130			
Surrogate: D3-NMeFOSAA	*40.9*		ng/L	48.8		83.8	45-200			
Surrogate: D5-NEtFOSAA	*38.0*		ng/L	48.8		77.8	10-200			
Surrogate: D7-NMeFOSE	*186*		ng/L	244		76.1	10-150			
Surrogate: D9-NEtFOSE	*189*		ng/L	244		77.4	10-150			
Surrogate: 13C3-HFPO-DA	*85.1*		ng/L	97.6		87.2	25-160			
LCS (B357821-BS1)				Prepared: 11/30/23 Analyzed: 12/01/23						
Perfluorobutanoic acid (PFBA)	99.7	3.9	ng/L	93.6		107	58-148			
Perfluoropentanoic acid (PFPeA)	48.6	2.0	ng/L	46.8		104	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357821 - Draft Method 1633										
LCS (B357821-BS1)				Prepared: 11/30/23 Analyzed: 12/01/23						
Perfluorohexanoic acid (PFHxA)	24.5	0.98	ng/L	23.4		105	55-152			
Perfluoroheptanoic acid (PFHpA)	24.4	0.98	ng/L	23.4		104	54-154			
Perfluorooctanoic acid (PFOA)	24.2	0.98	ng/L	23.4		103	52-161			
Perfluorononanoic acid (PFNA)	24.6	0.98	ng/L	23.4		105	59-149			
Perfluorodecanoic acid (PFDA)	25.3	0.98	ng/L	23.4		108	52-147			
Perfluoroundecanoic acid (PFUnA)	24.7	0.98	ng/L	23.4		105	48-159			
Perfluorododecanoic acid (PFDoA)	24.1	0.98	ng/L	23.4		103	64-142			
Perfluorotridecanoic acid (PFTrDA)	24.6	0.98	ng/L	23.4		105	49-148			
Perfluorotetradecanoic acid (PFTeDA)	24.6	0.98	ng/L	23.4		105	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.6	0.98	ng/L	20.8		104	62-144			
Perfluoropentanesulfonic acid (PFPeS)	22.6	0.98	ng/L	22.0		103	59-151			
Perfluorohexanesulfonic acid (PFHxS)	21.7	0.98	ng/L	21.4		101	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.8	0.98	ng/L	22.3		102	55-152			
Perfluorooctanesulfonic acid (PFOS)	21.1	0.98	ng/L	21.7		97.1	58-149			
Perfluorononanesulfonic acid (PFNS)	22.8	0.98	ng/L	22.5		101	52-148			
Perfluorodecanesulfonic acid (PFDS)	21.7	0.98	ng/L	22.6		96.0	51-147			
Perfluorododecanesulfonic acid (PFDoS)	21.1	0.98	ng/L	22.7		93.1	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	94.9	3.9	ng/L	87.8		108	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	99.0	3.9	ng/L	88.9		111	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	103	3.9	ng/L	90.1		114	63-152			
Perfluorooctanesulfonamide (PFOSA)	24.8	0.98	ng/L	23.4		106	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	23.7	0.98	ng/L	23.4		101	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	23.3	0.98	ng/L	23.4		99.4	65-139			
N-MeFOSAA (NMeFOSAA)	24.3	0.98	ng/L	23.4		104	58-144			
N-EtFOSAA (NEtFOSAA)	25.6	0.98	ng/L	23.4		109	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	246	9.8	ng/L	234		105	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	254	9.8	ng/L	234		108	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	96.7	3.9	ng/L	93.6		103	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	86.9	3.9	ng/L	88.3		98.3	68-146			
9Cl-PF3ONS (F53B Minor)	86.7	3.9	ng/L	87.8		98.8	56-156			
11Cl-PF3OUdS (F53B Major)	88.0	3.9	ng/L	88.3		99.6	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	240	9.8	ng/L	234		103	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1220	49	ng/L	1170		104	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1140	49	ng/L	1170		97.8	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	45.1	2.0	ng/L	41.7		108	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	46.6	2.0	ng/L	46.8		99.6	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	48.2	2.0	ng/L	46.8		103	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	49.5	2.0	ng/L	46.8		106	48-161			
Surrogate: 13C4-PFBA	*85.2*		ng/L	97.5		87.4	10-130			
Surrogate: 13C5-PFPeA	*42.2*		ng/L	48.8		86.5	35-150			
Surrogate: 13C5-PFHxA	*21.2*		ng/L	24.4		87.1	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357821 - Draft Method 1633										
LCS (B357821-BS1)				Prepared: 11/30/23 Analyzed: 12/01/23						
Surrogate: 13C4-PFHpA	*21.4*		ng/L	24.4		87.7	55-150			
Surrogate: 13C8-PFOA	*20.6*		ng/L	24.4		84.5	60-140			
Surrogate: 13C9-PFNA	*10.6*		ng/L	12.2		86.8	55-140			
Surrogate: 13C6-PFDA	*10.5*		ng/L	12.2		85.8	50-140			
Surrogate: 13C7-PFUnA	*10.4*		ng/L	12.2		85.0	30-140			
Surrogate: 13C2-PFDoA	*9.82*		ng/L	12.2		80.5	10-150			
Surrogate: 13C2-PFTeDA	*9.52*		ng/L	12.2		78.1	10-130			
Surrogate: 13C3-PFBS	*20.2*		ng/L	24.4		82.9	55-150			
Surrogate: 13C3-PFHxS	*21.0*		ng/L	24.4		86.1	55-150			
Surrogate: 13C8-PFOS	*21.7*		ng/L	24.4		89.0	45-140			
Surrogate: 13C2-4:2FTS	*34.3*		ng/L	48.8		70.4	60-200			
Surrogate: 13C2-6:2FTS	*43.9*		ng/L	48.8		90.1	60-200			
Surrogate: 13C2-8:2FTS	*41.2*		ng/L	48.8		84.5	50-200			
Surrogate: 13C8-PFOSA	*18.9*		ng/L	24.4		77.5	30-130			
Surrogate: D3-NMeFOSA	*17.8*		ng/L	24.4		73.0	15-130			
Surrogate: D5-NEtFOSA	*18.6*		ng/L	24.4		76.4	10-130			
Surrogate: D3-NMeFOSAA	*40.8*		ng/L	48.8		83.6	45-200			
Surrogate: D5-NEtFOSAA	*37.9*		ng/L	48.8		77.7	10-200			
Surrogate: D7-NMeFOSE	*191*		ng/L	244		78.4	10-150			
Surrogate: D9-NEtFOSE	*190*		ng/L	244		78.1	10-150			
Surrogate: 13C3-HFPO-DA	*84.3*		ng/L	97.5		86.5	25-160			
MRL Check (B357821-MRL1)				Prepared: 11/30/23 Analyzed: 12/01/23						
Perfluorobutanoic acid (PFBA)	10.6	3.9	ng/L	7.84		135	44-157			
Perfluoropentanoic acid (PFPeA)	4.57	2.0	ng/L	3.92		117	57-148			
Perfluorohexanoic acid (PFHxA)	2.26	0.98	ng/L	1.96		115	62-149			
Perfluoroheptanoic acid (PFHpA)	2.25	0.98	ng/L	1.96		115	56-150			
Perfluorooctanoic acid (PFOA)	2.26	0.98	ng/L	1.96		115	57-161			
Perfluorononanoic acid (PFNA)	1.86	0.98	ng/L	1.96		95.2	53-157			
Perfluorodecanoic acid (PFDA)	2.25	0.98	ng/L	1.96		115	43-158			
Perfluoroundecanoic acid (PFUnA)	2.20	0.98	ng/L	1.96		112	50-155			
Perfluorododecanoic acid (PFDoA)	2.22	0.98	ng/L	1.96		113	60-141			
Perfluorotridecanoic acid (PFTrDA)	2.28	0.98	ng/L	1.96		117	52-140			
Perfluorotetradecanoic acid (PFTeDA)	2.29	0.98	ng/L	1.96		117	52-156			
Perfluorobutanesulfonic acid (PFBS)	2.00	0.98	ng/L	1.74		115	63-145			
Perfluoropentanesulfonic acid (PFPeS)	2.20	0.98	ng/L	1.84		119	58-144			
Perfluorohexanesulfonic acid (PFHxS)	2.10	0.98	ng/L	1.79		117	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	2.28	0.98	ng/L	1.87		122	51-150			
Perfluorooctanesulfonic acid (PFOS)	2.33	0.98	ng/L	1.82		128	43-162			
Perfluorononanesulfonic acid (PFNS)	2.05	0.98	ng/L	1.89		109	46-151			
Perfluorodecanesulfonic acid (PFDS)	2.10	0.98	ng/L	1.89		111	50-144			
Perfluorododecanesulfonic acid (PFDoS)	2.01	0.98	ng/L	1.90		106	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	8.31	3.9	ng/L	7.35		113	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	8.73	3.9	ng/L	7.45		117	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	8.64	3.9	ng/L	7.54		114	46-165			
Perfluorooctanesulfonamide (PFOSA)	2.35	0.98	ng/L	1.96		120	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.97	0.98	ng/L	1.96		101	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.95	0.98	ng/L	1.96		99.4	49-156			
N-MeFOSAA (NMeFOSAA)	2.32	0.98	ng/L	1.96		118	32-160			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B357821 - Draft Method 1633										
MRL Check (B357821-MRL1)				Prepared: 11/30/23 Analyzed: 12/01/23						
N-EtFOSAA (NEtFOSAA)	2.54	0.98	ng/L	1.96		130	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	20.0	9.8	ng/L	19.6		102	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	20.4	9.8	ng/L	19.6		104	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.54	3.9	ng/L	7.84		109	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.48	3.9	ng/L	7.40		101	61-148			
9Cl-PF3ONS (F53B Minor)	7.37	3.9	ng/L	7.35		100	44-167			
11Cl-PF3OUdS (F53B Major)	7.33	3.9	ng/L	7.40		99.1	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	19.7	9.8	ng/L	19.6		101	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	96.1	49	ng/L	98.0		98.1	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	89.0	49	ng/L	98.0		90.9	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.64	2.0	ng/L	3.49		104	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	4.04	2.0	ng/L	3.92		103	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.88	2.0	ng/L	3.92		99.0	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.69	2.0	ng/L	3.92		120	47-160			
Surrogate: 13C4-PFBA	*88.2*		ng/L	98.0		90.1	10-130			
Surrogate: 13C5-PFPeA	*44.7*		ng/L	49.0		91.2	35-150			
Surrogate: 13C5-PFHxA	*22.1*		ng/L	24.5		90.2	55-150			
Surrogate: 13C4-PFHpA	*22.3*		ng/L	24.5		91.2	55-150			
Surrogate: 13C8-PFOA	*22.0*		ng/L	24.5		89.8	60-140			
Surrogate: 13C9-PFNA	*11.2*		ng/L	12.2		91.9	55-140			
Surrogate: 13C6-PFDA	*10.6*		ng/L	12.2		86.5	50-140			
Surrogate: 13C7-PFUnA	*10.5*		ng/L	12.2		85.4	30-140			
Surrogate: 13C2-PFDoA	*9.58*		ng/L	12.2		78.2	10-150			
Surrogate: 13C2-PFTeDA	*9.38*		ng/L	12.2		76.6	10-130			
Surrogate: 13C3-PFBS	*21.6*		ng/L	24.5		88.3	55-150			
Surrogate: 13C3-PFHxS	*22.2*		ng/L	24.5		90.7	55-150			
Surrogate: 13C8-PFOS	*22.4*		ng/L	24.5		91.4	45-140			
Surrogate: 13C2-4:2FTS	*34.2*		ng/L	49.0		69.9	60-200			
Surrogate: 13C2-6:2FTS	*43.0*		ng/L	49.0		87.7	60-200			
Surrogate: 13C2-8:2FTS	*40.9*		ng/L	49.0		83.5	50-200			
Surrogate: 13C8-PFOSA	*19.3*		ng/L	24.5		78.9	30-130			
Surrogate: D3-NMeFOSA	*18.6*		ng/L	24.5		75.8	15-130			
Surrogate: D5-NEtFOSA	*19.3*		ng/L	24.5		78.8	10-130			
Surrogate: D3-NMeFOSAA	*42.2*		ng/L	49.0		86.2	45-200			
Surrogate: D5-NEtFOSAA	*39.1*		ng/L	49.0		79.8	10-200			
Surrogate: D7-NMeFOSE	*197*		ng/L	245		80.5	10-150			
Surrogate: D9-NEtFOSE	*196*		ng/L	245		80.1	10-150			
Surrogate: 13C3-HFPO-DA	*88.7*		ng/L	98.0		90.5	25-160			
Batch B359064 - Draft Method 1633										
Blank (B359064-BLK1)				Prepared: 12/06/23 Analyzed: 12/08/23						
Perfluorobutanoic acid (PFBA)	1.8	7.4	µg/kg wet							J
Perfluoropentanoic acid (PFPeA)	0.21	3.7	µg/kg wet							J
Perfluorohexanoic acid (PFHxA)	ND	1.8	µg/kg wet							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359064 - Draft Method 1633										
Blank (B359064-BLK1)				Prepared: 12/06/23 Analyzed: 12/08/23						
Perfluoroheptanoic acid (PFHpA)	ND	1.8	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.8	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.8	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.8	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.8	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.8	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.8	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.4	µg/kg wet							Z-01a
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.4	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.4	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.8	µg/kg wet							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	µg/kg wet							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.8	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.8	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.4	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.4	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	7.4	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	7.4	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	92	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	92	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.7	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.7	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.7	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.7	µg/kg wet							
Surrogate: 13C4-PFBA	*68.5*		µg/kg wet	92.1		74.4	10-130			
Surrogate: 13C5-PFPeA	*33.3*		µg/kg wet	46.0		72.2	35-150			
Surrogate: 13C5-PFHxA	*17.1*		µg/kg wet	23.0		74.2	55-150			
Surrogate: 13C4-PFHpA	*17.6*		µg/kg wet	23.0		76.3	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B359064 - Draft Method 1633											
Blank (B359064-BLK1)				Prepared: 12/06/23 Analyzed: 12/08/23							
Surrogate: 13C8-PFOA	*17.2*		µg/kg wet	23.0		74.5		60-140			
Surrogate: 13C9-PFNA	*8.65*		µg/kg wet	11.5		75.2		55-140			
Surrogate: 13C6-PFDA	*8.62*		µg/kg wet	11.5		74.9		50-140			
Surrogate: 13C7-PFUnA	*8.68*		µg/kg wet	11.5		75.4		30-140			
Surrogate: 13C2-PFDoA	*8.26*		µg/kg wet	11.5		71.8		10-150			
Surrogate: 13C2-PFTeDA	*7.92*		µg/kg wet	11.5		68.8		10-130			
Surrogate: 13C3-PFBS	*15.9*		µg/kg wet	23.0		69.1		55-150			
Surrogate: 13C3-PFHxS	*17.8*		µg/kg wet	23.0		77.1		55-150			
Surrogate: 13C8-PFOS	*16.8*		µg/kg wet	23.0		73.0		45-150			
Surrogate: 13C2-4:2FTS	*27.3*		µg/kg wet	46.0		**59.4**	*	60-200			Z-01a
Surrogate: 13C2-6:2FTS	*34.4*		µg/kg wet	46.0		74.6		60-200			
Surrogate: 13C2-8:2FTS	*34.0*		µg/kg wet	46.0		73.8		50-200			
Surrogate: 13C8-PFOSA	*15.8*		µg/kg wet	23.0		68.7		30-130			
Surrogate: D3-NMeFOSA	*11.5*		µg/kg wet	23.0		50.1		15-130			
Surrogate: D5-NEtFOSA	*11.9*		µg/kg wet	23.0		51.7		10-130			
Surrogate: D3-NMeFOSAA	*34.3*		µg/kg wet	46.0		74.4		45-200			
Surrogate: D5-NEtFOSAA	*32.5*		µg/kg wet	46.0		70.5		10-200			
Surrogate: D7-NMeFOSE	*140*		µg/kg wet	230		60.7		10-150			
Surrogate: D9-NEtFOSE	*136*		µg/kg wet	230		59.0		10-150			
Surrogate: 13C3-HFPO-DA	*66.3*		µg/kg wet	92.1		72.0		25-160			
LCS (B359064-BS1)				Prepared: 12/06/23 Analyzed: 12/08/23							
Perfluorobutanoic acid (PFBA)	96.4	7.3	µg/kg wet	87.1		111		58-148			
Perfluoropentanoic acid (PFPeA)	45.9	3.6	µg/kg wet	43.6		105		54-152			
Perfluorohexanoic acid (PFHxA)	22.5	1.8	µg/kg wet	21.8		103		55-152			
Perfluoroheptanoic acid (PFHpA)	22.8	1.8	µg/kg wet	21.8		105		54-154			
Perfluorooctanoic acid (PFOA)	23.5	1.8	µg/kg wet	21.8		108		52-161			
Perfluorononanoic acid (PFNA)	24.0	1.8	µg/kg wet	21.8		110		59-149			
Perfluorodecanoic acid (PFDA)	22.7	1.8	µg/kg wet	21.8		104		52-147			
Perfluoroundecanoic acid (PFUnA)	23.3	1.8	µg/kg wet	21.8		107		48-159			
Perfluorododecanoic acid (PFDoA)	24.1	1.8	µg/kg wet	21.8		111		64-142			
Perfluorotridecanoic acid (PFTrDA)	23.0	1.8	µg/kg wet	21.8		106		49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.7	1.8	µg/kg wet	21.8		109		47-161			
Perfluorobutanesulfonic acid (PFBS)	20.8	1.8	µg/kg wet	19.3		108		62-144			
Perfluoropentanesulfonic acid (PFPeS)	21.3	1.8	µg/kg wet	20.5		104		59-151			
Perfluorohexanesulfonic acid (PFHxS)	19.5	1.8	µg/kg wet	19.9		97.6		57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.3	1.8	µg/kg wet	20.7		108		55-152			
Perfluorooctanesulfonic acid (PFOS)	20.6	1.8	µg/kg wet	20.2		102		58-149			
Perfluorononanesulfonic acid (PFNS)	21.9	1.8	µg/kg wet	21.0		104		52-148			
Perfluorodecanesulfonic acid (PFDS)	22.0	1.8	µg/kg wet	21.0		105		51-147			
Perfluorododecanesulfonic acid (PFDoS)	20.6	1.8	µg/kg wet	21.1		97.4		36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	91.9	7.3	µg/kg wet	81.7		112		67-146			Z-01a
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	92.5	7.3	µg/kg wet	82.8		112		61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	98.9	7.3	µg/kg wet	83.8		118		63-152			
Perfluorooctanesulfonamide (PFOSA)	23.5	1.8	µg/kg wet	21.8		108		61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	21.9	1.8	µg/kg wet	21.8		100		63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	20.8	1.8	µg/kg wet	21.8		95.3		65-139			
N-MeFOSAA (NMeFOSAA)	22.0	1.8	µg/kg wet	21.8		101		58-144			
N-EtFOSAA (NEtFOSAA)	23.4	1.8	µg/kg wet	21.8		108		59-146			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359064 - Draft Method 1633										
LCS (B359064-BS1)				Prepared: 12/06/23 Analyzed: 12/08/23						
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	230	18	µg/kg wet	218		106	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	230	18	µg/kg wet	218		105	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	93.8	7.3	µg/kg wet	87.1		108	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	88.6	7.3	µg/kg wet	82.2		108	68-146			
9Cl-PF3ONS (F53B Minor)	92.4	7.3	µg/kg wet	81.7		113	56-156			
11Cl-PF3OUdS (F53B Major)	93.1	7.3	µg/kg wet	82.2		113	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	211	18	µg/kg wet	218		97.0	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1070	91	µg/kg wet	1090		98.6	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1070	91	µg/kg wet	1090		98.3	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	41.3	3.6	µg/kg wet	38.8		106	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	42.3	3.6	µg/kg wet	43.6		97.1	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	44.9	3.6	µg/kg wet	43.6		103	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	44.8	3.6	µg/kg wet	43.6		103	48-161			
Surrogate: 13C4-PFBA	*57.0*		µg/kg wet	90.7		62.8	10-130			
Surrogate: 13C5-PFPeA	*28.2*		µg/kg wet	45.4		62.1	35-150			
Surrogate: 13C5-PFHxA	*14.6*		µg/kg wet	22.7		64.1	55-150			
Surrogate: 13C4-PFHpA	*15.1*		µg/kg wet	22.7		66.5	55-150			
Surrogate: 13C8-PFOA	*14.2*		µg/kg wet	22.7		62.7	60-140			
Surrogate: 13C9-PFNA	*7.11*		µg/kg wet	11.3		62.6	55-140			
Surrogate: 13C6-PFDA	*7.43*		µg/kg wet	11.3		65.5	50-140			
Surrogate: 13C7-PFUnA	*7.27*		µg/kg wet	11.3		64.1	30-140			
Surrogate: 13C2-PFDoA	*7.03*		µg/kg wet	11.3		61.9	10-150			
Surrogate: 13C2-PFTeDA	*6.56*		µg/kg wet	11.3		57.8	10-130			
Surrogate: 13C3-PFBS	*13.3*		µg/kg wet	22.7		58.4	55-150			
Surrogate: 13C3-PFHxS	*14.8*		µg/kg wet	22.7		65.3	55-150			
Surrogate: 13C8-PFOS	*14.6*		µg/kg wet	22.7		64.3	45-150			
Surrogate: 13C2-4:2FTS	*24.9*		µg/kg wet	45.4		**54.8**	* 60-200			Z-01a
Surrogate: 13C2-6:2FTS	*31.6*		µg/kg wet	45.4		69.6	60-200			
Surrogate: 13C2-8:2FTS	*31.6*		µg/kg wet	45.4		69.7	50-200			
Surrogate: 13C8-PFOSA	*13.5*		µg/kg wet	22.7		59.6	30-130			
Surrogate: D3-NMeFOSA	*10.7*		µg/kg wet	22.7		47.0	15-130			
Surrogate: D5-NEtFOSA	*10.5*		µg/kg wet	22.7		46.3	10-130			
Surrogate: D3-NMeFOSAA	*29.0*		µg/kg wet	45.4		63.9	45-200			
Surrogate: D5-NEtFOSAA	*28.7*		µg/kg wet	45.4		63.2	10-200			
Surrogate: D7-NMeFOSE	*117*		µg/kg wet	227		51.6	10-150			
Surrogate: D9-NEtFOSE	*115*		µg/kg wet	227		50.8	10-150			
Surrogate: 13C3-HFPO-DA	*56.7*		µg/kg wet	90.7		62.5	25-160			
MRL Check (B359064-MRL1)				Prepared: 12/06/23 Analyzed: 12/08/23						
Perfluorobutanoic acid (PFBA)	8.52	6.7	µg/kg wet	6.73		127	44-157			
Perfluoropentanoic acid (PFPeA)	3.47	3.4	µg/kg wet	3.37		103	57-148			
Perfluorohexanoic acid (PFHxA)	1.64	1.7	µg/kg wet	1.68		97.5	62-149			J
Perfluoroheptanoic acid (PFHpA)	1.68	1.7	µg/kg wet	1.68		99.8	56-150			J
Perfluorooctanoic acid (PFOA)	1.37	1.7	µg/kg wet	1.68		81.6	57-161			J
Perfluorononanoic acid (PFNA)	1.47	1.7	µg/kg wet	1.68		87.5	53-157			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359064 - Draft Method 1633										
MRL Check (B359064-MRL1)				Prepared: 12/06/23 Analyzed: 12/08/23						
Perfluorodecanoic acid (PFDA)	1.54	1.7	µg/kg wet	1.68		91.6	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.61	1.7	µg/kg wet	1.68		95.7	50-155			J
Perfluorododecanoic acid (PFDoA)	1.63	1.7	µg/kg wet	1.68		96.8	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.60	1.7	µg/kg wet	1.68		95.2	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.72	1.7	µg/kg wet	1.68		102	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.55	1.7	µg/kg wet	1.49		104	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.57	1.7	µg/kg wet	1.58		99.1	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.61	1.7	µg/kg wet	1.54		104	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.51	1.7	µg/kg wet	1.60		94.2	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.49	1.7	µg/kg wet	1.56		95.2	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.57	1.7	µg/kg wet	1.62		96.9	46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.53	1.7	µg/kg wet	1.62		94.0	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.57	1.7	µg/kg wet	1.63		96.2	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.32	6.7	µg/kg wet	6.31		100	52-158			Z-01a, J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.73	6.7	µg/kg wet	6.40		105	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.55	6.7	µg/kg wet	6.48		101	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.73	1.7	µg/kg wet	1.68		103	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.32	1.7	µg/kg wet	1.68		78.4	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.44	1.7	µg/kg wet	1.68		85.3	49-156			J
N-MeFOSAA (NMeFOSAA)	1.57	1.7	µg/kg wet	1.68		93.0	32-160			J
N-EtFOSAA (NEtFOSAA)	1.62	1.7	µg/kg wet	1.68		96.5	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	16.6	17	µg/kg wet	16.8		98.8	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	16.5	17	µg/kg wet	16.8		98.0	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.48	6.7	µg/kg wet	6.73		96.2	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.91	6.7	µg/kg wet	6.36		93.0	61-148			J
9Cl-PF3ONS (F53B Minor)	6.17	6.7	µg/kg wet	6.31		97.7	44-167			J
11Cl-PF3OUdS (F53B Major)	6.14	6.7	µg/kg wet	6.36		96.6	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.8	17	µg/kg wet	16.8		81.9	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	71.3	84	µg/kg wet	84.2		84.7	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.9	84	µg/kg wet	84.2		87.8	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.63	3.4	µg/kg wet	3.00		87.6	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.78	3.4	µg/kg wet	3.37		82.6	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.84	3.4	µg/kg wet	3.37		84.3	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.69	3.4	µg/kg wet	3.37		79.9	47-160			J
Surrogate: 13C4-PFBA	*53.5*		µg/kg wet	84.2		63.5	10-130			
Surrogate: 13C5-PFPeA	*26.9*		µg/kg wet	42.1		63.9	35-150			
Surrogate: 13C5-PFHxA	*13.7*		µg/kg wet	21.0		65.3	55-150			
Surrogate: 13C4-PFHpA	*14.1*		µg/kg wet	21.0		67.1	55-150			
Surrogate: 13C8-PFOA	*13.1*		µg/kg wet	21.0		62.3	60-140			
Surrogate: 13C9-PFNA	*6.75*		µg/kg wet	10.5		64.2	55-140			
Surrogate: 13C6-PFDA	*6.84*		µg/kg wet	10.5		65.0	50-140			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B359064 - Draft Method 1633											
MRL Check (B359064-MRL1)				Prepared: 12/06/23 Analyzed: 12/08/23							
Surrogate: 13C7-PFUnA	*6.85*		µg/kg wet	10.5		65.1		30-140			
Surrogate: 13C2-PFDoA	*6.40*		µg/kg wet	10.5		60.8		10-150			
Surrogate: 13C2-PFTeDA	*6.14*		µg/kg wet	10.5		58.3		10-130			
Surrogate: 13C3-PFBS	*12.4*		µg/kg wet	21.0		59.1		55-150			
Surrogate: 13C3-PFHxS	*13.8*		µg/kg wet	21.0		65.4		55-150			
Surrogate: 13C8-PFOS	*13.4*		µg/kg wet	21.0		63.7		45-150			
Surrogate: 13C2-4:2FTS	*21.6*		µg/kg wet	42.1		**51.2**	*	60-200			Z-01a
Surrogate: 13C2-6:2FTS	*28.0*		µg/kg wet	42.1		66.6		60-200			
Surrogate: 13C2-8:2FTS	*27.1*		µg/kg wet	42.1		64.4		50-200			
Surrogate: 13C8-PFOSA	*12.4*		µg/kg wet	21.0		59.2		30-130			
Surrogate: D3-NMeFOSA	*8.48*		µg/kg wet	21.0		40.3		15-130			
Surrogate: D5-NEtFOSA	*7.87*		µg/kg wet	21.0		37.4		10-130			
Surrogate: D3-NMeFOSAA	*26.9*		µg/kg wet	42.1		63.9		45-200			
Surrogate: D5-NEtFOSAA	*25.8*		µg/kg wet	42.1		61.3		10-200			
Surrogate: D7-NMeFOSE	*107*		µg/kg wet	210		50.9		10-150			
Surrogate: D9-NEtFOSE	*103*		µg/kg wet	210		49.0		10-150			
Surrogate: 13C3-HFPO-DA	*51.8*		µg/kg wet	84.2		61.5		25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
S-29	Extracted Internal Standard is outside of control limits.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
V-32	Opening calibration verification was within control criteria. Closing calibration verification was outside of criteria and biased on the high side. Re-analysis yielded similar non-conformance, matrix interference confirmed.
Z-01	Analyte detected in method blank >1/3 MRL
Z-01a	Extracted internal standard outside of control limits. Analyte is a known difficult compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2024
RI	Rhode Island Department of Health	LAO00373	12/30/2023
NC	North Carolina Div. of Water Quality	652	12/31/2023
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2023
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

23K0982

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☐ No

Workorder: 40270684 **Workorder Name:** PFAS/1633 BIOSOLIDS **Owner Received Date:** 11/7/2023 **Results Requested By:** 12/8/2023

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: unpres	1633 PFAS	LAB USE ONLY
1	CLASSIFIER 1 110723	PS	11/7/2023 08:00	40270684001	Solid	1	X	
2	FIELD BLANK 110723	PS	11/7/2023 08:00	40270684002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Mike L	11/7/23 5:00	FedEx	11/7/23 5:00
2				11-8-23 1004
3				

Comments

Need dry weight and wet reporting

BIOSOLID

Cooler Temperature on Receipt 3.8 °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

FedEx

FedEx® Tracking

DELIVERED

Wednesday

11/8/23 at 10:04 AM

Signed for by: L.ARROYO

Obtain proof of delivery

How was your delivery?

DELIVERY STATUS

Delivered

TRACKING ID

621806446085

FROM
Schaumburg, IL US

Label Created
11/7/23 2:32 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
11/7/23 4:24 PM

ON THE WAY
WINDSOR LOCKS, CT
11/8/23 7:55 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
11/8/23 8:04 AM

DELIVERED
east longmeadow, MA US

Delivered
11/8/23 at 10:04 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client Pace-WI

Project 40270684

MCP/RCP Required NO

Deliverable Package Requirement NO

Location IL

PWSID# (When Applicable) NA

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time AAM 11/8/23 1004

Back-Sheet By / Date / Time GL 11/8/23 1454

Temperature Method GUN # 5

Temp < 6° C Actual Temperature 3.8

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client ☑ Analysis ☑ Sampler Name ☑

Project ☑ IDs ☑ Collection Date/Time ☑

All Samples Proper pH: (N/A) ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Page 2 of 2

Qualtrax ID: 120836

Sample	Soils Jars (Circle Amb/Clear)				Ambers				Plastics												VOA Vials						Other / Fill in				
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	1 Liter			250mL		1 Liter		500mL	250mL																		
					Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Unpreserved	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Trizma	Sulfuric	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc	Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact	Other			
1																													-			
2														-																		
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12

CDPHE PFAS SAMPLING

DECEMBER 5, 2023

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40271731 REVISED

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

January 15, 2024

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40271731

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on December 05, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jon Gibson, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glen Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40271731

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40271731001	PCD CLASSIFIER 2 120523	Solid	12/05/23 09:47	12/05/23 13:48
40271731002	FIELD BLANK 120523	Water	12/05/23 09:48	12/05/23 13:48

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

40271731

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To: Same	Attention: Veolia Support Services North
6001 W. Pershing Rd	Copy To:	Company Name: Veolia Support Services North
Cicero, IL 60804		Address: 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To: cletus.ketter@veolia.com	Purchase Order No: 1000235497	Pace Quote Reference: na
Phone: 708 652 0575 Fax: N/A	Project Name: PFAS/1633	Pace Project Manager: Cindy Varga
Requested Due Date/TAT:	Project Number: NA	Pace Profile #: 5083

REGULATORY AGENCY: _NPDES _GROUND WATER _DRINKING WATER _UST _RCRA OTHER X

SITE LOCATION: _GA X IL _IN _MI _NC _OH _SC _WI OTHER

Filtered (Y/N): N

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	Section D Required Client Information: SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	# OF CONTAINERS	Preservatives: Unpreserved	Analysis: 1633 PFAS	Residual Chlor	Pace Project Number / Lab I.D.
1	PCD CLASSIFIER 2 120523	SL	G	12-5-23	9:47am			1		X		
2	Field Blank BLANK 120523	W		12-5-23	9:48am			1				
3												
4												
5												
6												
7												
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WO#: 40271731

40271731

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[illegible]	12-5-23	1100AM	Mike [illegible]	12/5/23	11:06
Mike [illegible]	12/5/23	5:00	Fedex	12/5/23	5:00

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Josef Noralinski

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM / DD / YY): 12/05/23

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January 12, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633
Client Job Number:
Project Number: 40271731
Laboratory Work Order Number: 23L0796

Enclosed are results of analyses for samples as received by the laboratory on December 6, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 1/12/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40271731

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23L0796

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

PROJECT LOCATION: PFAS/1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD CLASSIFIER 2 120523	23L0796-01	Biosolids		Draft Method 1633	
				SM 2540G	
Field Blank 120523	23L0796-02	Field Blank		Draft Method 1633	
PCD CLASSIFIER 2 120523- Wet Weight	23L0796-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

REVISED REPORT 1/12/24- Sample -02 ID revised

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Draft Method 1633

Qualifications:

B-05

Data is not affected by elevated level in laboratory blank since sample(s) result is "Not Detected".

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFBS)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

D-04

Sample extracted at a dilution due to insufficient volume provided.

Analyte & Samples(s) Qualified:

23L0796-02[Field Blank 120523]

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFBS)
B361889-MRL1

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

13C2-PFTeDA
S099050-CCB2

D7-NMeFOSE
S099050-CCB2

D9-NEtFOSE
S099050-CCB2

N-ethylperfluorooctanesulfonamidoethanol (NEtFO!
S099050-CCB2

N-methylperfluorooctanesulfonamidoethanol(NMeF
S099050-CCB2

Perfluorotetradecanoic acid (PFTeDA)
S099050-CCB2

PF-22

Qualifier ion ratio >150% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FT!
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

Perfluorohexanoic acid (PFHxA)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

Perfluorooctanesulfonamide (PFOSA)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

Perfluoroundecanoic acid (PFUnA)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoroheptanoic acid (PFHpA)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

Perfluorononanoic acid (PFNA)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

Perfluoropentanoic acid (PFPeA)
23L0796-01RE1[PCD CLASSIFIER 2 120523], 23L0796-03[PCD CLASSIFIER 2 120523- Wet Weight]

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S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C2-PFTeDA
S099050-CCV2

Perfluorotetradecanoic acid (PFTeDA)
S099050-CCV2

V-20

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

Analyte & Samples(s) Qualified:

N-MeFOSAA (NMeFOSAA)
S097943-CCV1

Z-01

Analyte detected in method blank >1/3 MRL

Analyte & Samples(s) Qualified:

Perfluorobutanesulfonic acid (PFBS)
B361889-BLK1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Kaitlyn A. Feliciano
Project Manager

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

Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: PCD CLASSIFIER 2 120523 Sampled: 12/5/2023 09:47

Sample ID: 23L0796-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.4	1.3	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoropentanoic acid (PFPeA)	3.5	3.7	0.18	µg/kg dry	1	PF-23, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorohexanoic acid (PFHxA)	0.83	1.8	0.092	µg/kg dry	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoroheptanoic acid (PFHpA)	1.2	1.8	0.14	µg/kg dry	1	PF-23, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorooctanoic acid (PFOA)	0.39	1.8	0.27	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorononanoic acid (PFNA)	0.67	1.8	0.24	µg/kg dry	1	PF-23, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorodecanoic acid (PFDA)	1.1	1.8	0.15	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoroundecanoic acid (PFUnA)	0.58	1.8	0.13	µg/kg dry	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorododecanoic acid (PFDoA)	1.2	1.8	0.15	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorotridecanoic acid (PFTrDA)	0.30	1.8	0.25	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.39	1.8	0.12	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.13	µg/kg dry	1	B-05	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.18	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.23	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.16	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorooctanesulfonic acid (PFOS)	7.8	1.8	0.15	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.28	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.16	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.17	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.4	0.35	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.4	0.76	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.55	7.4	0.33	µg/kg dry	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorooctanesulfonamide (PFOSA)	0.32	1.8	0.083	µg/kg dry	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	0.18	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.13	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-MeFOSAA (NMeFOSAA)	2.0	1.8	0.26	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-EtFOSAA (NEtFOSAA)	1.6	1.8	0.39	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	3.3	18	0.87	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	2.0	18	1.5	µg/kg dry	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.4	0.45	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.4	0.75	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.4	0.71	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.4	0.97	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	1.6	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	92	11	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	92	8.6	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.7	0.18	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.7	0.39	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS

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Project Location: PFAS/1633
Sample Description:
Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: PCD CLASSIFIER 2 120523
Sampled: 12/5/2023 09:47

Sample ID: 23L0796-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.7	0.29	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.7	0.32	µg/kg dry	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	76.5	10-130		1/9/24 12:56
13C5-PFPeA	67.3	35-150		1/9/24 12:56
13C5-PFHxA	76.9	55-150		1/9/24 12:56
13C4-PFHpA	81.0	55-150		1/9/24 12:56
13C8-PFOA	79.8	60-140		1/9/24 12:56
13C9-PFNA	79.1	55-140		1/9/24 12:56
13C6-PFDA	80.5	50-140		1/9/24 12:56
13C7-PFUnA	70.0	30-140		1/9/24 12:56
13C2-PFDoA	79.2	10-150		1/9/24 12:56
13C2-PFTeDA	90.3	10-130		1/9/24 12:56
13C3-PFBS	84.7	55-150		1/9/24 12:56
13C3-PFHxS	77.3	55-150		1/9/24 12:56
13C8-PFOS	83.7	45-150		1/9/24 12:56
13C2-4:2FTS	145	60-200		1/9/24 12:56
13C2-6:2FTS	152	60-200		1/9/24 12:56
13C2-8:2FTS	191	50-200		1/9/24 12:56
13C8-PFOSA	94.7	30-130		1/9/24 12:56
D3-NMeFOSA	58.5	15-130		1/9/24 12:56
D5-NEtFOSA	41.9	10-130		1/9/24 12:56
D3-NMeFOSAA	138	45-200		1/9/24 12:56
D5-NEtFOSAA	149	10-200		1/9/24 12:56
D7-NMeFOSE	22.0	10-150		1/9/24 12:56
D9-NEtFOSE	43.9	10-150		1/9/24 12:56
13C3-HFPO-DA	68.3	25-160		1/9/24 12:56

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Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: PCD CLASSIFIER 2 120523 Sampled: 12/5/2023 09:47

Sample ID: 23L0796-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	96.8		% Wt	1		SM 2540G	12/8/23	12/8/23 10:14	DV

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Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: Field Blank 120523 Sampled: 12/5/2023 09:48

Sample ID: 23L0796-02

Sample Matrix: Field Blank

Sample Flags: D-04

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.3	2.6	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoropentanoic acid (PFPeA)	ND	3.6	0.63	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorohexanoic acid (PFHxA)	ND	1.8	0.39	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.8	0.46	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorooctanoic acid (PFOA)	ND	1.8	0.41	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorononanoic acid (PFNA)	ND	1.8	0.35	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorodecanoic acid (PFDA)	ND	1.8	0.34	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.50	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.47	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.49	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	1.8	0.46	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.47	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.43	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.37	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.56	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	0.58	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.54	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.57	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.49	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.3	1.3	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.3	1.8	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.3	2.0	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	1.8	0.56	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	0.76	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.56	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
N-MeFOSAA (NMeFOSAA)	ND	1.8	0.80	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
N-EtFOSAA (NEtFOSAA)	ND	1.8	0.40	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	4.8	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	4.5	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.3	1.9	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.3	1.3	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.3	1.6	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.3	1.8	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	3.3	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	91	19	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	91	16	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.6	0.89	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.6	0.91	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: Field Blank 120523 Sampled: 12/5/2023 09:48

Sample ID: 23L0796-02

Sample Matrix: Field Blank

Sample Flags: D-04

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.6	0.73	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	1.6	ng/L	1		Draft Method 1633	12/15/23	12/18/23 17:37	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	82.2	10-130		12/18/23 17:37
13C5-PFPeA	81.4	35-150		12/18/23 17:37
13C5-PFHxA	82.0	55-150		12/18/23 17:37
13C4-PFHpA	84.6	55-150		12/18/23 17:37
13C8-PFOA	82.2	60-140		12/18/23 17:37
13C9-PFNA	80.3	55-140		12/18/23 17:37
13C6-PFDA	83.9	50-140		12/18/23 17:37
13C7-PFUnA	80.0	30-140		12/18/23 17:37
13C2-PFDoA	77.5	10-150		12/18/23 17:37
13C2-PFTeDA	74.4	10-130		12/18/23 17:37
13C3-PFBS	72.9	55-150		12/18/23 17:37
13C3-PFHxS	85.8	55-150		12/18/23 17:37
13C8-PFOS	81.2	45-140		12/18/23 17:37
13C2-4:2FTS	64.9	60-200		12/18/23 17:37
13C2-6:2FTS	103	60-200		12/18/23 17:37
13C2-8:2FTS	110	50-200		12/18/23 17:37
13C8-PFOSA	70.9	30-130		12/18/23 17:37
D3-NMeFOSA	67.6	15-130		12/18/23 17:37
D5-NEtFOSA	69.1	10-130		12/18/23 17:37
D3-NMeFOSAA	88.6	45-200		12/18/23 17:37
D5-NEtFOSAA	83.2	10-200		12/18/23 17:37
D7-NMeFOSE	75.1	10-150		12/18/23 17:37
D9-NEtFOSE	76.7	10-150		12/18/23 17:37
13C3-HFPO-DA	80.6	25-160		12/18/23 17:37

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Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: Field Blank 120523 Sampled: 12/5/2023 09:48

Sample ID: 23L0796-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	12/7/23	12/7/23 6:39	LL

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Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: PCD CLASSIFIER 2 120523- Wet Weight Sampled: 12/5/2023 09:47

Sample ID: 23L0796-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.2	1.2	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoropentanoic acid (PFPeA)	3.4	3.6	0.17	µg/kg wet	1	PF-23, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorohexanoic acid (PFHxA)	0.80	1.8	0.089	µg/kg wet	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoroheptanoic acid (PFHpA)	1.2	1.8	0.13	µg/kg wet	1	PF-23, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorooctanoic acid (PFOA)	0.38	1.8	0.26	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorononanoic acid (PFNA)	0.65	1.8	0.23	µg/kg wet	1	PF-23, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorodecanoic acid (PFDA)	1.1	1.8	0.14	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoroundecanoic acid (PFUnA)	0.56	1.8	0.13	µg/kg wet	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorododecanoic acid (PFDoA)	1.1	1.8	0.14	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorotridecanoic acid (PFTrDA)	0.29	1.8	0.24	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.38	1.8	0.12	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.13	µg/kg wet	1	B-05	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.18	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.22	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.15	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorooctanesulfonic acid (PFOS)	7.6	1.8	0.14	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.27	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.15	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.16	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.2	0.34	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.2	0.73	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.53	7.2	0.32	µg/kg wet	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluorooctanesulfonamide (PFOSA)	0.31	1.8	0.081	µg/kg wet	1	PF-22, J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	0.17	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.13	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-MeFOSAA (NMeFOSAA)	2.0	1.8	0.25	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-EtFOSAA (NEtFOSAA)	1.5	1.8	0.38	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	3.2	18	0.84	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.9	18	1.5	µg/kg wet	1	J	Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.2	0.44	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.2	0.72	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.2	0.69	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.2	0.94	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	1.5	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	89	11	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	89	8.3	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.6	0.18	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.6	0.38	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 23L0796

Date Received: 12/6/2023

Field Sample #: PCD CLASSIFIER 2 120523- Wet Weight Sampled: 12/5/2023 09:47

Sample ID: 23L0796-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.6	0.28	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	0.31	µg/kg wet	1		Draft Method 1633	1/5/24	1/9/24 12:56	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	76.5	10-130		1/9/24 12:56
13C5-PFPeA	67.3	35-150		1/9/24 12:56
13C5-PFHxA	76.9	55-150		1/9/24 12:56
13C4-PFHpA	81.0	55-150		1/9/24 12:56
13C8-PFOA	79.8	60-140		1/9/24 12:56
13C9-PFNA	79.1	55-140		1/9/24 12:56
13C6-PFDA	80.5	50-140		1/9/24 12:56
13C7-PFUnA	70.0	30-140		1/9/24 12:56
13C2-PFDoA	79.2	10-150		1/9/24 12:56
13C2-PFTeDA	90.3	10-130		1/9/24 12:56
13C3-PFBS	84.7	55-150		1/9/24 12:56
13C3-PFHxS	77.3	55-150		1/9/24 12:56
13C8-PFOS	83.7	45-150		1/9/24 12:56
13C2-4:2FTS	145	60-200		1/9/24 12:56
13C2-6:2FTS	152	60-200		1/9/24 12:56
13C2-8:2FTS	191	50-200		1/9/24 12:56
13C8-PFOSA	94.7	30-130		1/9/24 12:56
D3-NMeFOSA	58.5	15-130		1/9/24 12:56
D5-NEtFOSA	41.9	10-130		1/9/24 12:56
D3-NMeFOSAA	138	45-200		1/9/24 12:56
D5-NEtFOSAA	149	10-200		1/9/24 12:56
D7-NMeFOSE	22.0	10-150		1/9/24 12:56
D9-NEtFOSE	43.9	10-150		1/9/24 12:56
13C3-HFPO-DA	68.3	25-160		1/9/24 12:56

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
23L0796-01RE1 [PCD CLASSIFIER 2 120523]	B361889	0.559	5.00	01/05/24
23L0796-03 [PCD CLASSIFIER 2 120523- Wet Weight]	B361889	0.559	5.00	01/05/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 12/7/2023 per NO PREP in Batch B360009**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23L0796-02 [Field Blank 120523]	B359970	274	5.00	12/15/23

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
23L0796-02 [Field Blank 120523]	B360009	50.0	12/07/23

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

Lab Number [Field ID]	Batch	Date
23L0796-01 [PCD CLASSIFIER 2 120523]	B360195	12/08/23

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359970 - Draft Method 1633										
Blank (B359970-BLK1)				Prepared: 12/15/23 Analyzed: 12/18/23						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*87.9*		ng/L	97.8		89.9	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359970 - Draft Method 1633										
Blank (B359970-BLK1)				Prepared: 12/15/23 Analyzed: 12/18/23						
Surrogate: 13C5-PFPeA	*44.0*		ng/L	48.9		90.0	35-150			
Surrogate: 13C5-PFHxA	*21.8*		ng/L	24.5		89.2	55-150			
Surrogate: 13C4-PFHpA	*22.3*		ng/L	24.5		91.2	55-150			
Surrogate: 13C8-PFOA	*22.0*		ng/L	24.5		89.8	60-140			
Surrogate: 13C9-PFNA	*10.8*		ng/L	12.2		88.4	55-140			
Surrogate: 13C6-PFDA	*10.9*		ng/L	12.2		89.0	50-140			
Surrogate: 13C7-PFUnA	*10.4*		ng/L	12.2		84.8	30-140			
Surrogate: 13C2-PFDoA	*9.97*		ng/L	12.2		81.6	10-150			
Surrogate: 13C2-PFTeDA	*10.1*		ng/L	12.2		82.2	10-130			
Surrogate: 13C3-PFBS	*20.0*		ng/L	24.5		81.6	55-150			
Surrogate: 13C3-PFHxS	*22.5*		ng/L	24.5		92.0	55-150			
Surrogate: 13C8-PFOS	*21.5*		ng/L	24.5		87.8	45-140			
Surrogate: 13C2-4:2FTS	*36.1*		ng/L	48.9		73.9	60-200			
Surrogate: 13C2-6:2FTS	*47.9*		ng/L	48.9		98.0	60-200			
Surrogate: 13C2-8:2FTS	*49.1*		ng/L	48.9		100	50-200			
Surrogate: 13C8-PFOSA	*18.8*		ng/L	24.5		76.7	30-130			
Surrogate: D3-NMeFOSA	*18.1*		ng/L	24.5		73.9	15-130			
Surrogate: D5-NEtFOSA	*19.2*		ng/L	24.5		78.6	10-130			
Surrogate: D3-NMeFOSAA	*41.5*		ng/L	48.9		84.8	45-200			
Surrogate: D5-NEtFOSAA	*39.9*		ng/L	48.9		81.6	10-200			
Surrogate: D7-NMeFOSE	*206*		ng/L	245		84.4	10-150			
Surrogate: D9-NEtFOSE	*206*		ng/L	245		84.1	10-150			
Surrogate: 13C3-HFPO-DA	*87.1*		ng/L	97.8		89.0	25-160			
LCS (B359970-BS1)				Prepared: 12/15/23 Analyzed: 12/18/23						
Perfluorobutanoic acid (PFBA)	97.8	3.9	ng/L	78.9		124	58-148			
Perfluoropentanoic acid (PFPeA)	48.2	2.0	ng/L	39.5		122	54-152			
Perfluorohexanoic acid (PFHxA)	23.2	0.99	ng/L	19.7		118	55-152			
Perfluoroheptanoic acid (PFHpA)	23.1	0.99	ng/L	19.7		117	54-154			
Perfluorooctanoic acid (PFOA)	23.6	0.99	ng/L	19.7		120	52-161			
Perfluorononanoic acid (PFNA)	23.4	0.99	ng/L	19.7		119	59-149			
Perfluorodecanoic acid (PFDA)	22.9	0.99	ng/L	19.7		116	52-147			
Perfluoroundecanoic acid (PFUnA)	24.1	0.99	ng/L	19.7		122	48-159			
Perfluorododecanoic acid (PFDoA)	24.5	0.99	ng/L	19.7		124	64-142			
Perfluorotridecanoic acid (PFTrDA)	24.4	0.99	ng/L	19.7		123	49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.9	0.99	ng/L	19.7		121	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.5	0.99	ng/L	17.5		123	62-144			
Perfluoropentanesulfonic acid (PFPeS)	21.0	0.99	ng/L	18.6		113	59-151			
Perfluorohexanesulfonic acid (PFHxS)	20.2	0.99	ng/L	18.1		112	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	23.2	0.99	ng/L	18.8		123	55-152			
Perfluorooctanesulfonic acid (PFOS)	21.9	0.99	ng/L	18.3		119	58-149			
Perfluorononanesulfonic acid (PFNS)	22.5	0.99	ng/L	19.0		119	52-148			
Perfluorodecanesulfonic acid (PFDS)	21.4	0.99	ng/L	19.0		112	51-147			
Perfluorododecanesulfonic acid (PFDoS)	19.9	0.99	ng/L	19.1		104	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	89.7	3.9	ng/L	74.0		121	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	91.9	3.9	ng/L	75.0		123	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	102	3.9	ng/L	76.0		134	63-152			
Perfluorooctanesulfonamide (PFOSA)	24.2	0.99	ng/L	19.7		123	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	23.7	0.99	ng/L	19.7		120	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359970 - Draft Method 1633										
LCS (B359970-BS1)				Prepared: 12/15/23 Analyzed: 12/18/23						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	22.4	0.99	ng/L	19.7		113	65-139			
N-MeFOSAA (NMeFOSAA)	23.4	0.99	ng/L	19.7		119	58-144			
N-EtFOSAA (NEtFOSAA)	24.6	0.99	ng/L	19.7		124	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	237	9.9	ng/L	197		120	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	243	9.9	ng/L	197		123	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	93.7	3.9	ng/L	78.9		119	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	81.7	3.9	ng/L	74.5		110	68-146			
9Cl-PF3ONS (F53B Minor)	84.7	3.9	ng/L	74.0		114	56-156			
11Cl-PF3OUdS (F53B Major)	86.9	3.9	ng/L	74.5		117	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	226	9.9	ng/L	197		114	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1120	49	ng/L	987		113	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1110	49	ng/L	987		113	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	42.2	2.0	ng/L	35.1		120	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	46.1	2.0	ng/L	39.5		117	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	47.3	2.0	ng/L	39.5		120	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	50.9	2.0	ng/L	39.5		129	48-161			
Surrogate: 13C4-PFBA	*81.6*		ng/L	98.7		82.7	10-130			
Surrogate: 13C5-PFPeA	*39.3*		ng/L	49.3		79.7	35-150			
Surrogate: 13C5-PFHxA	*20.3*		ng/L	24.7		82.2	55-150			
Surrogate: 13C4-PFHpA	*20.8*		ng/L	24.7		84.4	55-150			
Surrogate: 13C8-PFOA	*20.4*		ng/L	24.7		82.7	60-140			
Surrogate: 13C9-PFNA	*10.1*		ng/L	12.3		82.3	55-140			
Surrogate: 13C6-PFDA	*10.2*		ng/L	12.3		82.4	50-140			
Surrogate: 13C7-PFUnA	*9.28*		ng/L	12.3		75.2	30-140			
Surrogate: 13C2-PFDoA	*9.01*		ng/L	12.3		73.1	10-150			
Surrogate: 13C2-PFTeDA	*8.81*		ng/L	12.3		71.4	10-130			
Surrogate: 13C3-PFBS	*18.8*		ng/L	24.7		76.2	55-150			
Surrogate: 13C3-PFHxS	*21.1*		ng/L	24.7		85.7	55-150			
Surrogate: 13C8-PFOS	*19.5*		ng/L	24.7		78.9	45-140			
Surrogate: 13C2-4:2FTS	*40.2*		ng/L	49.3		81.4	60-200			
Surrogate: 13C2-6:2FTS	*51.5*		ng/L	49.3		104	60-200			
Surrogate: 13C2-8:2FTS	*53.4*		ng/L	49.3		108	50-200			
Surrogate: 13C8-PFOSA	*17.1*		ng/L	24.7		69.4	30-130			
Surrogate: D3-NMeFOSA	*15.1*		ng/L	24.7		61.2	15-130			
Surrogate: D5-NEtFOSA	*15.5*		ng/L	24.7		63.0	10-130			
Surrogate: D3-NMeFOSAA	*36.7*		ng/L	49.3		74.3	45-200			
Surrogate: D5-NEtFOSAA	*35.8*		ng/L	49.3		72.5	10-200			
Surrogate: D7-NMeFOSE	*181*		ng/L	247		73.2	10-150			
Surrogate: D9-NEtFOSE	*177*		ng/L	247		71.9	10-150			
Surrogate: 13C3-HFPO-DA	*80.4*		ng/L	98.7		81.5	25-160			
MRL Check (B359970-MRL1)				Prepared: 12/15/23 Analyzed: 12/18/23						
Perfluorobutanoic acid (PFBA)	8.13	3.9	ng/L	7.87		103	44-157			
Perfluoropentanoic acid (PFPeA)	3.78	2.0	ng/L	3.94		96.0	57-148			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359970 - Draft Method 1633										
MRL Check (B359970-MRL1)				Prepared: 12/15/23 Analyzed: 12/18/23						
Perfluorohexanoic acid (PFHxA)	1.84	0.98	ng/L	1.97		93.3	62-149			
Perfluoroheptanoic acid (PFHpA)	1.81	0.98	ng/L	1.97		91.8	56-150			
Perfluorooctanoic acid (PFOA)	1.94	0.98	ng/L	1.97		98.5	57-161			
Perfluorononanoic acid (PFNA)	1.74	0.98	ng/L	1.97		88.5	53-157			
Perfluorodecanoic acid (PFDA)	1.93	0.98	ng/L	1.97		98.1	43-158			
Perfluoroundecanoic acid (PFUnA)	1.81	0.98	ng/L	1.97		91.9	50-155			
Perfluorododecanoic acid (PFDoA)	1.82	0.98	ng/L	1.97		92.7	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.91	0.98	ng/L	1.97		97.1	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.95	0.98	ng/L	1.97		98.8	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.71	0.98	ng/L	1.75		98.1	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.66	0.98	ng/L	1.85		89.7	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.56	0.98	ng/L	1.80		86.8	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.77	0.98	ng/L	1.88		94.4	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.79	0.98	ng/L	1.83		98.1	43-162			
Perfluorononanesulfonic acid (PFNS)	1.81	0.98	ng/L	1.89		95.6	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.67	0.98	ng/L	1.90		87.7	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.73	0.98	ng/L	1.91		90.5	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.20	3.9	ng/L	7.38		97.6	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	8.85	3.9	ng/L	7.48		118	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.56	3.9	ng/L	7.58		99.7	46-165			
Perfluorooctanesulfonamide (PFOSA)	2.00	0.98	ng/L	1.97		102	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.83	0.98	ng/L	1.97		92.8	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.82	0.98	ng/L	1.97		92.6	49-156			
N-MeFOSAA (NMeFOSAA)	1.99	0.98	ng/L	1.97		101	32-160			
N-EtFOSAA (NEtFOSAA)	1.96	0.98	ng/L	1.97		99.8	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	19.0	9.8	ng/L	19.7		96.4	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	19.0	9.8	ng/L	19.7		96.7	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.76	3.9	ng/L	7.87		85.9	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.18	3.9	ng/L	7.43		83.1	61-148			
9Cl-PF3ONS (F53B Minor)	5.99	3.9	ng/L	7.38		81.1	44-167			
11Cl-PF3OUdS (F53B Major)	6.13	3.9	ng/L	7.43		82.5	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.5	9.8	ng/L	19.7		68.7	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	67.0	49	ng/L	98.4		68.1	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	68.5	49	ng/L	98.4		69.6	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.09	2.0	ng/L	3.50		88.1	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.53	2.0	ng/L	3.94		89.8	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.49	2.0	ng/L	3.94		88.6	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.14	2.0	ng/L	3.94		105	47-160			
Surrogate: 13C4-PFBA	*82.4*		ng/L	98.4		83.7	10-130			
Surrogate: 13C5-PFPeA	*41.8*		ng/L	49.2		85.0	35-150			
Surrogate: 13C5-PFHxA	*20.6*		ng/L	24.6		83.6	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B359970 - Draft Method 1633										
MRL Check (B359970-MRL1)				Prepared: 12/15/23 Analyzed: 12/18/23						
Surrogate: 13C4-PFHpA	*21.0*		ng/L	24.6		85.5	55-150			
Surrogate: 13C8-PFOA	*21.3*		ng/L	24.6		86.8	60-140			
Surrogate: 13C9-PFNA	*10.1*		ng/L	12.3		82.2	55-140			
Surrogate: 13C6-PFDA	*10.1*		ng/L	12.3		81.8	50-140			
Surrogate: 13C7-PFUnA	*9.51*		ng/L	12.3		77.3	30-140			
Surrogate: 13C2-PFDoA	*9.26*		ng/L	12.3		75.3	10-150			
Surrogate: 13C2-PFTeDA	*8.99*		ng/L	12.3		73.1	10-130			
Surrogate: 13C3-PFBS	*18.5*		ng/L	24.6		75.1	55-150			
Surrogate: 13C3-PFHxS	*21.6*		ng/L	24.6		87.9	55-150			
Surrogate: 13C8-PFOS	*19.9*		ng/L	24.6		80.8	45-140			
Surrogate: 13C2-4:2FTS	*35.7*		ng/L	49.2		72.6	60-200			
Surrogate: 13C2-6:2FTS	*47.1*		ng/L	49.2		95.7	60-200			
Surrogate: 13C2-8:2FTS	*45.5*		ng/L	49.2		92.5	50-200			
Surrogate: 13C8-PFOSA	*17.5*		ng/L	24.6		71.0	30-130			
Surrogate: D3-NMeFOSA	*15.8*		ng/L	24.6		64.2	15-130			
Surrogate: D5-NEtFOSA	*16.0*		ng/L	24.6		65.1	10-130			
Surrogate: D3-NMeFOSAA	*38.8*		ng/L	49.2		78.9	45-200			
Surrogate: D5-NEtFOSAA	*37.0*		ng/L	49.2		75.1	10-200			
Surrogate: D7-NMeFOSE	*177*		ng/L	246		72.1	10-150			
Surrogate: D9-NEtFOSE	*175*		ng/L	246		71.2	10-150			
Surrogate: 13C3-HFPO-DA	*82.8*		ng/L	98.4		84.1	25-160			
Batch B361889 - Draft Method 1633										
Blank (B361889-BLK1)				Prepared: 01/05/24 Analyzed: 01/09/24						
Perfluorobutanoic acid (PFBA)	ND	6.2	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	3.1	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.6	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.6	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.6	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.6	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.6	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.6	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.6	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.6	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.6	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	0.69	1.6	µg/kg wet							Z-01, J
Perfluoropentanesulfonic acid (PFPeS)	ND	1.6	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.6	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.6	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.6	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.6	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.6	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.6	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.2	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.2	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.2	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.6	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.6	µg/kg wet							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B361889 - Draft Method 1633										
Blank (B361889-BLK1)				Prepared: 01/05/24 Analyzed: 01/09/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.6	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.6	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.6	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	16	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	16	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.2	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.2	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	6.2	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	6.2	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	16	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	78	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	78	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.1	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.1	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.1	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.1	µg/kg wet							
Surrogate: 13C4-PFBA	*61.4*		µg/kg wet	77.6		79.0	10-130			
Surrogate: 13C5-PFPeA	*29.6*		µg/kg wet	38.8		76.2	35-150			
Surrogate: 13C5-PFHxA	*14.9*		µg/kg wet	19.4		76.6	55-150			
Surrogate: 13C4-PFHpA	*15.1*		µg/kg wet	19.4		77.6	55-150			
Surrogate: 13C8-PFOA	*14.7*		µg/kg wet	19.4		76.0	60-140			
Surrogate: 13C9-PFNA	*7.64*		µg/kg wet	9.70		78.8	55-140			
Surrogate: 13C6-PFDA	*7.57*		µg/kg wet	9.70		78.0	50-140			
Surrogate: 13C7-PFUnA	*7.38*		µg/kg wet	9.70		76.0	30-140			
Surrogate: 13C2-PFDoA	*7.40*		µg/kg wet	9.70		76.3	10-150			
Surrogate: 13C2-PFTeDA	*6.57*		µg/kg wet	9.70		67.7	10-130			
Surrogate: 13C3-PFBS	*15.5*		µg/kg wet	19.4		79.9	55-150			
Surrogate: 13C3-PFHxS	*15.5*		µg/kg wet	19.4		80.1	55-150			
Surrogate: 13C8-PFOS	*15.4*		µg/kg wet	19.4		79.1	45-150			
Surrogate: 13C2-4:2FTS	*29.9*		µg/kg wet	38.8		77.0	60-200			
Surrogate: 13C2-6:2FTS	*27.7*		µg/kg wet	38.8		71.3	60-200			
Surrogate: 13C2-8:2FTS	*27.0*		µg/kg wet	38.8		69.6	50-200			
Surrogate: 13C8-PFOSA	*14.5*		µg/kg wet	19.4		74.8	30-130			
Surrogate: D3-NMeFOSA	*10.7*		µg/kg wet	19.4		55.3	15-130			
Surrogate: D5-NEtFOSA	*11.0*		µg/kg wet	19.4		56.8	10-130			
Surrogate: D3-NMeFOSAA	*32.0*		µg/kg wet	38.8		82.5	45-200			
Surrogate: D5-NEtFOSAA	*32.4*		µg/kg wet	38.8		83.5	10-200			
Surrogate: D7-NMeFOSE	*144*		µg/kg wet	194		74.1	10-150			
Surrogate: D9-NEtFOSE	*142*		µg/kg wet	194		72.9	10-150			
Surrogate: 13C3-HFPO-DA	*61.5*		µg/kg wet	77.6		79.2	25-160			
LCS (B361889-BS1)				Prepared: 01/05/24 Analyzed: 01/09/24						
Perfluorobutanoic acid (PFBA)	73.4	6.7	µg/kg wet	80.0		91.7	58-148			
Perfluoropentanoic acid (PFPeA)	37.1	3.3	µg/kg wet	40.0		92.9	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B361889 - Draft Method 1633										
LCS (B361889-BS1)				Prepared: 01/05/24 Analyzed: 01/09/24						
Perfluorohexanoic acid (PFHxA)	18.7	1.7	µg/kg wet	20.0		93.6	55-152			
Perfluoroheptanoic acid (PFHpA)	18.2	1.7	µg/kg wet	20.0		90.9	54-154			
Perfluorooctanoic acid (PFOA)	17.7	1.7	µg/kg wet	20.0		88.3	52-161			
Perfluorononanoic acid (PFNA)	19.0	1.7	µg/kg wet	20.0		95.2	59-149			
Perfluorodecanoic acid (PFDA)	18.6	1.7	µg/kg wet	20.0		92.9	52-147			
Perfluoroundecanoic acid (PFUnA)	18.5	1.7	µg/kg wet	20.0		92.6	48-159			
Perfluorododecanoic acid (PFDoA)	19.0	1.7	µg/kg wet	20.0		95.1	64-142			
Perfluorotridecanoic acid (PFTrDA)	17.8	1.7	µg/kg wet	20.0		88.8	49-148			
Perfluorotetradecanoic acid (PFTeDA)	19.7	1.7	µg/kg wet	20.0		98.5	47-161			
Perfluorobutanesulfonic acid (PFBS)	18.8	1.7	µg/kg wet	17.8		106	62-144			
Perfluoropentanesulfonic acid (PFPeS)	16.6	1.7	µg/kg wet	18.8		88.5	59-151			
Perfluorohexanesulfonic acid (PFHxS)	16.8	1.7	µg/kg wet	18.3		91.6	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	17.7	1.7	µg/kg wet	19.0		92.9	55-152			
Perfluorooctanesulfonic acid (PFOS)	16.3	1.7	µg/kg wet	18.6		88.0	58-149			
Perfluorononanesulfonic acid (PFNS)	16.5	1.7	µg/kg wet	19.2		85.5	52-148			
Perfluorodecanesulfonic acid (PFDS)	16.2	1.7	µg/kg wet	19.3		84.2	51-147			
Perfluorododecanesulfonic acid (PFDoS)	15.8	1.7	µg/kg wet	19.4		81.7	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	76.4	6.7	µg/kg wet	75.0		102	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	75.3	6.7	µg/kg wet	76.0		99.1	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	71.5	6.7	µg/kg wet	77.0		92.9	63-152			
Perfluorooctanesulfonamide (PFOSA)	18.3	1.7	µg/kg wet	20.0		91.7	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	14.7	1.7	µg/kg wet	20.0		73.5	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	15.4	1.7	µg/kg wet	20.0		76.8	65-139			
N-MeFOSAA (NMeFOSAA)	18.8	1.7	µg/kg wet	20.0		93.9	58-144			
N-EtFOSAA (NEtFOSAA)	18.8	1.7	µg/kg wet	20.0		94.2	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	187	17	µg/kg wet	200		93.4	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	185	17	µg/kg wet	200		92.3	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	67.3	6.7	µg/kg wet	80.0		84.2	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	63.8	6.7	µg/kg wet	75.5		84.5	68-146			
9Cl-PF3ONS (F53B Minor)	62.9	6.7	µg/kg wet	75.0		83.9	56-156			
11Cl-PF3OUdS (F53B Major)	60.6	6.7	µg/kg wet	75.5		80.3	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	157	17	µg/kg wet	200		78.4	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	824	83	µg/kg wet	1000		82.4	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	821	83	µg/kg wet	1000		82.1	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	33.5	3.3	µg/kg wet	35.6		94.1	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	36.5	3.3	µg/kg wet	40.0		91.3	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	37.0	3.3	µg/kg wet	40.0		92.5	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	38.8	3.3	µg/kg wet	40.0		96.9	48-161			
Surrogate: 13C4-PFBA	*66.5*		µg/kg wet	83.3		79.8	10-130			
Surrogate: 13C5-PFPeA	*32.8*		µg/kg wet	41.7		78.8	35-150			
Surrogate: 13C5-PFHxA	*16.5*		µg/kg wet	20.8		79.4	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B361889 - Draft Method 1633											
LCS (B361889-BS1)				Prepared: 01/05/24 Analyzed: 01/09/24							
Surrogate: 13C4-PFHpA	*17.0*		µg/kg wet	20.8		81.8		55-150			
Surrogate: 13C8-PFOA	*16.7*		µg/kg wet	20.8		80.1		60-140			
Surrogate: 13C9-PFNA	*8.09*		µg/kg wet	10.4		77.6		55-140			
Surrogate: 13C6-PFDA	*8.47*		µg/kg wet	10.4		81.3		50-140			
Surrogate: 13C7-PFUnA	*8.01*		µg/kg wet	10.4		76.9		30-140			
Surrogate: 13C2-PFDoA	*7.95*		µg/kg wet	10.4		76.3		10-150			
Surrogate: 13C2-PFTeDA	*6.91*		µg/kg wet	10.4		66.3		10-130			
Surrogate: 13C3-PFBS	*16.4*		µg/kg wet	20.8		78.8		55-150			
Surrogate: 13C3-PFHxS	*16.8*		µg/kg wet	20.8		80.5		55-150			
Surrogate: 13C8-PFOS	*17.0*		µg/kg wet	20.8		81.5		45-150			
Surrogate: 13C2-4:2FTS	*34.0*		µg/kg wet	41.7		81.6		60-200			
Surrogate: 13C2-6:2FTS	*33.5*		µg/kg wet	41.7		80.4		60-200			
Surrogate: 13C2-8:2FTS	*33.6*		µg/kg wet	41.7		80.7		50-200			
Surrogate: 13C8-PFOSA	*16.2*		µg/kg wet	20.8		77.8		30-130			
Surrogate: D3-NMeFOSA	*13.7*		µg/kg wet	20.8		66.0		15-130			
Surrogate: D5-NEtFOSA	*13.3*		µg/kg wet	20.8		63.7		10-130			
Surrogate: D3-NMeFOSAA	*36.5*		µg/kg wet	41.7		87.7		45-200			
Surrogate: D5-NEtFOSAA	*35.6*		µg/kg wet	41.7		85.4		10-200			
Surrogate: D7-NMeFOSE	*149*		µg/kg wet	208		71.5		10-150			
Surrogate: D9-NEtFOSE	*149*		µg/kg wet	208		71.5		10-150			
Surrogate: 13C3-HFPO-DA	*67.1*		µg/kg wet	83.3		80.5		25-160			
MRL Check (B361889-MRL1)				Prepared: 01/05/24 Analyzed: 01/09/24							
Perfluorobutanoic acid (PFBA)	5.90	6.7	µg/kg wet	6.66		88.7		44-157			J
Perfluoropentanoic acid (PFPeA)	2.76	3.3	µg/kg wet	3.33		82.9		57-148			J
Perfluorohexanoic acid (PFHxA)	1.42	1.7	µg/kg wet	1.66		85.3		62-149			J
Perfluoroheptanoic acid (PFHpA)	1.37	1.7	µg/kg wet	1.66		82.2		56-150			J
Perfluorooctanoic acid (PFOA)	1.24	1.7	µg/kg wet	1.66		74.5		57-161			J
Perfluorononanoic acid (PFNA)	1.26	1.7	µg/kg wet	1.66		75.5		53-157			J
Perfluorodecanoic acid (PFDA)	1.35	1.7	µg/kg wet	1.66		81.3		43-158			J
Perfluoroundecanoic acid (PFUnA)	1.16	1.7	µg/kg wet	1.66		69.9		50-155			J
Perfluorododecanoic acid (PFDoA)	1.41	1.7	µg/kg wet	1.66		84.7		60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.28	1.7	µg/kg wet	1.66		76.9		52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.41	1.7	µg/kg wet	1.66		84.5		52-156			J
Perfluorobutanesulfonic acid (PFBS)	2.53	1.7	µg/kg wet	1.48		**171**	*	63-145			L-05
Perfluoropentanesulfonic acid (PFPeS)	1.37	1.7	µg/kg wet	1.56		87.6		58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.31	1.7	µg/kg wet	1.52		85.8		44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.39	1.7	µg/kg wet	1.58		87.5		51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.22	1.7	µg/kg wet	1.54		79.2		43-162			J
Perfluorononanesulfonic acid (PFNS)	1.28	1.7	µg/kg wet	1.60		79.8		46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.24	1.7	µg/kg wet	1.61		77.2		50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.21	1.7	µg/kg wet	1.61		74.8		30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	5.46	6.7	µg/kg wet	6.24		87.5		52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.51	6.7	µg/kg wet	6.32		103		48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	5.84	6.7	µg/kg wet	6.41		91.2		46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.44	1.7	µg/kg wet	1.66		86.7		47-163			J
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.10	1.7	µg/kg wet	1.66		66.2		54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.13	1.7	µg/kg wet	1.66		68.1		49-156			J
N-MeFOSAA (NMeFOSAA)	1.49	1.7	µg/kg wet	1.66		89.3		32-160			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B361889 - Draft Method 1633										
MRL Check (B361889-MRL1)				Prepared: 01/05/24 Analyzed: 01/09/24						
N-EtFOSAA (NEtFOSAA)	1.32	1.7	µg/kg wet	1.66		79.3	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	13.4	17	µg/kg wet	16.6		80.4	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	13.9	17	µg/kg wet	16.6		83.6	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.27	6.7	µg/kg wet	6.66		79.1	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.10	6.7	µg/kg wet	6.28		81.1	61-148			J
9Cl-PF3ONS (F53B Minor)	5.03	6.7	µg/kg wet	6.24		80.6	44-167			J
11Cl-PF3OUdS (F53B Major)	4.94	6.7	µg/kg wet	6.28		78.7	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	12.8	17	µg/kg wet	16.6		76.9	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	62.3	83	µg/kg wet	83.2		74.8	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	63.8	83	µg/kg wet	83.2		76.6	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.45	3.3	µg/kg wet	2.96		82.6	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.83	3.3	µg/kg wet	3.33		85.1	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.71	3.3	µg/kg wet	3.33		81.4	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.99	3.3	µg/kg wet	3.33		90.0	47-160			J
Surrogate: 13C4-PFBA	*70.4*		µg/kg wet	83.2		84.6	10-130			
Surrogate: 13C5-PFPeA	*34.3*		µg/kg wet	41.6		82.4	35-150			
Surrogate: 13C5-PFHxA	*17.3*		µg/kg wet	20.8		83.3	55-150			
Surrogate: 13C4-PFHpA	*17.5*		µg/kg wet	20.8		84.1	55-150			
Surrogate: 13C8-PFOA	*17.3*		µg/kg wet	20.8		83.0	60-140			
Surrogate: 13C9-PFNA	*8.80*		µg/kg wet	10.4		84.6	55-140			
Surrogate: 13C6-PFDA	*8.79*		µg/kg wet	10.4		84.5	50-140			
Surrogate: 13C7-PFUnA	*8.57*		µg/kg wet	10.4		82.4	30-140			
Surrogate: 13C2-PFDoA	*8.10*		µg/kg wet	10.4		77.9	10-150			
Surrogate: 13C2-PFTeDA	*7.60*		µg/kg wet	10.4		73.1	10-130			
Surrogate: 13C3-PFBS	*17.1*		µg/kg wet	20.8		82.1	55-150			
Surrogate: 13C3-PFHxS	*16.5*		µg/kg wet	20.8		79.2	55-150			
Surrogate: 13C8-PFOS	*17.2*		µg/kg wet	20.8		82.5	45-150			
Surrogate: 13C2-4:2FTS	*33.2*		µg/kg wet	41.6		79.9	60-200			
Surrogate: 13C2-6:2FTS	*30.9*		µg/kg wet	41.6		74.2	60-200			
Surrogate: 13C2-8:2FTS	*30.4*		µg/kg wet	41.6		73.2	50-200			
Surrogate: 13C8-PFOSA	*16.7*		µg/kg wet	20.8		80.2	30-130			
Surrogate: D3-NMeFOSA	*13.0*		µg/kg wet	20.8		62.4	15-130			
Surrogate: D5-NEtFOSA	*12.4*		µg/kg wet	20.8		59.7	10-130			
Surrogate: D3-NMeFOSAA	*35.6*		µg/kg wet	41.6		85.7	45-200			
Surrogate: D5-NEtFOSAA	*35.9*		µg/kg wet	41.6		86.3	10-200			
Surrogate: D7-NMeFOSE	*156*		µg/kg wet	208		75.1	10-150			
Surrogate: D9-NEtFOSE	*152*		µg/kg wet	208		73.2	10-150			
Surrogate: 13C3-HFPO-DA	*71.4*		µg/kg wet	83.2		85.8	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
B-05	Data is not affected by elevated level in laboratory blank since sample(s) result is "Not Detected".
D-04	Sample extracted at a dilution due to insufficient volume provided.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-22	Qualifier ion ratio >150% of associated calibration. Detection is suspect.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
S-29	Extracted Internal Standard is outside of control limits.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.
Z-01	Analyte detected in method blank >1/3 MRL

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2024
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

23L0196 MC

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☒ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No

Workorder: 40271731 **Workorder Name:** PFAS/1633

Owner Received Date: 12/5/2023 **Results Requested By:** 1/5/2024

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	1633 PFAS	LAB USE ONLY
1	PCD CLASSIFIER 2 120523	PS	12/5/2023 09:47	40271731001	Solid	2	X	
2	FIELD BLANK 120524	PS	12/5/2023 09:48	40271731002	Water	1	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Mike Lu	12/5/23 5:00	FedEx	12/5/23 5:00
2			[illegible]	35°C 12-6-23 1100
3				

Comments

Need dry and weight reporting

Cooler Temperature on Receipt ____ °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*

This chain of custody is considered complete as is since this information is available in the owner laboratory.

FedEx® Tracking

DELIVERED

Wednesday

12/6/23 at 11:00 AM

Signed for by: A.MULINARE

Obtain proof of delivery

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DELIVERY STATUS

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12/6/23 8:27 AM

DELIVERED
east longmeadow, MA US

Delivered
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Pace Analytical Services	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client PLCE

Project RFAS/1633

MCP/RCP Required NA

Deliverable Package Requirement NA

Location RFAS/1633

PWSID# (When Applicable) NA

Arrival Method:

Courier ☑ Fed Ex ☐ Walk In ☐ Other ☐

Received By / Date / Time AM 12/6/23/1100

Back-Sheet By / Date / Time [illegible] 12/6/23 1428

Temperature Method Gun #5

Temp ✓ < 6° C Actual Temperature 3.3

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client	☑	Analysis	☑	Sampler Name	☐
Project	☑	IDs	☑	Collection Date/Time	☑

All Samples Proper pH: (N/A) ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

Page 1 of 2

Pace ANALYTICAL SERVICES

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Sample																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Soils Jars (Circle Amb/Clear) — 16oz Amb/Clear																				
8oz Amb/Clear																				
4oz Amb/Clear																				
2oz Amb/Clear																				
Ambers — 1 Liter — Unpreserved																				
1 Liter — HCL																				
1 Liter — Sulfuric																				
250mL — Sulfuric																				
250mL — Phosphoric																				
250mL — HCl																				
100mL — Unpreserved																				
Plastics — 1 Liter — Unpreserved																				
1 Liter — Sulfuric																				
500mL — Unpreserved		✓																		
500mL — Sulfuric																				
250mL — Unpreserved																				
250mL — Trizma																				
250mL — Sulfuric																				
250mL — Nitric																				
250mL — NaOH																				
250mL — Ammonium Acetate																				
250mL — NaOH/Zinc																				
VOA Vials — Unpreserved																				
VOA Vials — HCl																				
VOA Vials — MeOH																				
VOA Vials — D.I. Water																				
VOA Vials — BiSulfate																				
Other / Fill in — Col/Bact																				
Other / Fill in		-																		
Other / Fill in																				
Other / Fill in																				
Other / Fill in																				
Other / Fill in																				

Qualtrax ID: 120836

Page 2 of 2

2024 CDPHE PFAS SAMPLING

JANUARY 8, 2024

PACE NE-PROJECT No.: 40272930

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

January 23, 2024

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633 - BIOSOLID
Pace Project No.: 40272930

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on January 08, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jon Gibson, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glen Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633 - BIOSOLID
Pace Project No.: 40272930

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40272930001	CLASSIFIER 3 010824	Solid	01/08/24 09:50	01/08/24 12:24
40272930002	FIELD BLANK 010824	Water	01/08/24 09:50	01/08/24 12:24

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus.ketter@veolia.com	Purchase Order No: 1000235497	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	Project Name: PFAS/1633	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER___

Filtered (Y/N) N

Analysis: 1633 PFAS; Residual Chlor

Pace Project Number Lab I.D

Section D Required Client Information

SAMPLE ID

One Character per box (A-Z, 0-9 / ,-)

Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives Unpresreved	1633 PFAS	Residual Chlor	Pace Project Number Lab I.D
1	CLASSIFIER 3 010824	SL	G	1-8-24	9:50AM	1-8-24	9:50AM	1		X		
2	Field Blank BLANK 010824	W	G	1-8-24	9:50AM	1-8-24	9:50AM	1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO# : 40272930

40272930

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	1-8-24	12:24pm		1-8-24	1224

SAMPLE CONDITIONS

Y/N	Y/N	Y/N	Y/N
Y/N	Y/N	Y/N	Y/N
Y/N	Y/N	Y/N	Y/N
Y/N	Y/N	Y/N	Y/N
Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JOSE NORATINSLU

SIGNATURE of SAMPLER:

DATE Signed (MM / DD / YY): 1/8/2024

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier_____X
☒ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 1/8/2024 Results Requested By: 2/6/2024

Workorder: 40272930 **Workorder Name:** PFAS/1633 - BIOSOLID

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						1633 PFAS												LAB USE ONLY
1	CLASSIFIER 3 010824	PS	1/8/2024 09:50	40272930001	Solid	1						X												
2	FIELD BLANK 010824	PS	1/8/2024 09:50	40272930002	Water	1						X												
3																								
4																								
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	1/8/24 1500	FedEx	1/8/24
2				
3				

Comments

Need dry and wet weight reporting

BIOSOLIDS

Cooler Temperature on Receipt °C	Custody Seal Y or N	Received on Ice Y or N	Samples Intact Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

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

January 23, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633- BIOSOLID
Client Job Number:
Project Number: 40272930
Laboratory Work Order Number: 24A0759

Enclosed are results of analyses for samples as received by the laboratory on January 9, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 1/23/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40272930

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24A0759

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

PROJECT LOCATION: PFAS/1633- BIOSOLID

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
CLASSIFIER 3 010824	24A0759-01	Biosolids		Draft Method 1633	
				SM 2540G	
FIELD BLANK 010824	24A0759-02	Field Blank		Draft Method 1633	
CLASSIFIER 3 010824 Wet Weight	24A0759-03	Biosolids		Draft Method 1633	

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

CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

PF-17C

Extracted internal standard is outside of control limits. Analyte is a known difficult compound.

Analyte & Samples(s) Qualified:

13C2-8:2FTS
24A0759-01[CLASSIFIER 3 010824], 24A0759-03[CLASSIFIER 3 010824 Wet Weight]

1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS
24A0759-01[CLASSIFIER 3 010824], 24A0759-03[CLASSIFIER 3 010824 Wet Weight]

PF-23A

Qualifier ion ratio <50% of associated calibration.

Analyte & Samples(s) Qualified:

Perfluoroheptanoic acid (PFHpA)
24A0759-01[CLASSIFIER 3 010824], 24A0759-03[CLASSIFIER 3 010824 Wet Weight]

Perfluoropentanoic acid (PFPeA)
24A0759-01[CLASSIFIER 3 010824], 24A0759-03[CLASSIFIER 3 010824 Wet Weight]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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

Project Location: PFAS/1633- BIOSOLID | Sample Description: | Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: CLASSIFIER 3 010824 | Sampled: 1/8/2024 09:50

Sample ID: 24A0759-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.3	1.1	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoropentanoic acid (PFPeA)	7.1	3.2	0.15	µg/kg dry	1	PF-23A	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorohexanoic acid (PFHxA)	1.1	1.6	0.079	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoroheptanoic acid (PFHpA)	0.71	1.6	0.12	µg/kg dry	1	PF-23A, J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorooctanoic acid (PFOA)	0.55	1.6	0.23	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorononanoic acid (PFNA)	0.25	1.6	0.21	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorodecanoic acid (PFDA)	1.3	1.6	0.13	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoroundecanoic acid (PFUnA)	0.80	1.6	0.11	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorododecanoic acid (PFDoA)	1.2	1.6	0.13	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorotridecanoic acid (PFTrDA)	0.28	1.6	0.21	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.38	1.6	0.10	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.6	0.11	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.6	0.16	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.6	0.20	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.6	0.13	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorooctanesulfonic acid (PFOS)	9.5	1.6	0.13	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.6	0.24	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.6	0.13	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.6	0.14	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.3	0.30	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.76	6.3	0.65	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.63	6.3	0.28	µg/kg dry	1	PF-17C, J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorooctanesulfonamide (PFOSA)	0.35	1.6	0.071	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.6	0.15	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.6	0.11	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-MeFOSAA (NMeFOSAA)	2.9	1.6	0.22	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-EtFOSAA (NEtFOSAA)	1.8	1.6	0.33	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	2.7	16	0.74	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.9	16	1.3	µg/kg dry	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.3	0.39	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.3	0.64	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.3	0.61	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.3	0.83	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	16	1.3	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	79	9.4	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	79	7.3	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.2	0.16	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.2	0.33	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS

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

Project Location: PFAS/1633- BIOSOLID
Sample Description:
Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: CLASSIFIER 3 010824
Sampled: 1/8/2024 09:50

Sample ID: 24A0759-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.2	0.25	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.2	0.28	µg/kg dry	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	84.6		10-130		1/18/24 12:08
13C5-PFPeA	78.0		35-150		1/18/24 12:08
13C5-PFHxA	84.6		55-150		1/18/24 12:08
13C4-PFHpA	90.8		55-150		1/18/24 12:08
13C8-PFOA	83.5		60-140		1/18/24 12:08
13C9-PFNA	84.0		55-140		1/18/24 12:08
13C6-PFDA	89.3		50-140		1/18/24 12:08
13C7-PFUnA	82.7		30-140		1/18/24 12:08
13C2-PFDoA	85.1		10-150		1/18/24 12:08
13C2-PFTeDA	71.8		10-130		1/18/24 12:08
13C3-PFBS	79.8		55-150		1/18/24 12:08
13C3-PFHxS	86.2		55-150		1/18/24 12:08
13C8-PFOS	84.2		45-150		1/18/24 12:08
13C2-4:2FTS	182		60-200		1/18/24 12:08
13C2-6:2FTS	200		60-200		1/18/24 12:08
13C2-8:2FTS	**242**	*	50-200	PF-17C	1/18/24 12:08
13C8-PFOSA	89.1		30-130		1/18/24 12:08
D3-NMeFOSA	33.0		15-130		1/18/24 12:08
D5-NEtFOSA	22.6		10-130		1/18/24 12:08
D3-NMeFOSAA	110		45-200		1/18/24 12:08
D5-NEtFOSAA	118		10-200		1/18/24 12:08
D7-NMeFOSE	14.8		10-150		1/18/24 12:08
D9-NEtFOSE	31.8		10-150		1/18/24 12:08
13C3-HFPO-DA	76.1		25-160		1/18/24 12:08

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

Project Location: PFAS/1633- BIOSOLID
Sample Description:
Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: CLASSIFIER 3 010824
Sampled: 1/8/2024 09:50

Sample ID: 24A0759-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	94.4		% Wt	1		SM 2540G	1/9/24	1/9/24 10:29	AGG

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

Project Location: PFAS/1633- BIOSOLID | Sample Description: | Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: FIELD BLANK 010824 | Sampled: 1/8/2024 09:50

Sample ID: 24A0759-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.3	2.6	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoropentanoic acid (PFPeA)	ND	3.6	0.63	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorohexanoic acid (PFHxA)	ND	1.8	0.39	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.8	0.46	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorooctanoic acid (PFOA)	ND	1.8	0.41	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorononanoic acid (PFNA)	ND	1.8	0.35	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorodecanoic acid (PFDA)	ND	1.8	0.34	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoroundecanoic acid (PFUnA)	ND	1.8	0.50	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorododecanoic acid (PFDoA)	ND	1.8	0.47	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	0.49	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	1.8	0.45	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.47	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.43	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.37	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.56	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	0.58	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.53	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.57	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.48	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.3	1.3	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.3	1.8	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.3	2.0	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	1.8	0.56	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	0.75	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.56	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
N-MeFOSAA (NMeFOSAA)	ND	1.8	0.80	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
N-EtFOSAA (NEtFOSAA)	ND	1.8	0.40	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	4.8	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	4.5	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.3	1.9	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.3	1.2	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.3	1.5	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.3	1.8	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	3.3	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	91	19	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	91	16	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.6	0.89	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.6	0.90	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS

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Project Location: PFAS/1633- BIOSOLID | Sample Description: | Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: FIELD BLANK 010824 | Sampled: 1/8/2024 09:50

Sample ID: 24A0759-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.6	0.73	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	1.6	ng/L	1		Draft Method 1633	1/17/24	1/19/24 11:51	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	78.2	10-130		1/19/24 11:51
13C5-PFPeA	77.8	35-150		1/19/24 11:51
13C5-PFHxA	74.7	55-150		1/19/24 11:51
13C4-PFHpA	75.3	55-150		1/19/24 11:51
13C8-PFOA	74.8	60-140		1/19/24 11:51
13C9-PFNA	77.4	55-140		1/19/24 11:51
13C6-PFDA	75.5	50-140		1/19/24 11:51
13C7-PFUnA	73.5	30-140		1/19/24 11:51
13C2-PFDoA	76.8	10-150		1/19/24 11:51
13C2-PFTeDA	74.4	10-130		1/19/24 11:51
13C3-PFBS	80.2	55-150		1/19/24 11:51
13C3-PFHxS	75.9	55-150		1/19/24 11:51
13C8-PFOS	73.7	45-140		1/19/24 11:51
13C2-4:2FTS	70.1	60-200		1/19/24 11:51
13C2-6:2FTS	68.9	60-200		1/19/24 11:51
13C2-8:2FTS	67.2	50-200		1/19/24 11:51
13C8-PFOSA	74.8	30-130		1/19/24 11:51
D3-NMeFOSA	69.7	15-130		1/19/24 11:51
D5-NEtFOSA	70.6	10-130		1/19/24 11:51
D3-NMeFOSAA	77.2	45-200		1/19/24 11:51
D5-NEtFOSAA	73.5	10-200		1/19/24 11:51
D7-NMeFOSE	77.5	10-150		1/19/24 11:51
D9-NEtFOSE	71.5	10-150		1/19/24 11:51
13C3-HFPO-DA	76.2	25-160		1/19/24 11:51

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Project Location: PFAS/1633- BIOSOLID
Sample Description:
Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: FIELD BLANK 010824
Sampled: 1/8/2024 09:50

Sample ID: 24A0759-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	1/11/24	1/11/24 8:03	LL

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Project Location: PFAS/1633- BIOSOLID | Sample Description: | Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: CLASSIFIER 3 010824 Wet Weight | Sampled: 1/8/2024 09:50

Sample ID: 24A0759-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.0	1.0	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoropentanoic acid (PFPeA)	6.7	3.0	0.14	µg/kg wet	1	PF-23A	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorohexanoic acid (PFHxA)	1.0	1.5	0.075	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoroheptanoic acid (PFHpA)	0.67	1.5	0.11	µg/kg wet	1	PF-23A, J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorooctanoic acid (PFOA)	0.52	1.5	0.22	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorononanoic acid (PFNA)	0.24	1.5	0.19	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorodecanoic acid (PFDA)	1.2	1.5	0.12	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoroundecanoic acid (PFUnA)	0.76	1.5	0.10	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorododecanoic acid (PFDoA)	1.2	1.5	0.12	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorotridecanoic acid (PFTrDA)	0.26	1.5	0.20	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.36	1.5	0.097	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.5	0.10	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.5	0.15	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.5	0.19	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.5	0.13	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorooctanesulfonic acid (PFOS)	9.0	1.5	0.12	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.5	0.22	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.5	0.13	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.5	0.13	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.0	0.28	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.72	6.0	0.61	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.60	6.0	0.27	µg/kg wet	1	PF-17C, J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluorooctanesulfonamide (PFOSA)	0.33	1.5	0.067	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.5	0.14	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.5	0.10	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-MeFOSAA (NMeFOSAA)	2.7	1.5	0.21	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-EtFOSAA (NEtFOSAA)	1.7	1.5	0.31	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	2.5	15	0.70	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.8	15	1.2	µg/kg wet	1	J	Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.0	0.37	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.0	0.60	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.0	0.57	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.0	0.78	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	15	1.3	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	75	8.9	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	75	6.9	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.0	0.15	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.0	0.31	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS

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Project Location: PFAS/1633- BIOSOLID
Sample Description:
Work Order: 24A0759

Date Received: 1/9/2024

Field Sample #: CLASSIFIER 3 010824 Wet Weight
Sampled: 1/8/2024 09:50

Sample ID: 24A0759-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.0	0.23	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.0	0.26	µg/kg wet	1		Draft Method 1633	1/16/24	1/18/24 12:08	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	84.6		10-130		1/18/24 12:08
13C5-PFPeA	78.0		35-150		1/18/24 12:08
13C5-PFHxA	84.6		55-150		1/18/24 12:08
13C4-PFHpA	90.8		55-150		1/18/24 12:08
13C8-PFOA	83.5		60-140		1/18/24 12:08
13C9-PFNA	84.0		55-140		1/18/24 12:08
13C6-PFDA	89.3		50-140		1/18/24 12:08
13C7-PFUnA	82.7		30-140		1/18/24 12:08
13C2-PFDoA	85.1		10-150		1/18/24 12:08
13C2-PFTeDA	71.8		10-130		1/18/24 12:08
13C3-PFBS	79.8		55-150		1/18/24 12:08
13C3-PFHxS	86.2		55-150		1/18/24 12:08
13C8-PFOS	84.2		45-150		1/18/24 12:08
13C2-4:2FTS	182		60-200		1/18/24 12:08
13C2-6:2FTS	200		60-200		1/18/24 12:08
13C2-8:2FTS	**242**	*	50-200	PF-17C	1/18/24 12:08
13C8-PFOSA	89.1		30-130		1/18/24 12:08
D3-NMeFOSA	33.0		15-130		1/18/24 12:08
D5-NEtFOSA	22.6		10-130		1/18/24 12:08
D3-NMeFOSAA	110		45-200		1/18/24 12:08
D5-NEtFOSAA	118		10-200		1/18/24 12:08
D7-NMeFOSE	14.8		10-150		1/18/24 12:08
D9-NEtFOSE	31.8		10-150		1/18/24 12:08
13C3-HFPO-DA	76.1		25-160		1/18/24 12:08

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24A0759-01 [CLASSIFIER 3 010824]	B363408	0.670	5.00	01/16/24
24A0759-03 [CLASSIFIER 3 010824 Wet Weight]	B363408	0.670	5.00	01/16/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24A0759-02 [FIELD BLANK 010824]	B363065	50.0	01/11/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 1/11/2024 per NO PREP in Batch B363065**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24A0759-02 [FIELD BLANK 010824]	B363513	275	5.00	01/17/24

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

Lab Number [Field ID]	Batch	Date
24A0759-01 [CLASSIFIER 3 010824]	B362872	01/09/24

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363408 - Draft Method 1633										
Blank (B363408-BLK1)				Prepared: 01/16/24 Analyzed: 01/18/24						
Perfluorobutanoic acid (PFBA)	ND	6.3	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	3.1	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.6	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.6	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.6	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.6	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.6	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.6	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.6	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.6	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.6	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.6	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.6	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.6	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.6	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.6	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.6	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.6	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.6	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.3	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.3	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.3	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.6	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.6	µg/kg wet							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.6	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.6	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.6	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	16	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	16	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.3	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.3	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	6.3	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	6.3	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	16	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	78	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	78	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.1	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.1	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.1	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.1	µg/kg wet							
Surrogate: 13C4-PFBA	*69.6*		µg/kg wet	78.5		88.7	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363408 - Draft Method 1633										
Blank (B363408-BLK1)				Prepared: 01/16/24 Analyzed: 01/18/24						
Surrogate: 13C5-PFPeA	*35.7*		µg/kg wet	39.2		91.1	35-150			
Surrogate: 13C5-PFHxA	*17.3*		µg/kg wet	19.6		88.0	55-150			
Surrogate: 13C4-PFHpA	*17.2*		µg/kg wet	19.6		87.7	55-150			
Surrogate: 13C8-PFOA	*17.1*		µg/kg wet	19.6		87.2	60-140			
Surrogate: 13C9-PFNA	*8.84*		µg/kg wet	9.81		90.1	55-140			
Surrogate: 13C6-PFDA	*8.85*		µg/kg wet	9.81		90.2	50-140			
Surrogate: 13C7-PFUnA	*8.45*		µg/kg wet	9.81		86.1	30-140			
Surrogate: 13C2-PFDoA	*8.80*		µg/kg wet	9.81		89.7	10-150			
Surrogate: 13C2-PFTeDA	*8.09*		µg/kg wet	9.81		82.5	10-130			
Surrogate: 13C3-PFBS	*18.0*		µg/kg wet	19.6		91.8	55-150			
Surrogate: 13C3-PFHxS	*17.4*		µg/kg wet	19.6		88.6	55-150			
Surrogate: 13C8-PFOS	*17.2*		µg/kg wet	19.6		87.4	45-150			
Surrogate: 13C2-4:2FTS	*32.1*		µg/kg wet	39.2		81.7	60-200			
Surrogate: 13C2-6:2FTS	*32.3*		µg/kg wet	39.2		82.2	60-200			
Surrogate: 13C2-8:2FTS	*28.9*		µg/kg wet	39.2		73.7	50-200			
Surrogate: 13C8-PFOSA	*17.6*		µg/kg wet	19.6		89.7	30-130			
Surrogate: D3-NMeFOSA	*13.1*		µg/kg wet	19.6		66.9	15-130			
Surrogate: D5-NEtFOSA	*13.6*		µg/kg wet	19.6		69.4	10-130			
Surrogate: D3-NMeFOSAA	*36.3*		µg/kg wet	39.2		92.6	45-200			
Surrogate: D5-NEtFOSAA	*33.2*		µg/kg wet	39.2		84.6	10-200			
Surrogate: D7-NMeFOSE	*169*		µg/kg wet	196		86.2	10-150			
Surrogate: D9-NEtFOSE	*151*		µg/kg wet	196		76.7	10-150			
Surrogate: 13C3-HFPO-DA	*66.9*		µg/kg wet	78.5		85.2	25-160			
LCS (B363408-BS1)				Prepared: 01/16/24 Analyzed: 01/18/24						
Perfluorobutanoic acid (PFBA)	89.7	7.5	µg/kg wet	90.6		99.0	58-148			
Perfluoropentanoic acid (PFPeA)	41.1	3.8	µg/kg wet	45.3		90.7	54-152			
Perfluorohexanoic acid (PFHxA)	20.7	1.9	µg/kg wet	22.6		91.6	55-152			
Perfluoroheptanoic acid (PFHpA)	21.0	1.9	µg/kg wet	22.6		92.6	54-154			
Perfluorooctanoic acid (PFOA)	21.2	1.9	µg/kg wet	22.6		93.6	52-161			
Perfluorononanoic acid (PFNA)	20.6	1.9	µg/kg wet	22.6		91.2	59-149			
Perfluorodecanoic acid (PFDA)	21.2	1.9	µg/kg wet	22.6		93.7	52-147			
Perfluoroundecanoic acid (PFUnA)	21.5	1.9	µg/kg wet	22.6		95.0	48-159			
Perfluorododecanoic acid (PFDoA)	21.1	1.9	µg/kg wet	22.6		93.1	64-142			
Perfluorotridecanoic acid (PFTrDA)	18.6	1.9	µg/kg wet	22.6		82.1	49-148			
Perfluorotetradecanoic acid (PFTeDA)	20.8	1.9	µg/kg wet	22.6		92.0	47-161			
Perfluorobutanesulfonic acid (PFBS)	18.4	1.9	µg/kg wet	20.1		91.8	62-144			
Perfluoropentanesulfonic acid (PFPeS)	19.0	1.9	µg/kg wet	21.3		89.1	59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.5	1.9	µg/kg wet	20.7		89.5	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	19.8	1.9	µg/kg wet	21.6		91.7	55-152			
Perfluorooctanesulfonic acid (PFOS)	18.5	1.9	µg/kg wet	21.0		87.9	58-149			
Perfluorononanesulfonic acid (PFNS)	19.9	1.9	µg/kg wet	21.8		91.2	52-148			
Perfluorodecanesulfonic acid (PFDS)	19.5	1.9	µg/kg wet	21.8		89.1	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.8	1.9	µg/kg wet	22.0		85.7	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	85.5	7.5	µg/kg wet	84.9		101	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	83.5	7.5	µg/kg wet	86.0		97.0	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	81.7	7.5	µg/kg wet	87.2		93.8	63-152			
Perfluorooctanesulfonamide (PFOSA)	21.2	1.9	µg/kg wet	22.6		93.5	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	18.5	1.9	µg/kg wet	22.6		81.9	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363408 - Draft Method 1633										
LCS (B363408-BS1)				Prepared: 01/16/24 Analyzed: 01/18/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	18.8	1.9	µg/kg wet	22.6		83.1	65-139			
N-MeFOSAA (NMeFOSAA)	21.5	1.9	µg/kg wet	22.6		95.1	58-144			
N-EtFOSAA (NEtFOSAA)	21.1	1.9	µg/kg wet	22.6		93.4	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	210	19	µg/kg wet	226		92.6	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	222	19	µg/kg wet	226		98.0	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	75.3	7.5	µg/kg wet	90.6		83.2	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	69.9	7.5	µg/kg wet	85.5		81.7	68-146			
9Cl-PF3ONS (F53B Minor)	71.5	7.5	µg/kg wet	84.9		84.2	56-156			
11Cl-PF3OUdS (F53B Major)	72.9	7.5	µg/kg wet	85.5		85.2	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	215	19	µg/kg wet	226		95.0	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1070	94	µg/kg wet	1130		94.5	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1030	94	µg/kg wet	1130		90.6	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	36.4	3.8	µg/kg wet	36.6		99.5	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	38.8	3.8	µg/kg wet	41.2		94.3	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	39.3	3.8	µg/kg wet	41.2		95.6	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	39.8	3.8	µg/kg wet	41.2		96.6	48-161			
Surrogate: 13C4-PFBA	*81.1*		µg/kg wet	94.3		85.9	10-130			
Surrogate: 13C5-PFPeA	*41.9*		µg/kg wet	47.2		88.8	35-150			
Surrogate: 13C5-PFHxA	*20.4*		µg/kg wet	23.6		86.5	55-150			
Surrogate: 13C4-PFHpA	*20.2*		µg/kg wet	23.6		85.8	55-150			
Surrogate: 13C8-PFOA	*19.4*		µg/kg wet	23.6		82.2	60-140			
Surrogate: 13C9-PFNA	*10.4*		µg/kg wet	11.8		88.0	55-140			
Surrogate: 13C6-PFDA	*10.1*		µg/kg wet	11.8		85.9	50-140			
Surrogate: 13C7-PFUnA	*9.82*		µg/kg wet	11.8		83.2	30-140			
Surrogate: 13C2-PFDoA	*10.8*		µg/kg wet	11.8		91.2	10-150			
Surrogate: 13C2-PFTeDA	*9.57*		µg/kg wet	11.8		81.1	10-130			
Surrogate: 13C3-PFBS	*21.8*		µg/kg wet	23.6		92.4	55-150			
Surrogate: 13C3-PFHxS	*20.9*		µg/kg wet	23.6		88.8	55-150			
Surrogate: 13C8-PFOS	*21.4*		µg/kg wet	23.6		90.8	45-150			
Surrogate: 13C2-4:2FTS	*40.6*		µg/kg wet	47.2		86.0	60-200			
Surrogate: 13C2-6:2FTS	*41.6*		µg/kg wet	47.2		88.3	60-200			
Surrogate: 13C2-8:2FTS	*40.6*		µg/kg wet	47.2		86.1	50-200			
Surrogate: 13C8-PFOSA	*21.5*		µg/kg wet	23.6		91.2	30-130			
Surrogate: D3-NMeFOSA	*16.3*		µg/kg wet	23.6		69.3	15-130			
Surrogate: D5-NEtFOSA	*15.8*		µg/kg wet	23.6		67.2	10-130			
Surrogate: D3-NMeFOSAA	*43.9*		µg/kg wet	47.2		93.0	45-200			
Surrogate: D5-NEtFOSAA	*41.7*		µg/kg wet	47.2		88.4	10-200			
Surrogate: D7-NMeFOSE	*203*		µg/kg wet	236		85.9	10-150			
Surrogate: D9-NEtFOSE	*186*		µg/kg wet	236		78.9	10-150			
Surrogate: 13C3-HFPO-DA	*84.7*		µg/kg wet	94.3		89.8	25-160			
MRL Check (B363408-MRL1)				Prepared: 01/16/24 Analyzed: 01/18/24						
Perfluorobutanoic acid (PFBA)	5.92	6.3	µg/kg wet	6.32		93.6	44-157			J
Perfluoropentanoic acid (PFPeA)	2.59	3.2	µg/kg wet	3.16		81.9	57-148			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363408 - Draft Method 1633										
MRL Check (B363408-MRL1)				Prepared: 01/16/24 Analyzed: 01/18/24						
Perfluorohexanoic acid (PFHxA)	1.27	1.6	µg/kg wet	1.58		80.6	62-149			J
Perfluoroheptanoic acid (PFHpA)	1.25	1.6	µg/kg wet	1.58		79.3	56-150			J
Perfluorooctanoic acid (PFOA)	1.24	1.6	µg/kg wet	1.58		78.4	57-161			J
Perfluorononanoic acid (PFNA)	1.17	1.6	µg/kg wet	1.58		73.9	53-157			J
Perfluorodecanoic acid (PFDA)	1.15	1.6	µg/kg wet	1.58		72.6	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.23	1.6	µg/kg wet	1.58		78.1	50-155			J
Perfluorododecanoic acid (PFDoA)	1.27	1.6	µg/kg wet	1.58		80.6	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.13	1.6	µg/kg wet	1.58		71.3	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.30	1.6	µg/kg wet	1.58		82.3	52-156			J
Perfluorobutanesulfonic acid (PFBS)	1.19	1.6	µg/kg wet	1.40		84.5	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.17	1.6	µg/kg wet	1.48		78.9	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.20	1.6	µg/kg wet	1.45		82.7	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.34	1.6	µg/kg wet	1.50		89.1	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.34	1.6	µg/kg wet	1.47		91.7	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.39	1.6	µg/kg wet	1.52		91.3	46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.27	1.6	µg/kg wet	1.52		83.0	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.14	1.6	µg/kg wet	1.53		74.6	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	4.72	6.3	µg/kg wet	5.92		79.7	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	5.36	6.3	µg/kg wet	6.00		89.2	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	4.69	6.3	µg/kg wet	6.08		77.1	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.30	1.6	µg/kg wet	1.58		82.1	47-163			J
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.03	1.6	µg/kg wet	1.58		65.5	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.18	1.6	µg/kg wet	1.58		74.5	49-156			J
N-MeFOSAA (NMeFOSAA)	1.46	1.6	µg/kg wet	1.58		92.3	32-160			J
N-EtFOSAA (NEtFOSAA)	1.35	1.6	µg/kg wet	1.58		85.4	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	12.9	16	µg/kg wet	15.8		81.8	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	13.7	16	µg/kg wet	15.8		86.4	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.36	6.3	µg/kg wet	6.32		84.8	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	4.64	6.3	µg/kg wet	5.96		77.7	61-148			J
9Cl-PF3ONS (F53B Minor)	4.87	6.3	µg/kg wet	5.92		82.3	44-167			J
11Cl-PF3OUdS (F53B Major)	4.73	6.3	µg/kg wet	5.96		79.3	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.3	16	µg/kg wet	15.8		84.0	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	63.2	79	µg/kg wet	79.0		80.0	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	62.4	79	µg/kg wet	79.0		79.0	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.29	3.2	µg/kg wet	2.56		89.5	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.59	3.2	µg/kg wet	2.87		90.1	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.53	3.2	µg/kg wet	2.87		88.3	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.14	3.2	µg/kg wet	2.87		109	47-160			J
Surrogate: 13C4-PFBA	*75.4*		µg/kg wet	79.0		95.5	10-130			
Surrogate: 13C5-PFPeA	*38.9*		µg/kg wet	39.5		98.4	35-150			
Surrogate: 13C5-PFHxA	*19.0*		µg/kg wet	19.7		96.0	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363408 - Draft Method 1633										
MRL Check (B363408-MRL1)				Prepared: 01/16/24 Analyzed: 01/18/24						
Surrogate: 13C4-PFHpA	*18.9*		µg/kg wet	19.7		95.8	55-150			
Surrogate: 13C8-PFOA	*18.5*		µg/kg wet	19.7		93.6	60-140			
Surrogate: 13C9-PFNA	*9.02*		µg/kg wet	9.87		91.3	55-140			
Surrogate: 13C6-PFDA	*9.84*		µg/kg wet	9.87		99.7	50-140			
Surrogate: 13C7-PFUnA	*9.10*		µg/kg wet	9.87		92.1	30-140			
Surrogate: 13C2-PFDoA	*9.45*		µg/kg wet	9.87		95.7	10-150			
Surrogate: 13C2-PFTeDA	*8.47*		µg/kg wet	9.87		85.8	10-130			
Surrogate: 13C3-PFBS	*19.2*		µg/kg wet	19.7		97.0	55-150			
Surrogate: 13C3-PFHxS	*18.3*		µg/kg wet	19.7		92.6	55-150			
Surrogate: 13C8-PFOS	*18.1*		µg/kg wet	19.7		91.8	45-150			
Surrogate: 13C2-4:2FTS	*34.4*		µg/kg wet	39.5		87.1	60-200			
Surrogate: 13C2-6:2FTS	*33.8*		µg/kg wet	39.5		85.5	60-200			
Surrogate: 13C2-8:2FTS	*32.3*		µg/kg wet	39.5		81.9	50-200			
Surrogate: 13C8-PFOSA	*19.3*		µg/kg wet	19.7		97.9	30-130			
Surrogate: D3-NMeFOSA	*14.2*		µg/kg wet	19.7		71.7	15-130			
Surrogate: D5-NEtFOSA	*14.1*		µg/kg wet	19.7		71.5	10-130			
Surrogate: D3-NMeFOSAA	*39.7*		µg/kg wet	39.5		100	45-200			
Surrogate: D5-NEtFOSAA	*38.3*		µg/kg wet	39.5		97.0	10-200			
Surrogate: D7-NMeFOSE	*178*		µg/kg wet	197		90.4	10-150			
Surrogate: D9-NEtFOSE	*164*		µg/kg wet	197		83.2	10-150			
Surrogate: 13C3-HFPO-DA	*73.8*		µg/kg wet	79.0		93.4	25-160			
Batch B363513 - Draft Method 1633										
Blank (B363513-BLK1)				Prepared: 01/17/24 Analyzed: 01/19/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.98	ng/L							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363513 - Draft Method 1633										
Blank (B363513-BLK1)				Prepared: 01/17/24 Analyzed: 01/19/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*88.3*		ng/L	98.2		89.9	10-130			
Surrogate: 13C5-PFPeA	*45.1*		ng/L	49.1		91.9	35-150			
Surrogate: 13C5-PFHxA	*22.0*		ng/L	24.6		89.7	55-150			
Surrogate: 13C4-PFHpA	*21.9*		ng/L	24.6		89.0	55-150			
Surrogate: 13C8-PFOA	*20.6*		ng/L	24.6		84.0	60-140			
Surrogate: 13C9-PFNA	*10.8*		ng/L	12.3		88.0	55-140			
Surrogate: 13C6-PFDA	*10.5*		ng/L	12.3		85.3	50-140			
Surrogate: 13C7-PFUnA	*9.66*		ng/L	12.3		78.7	30-140			
Surrogate: 13C2-PFDoA	*10.1*		ng/L	12.3		82.5	10-150			
Surrogate: 13C2-PFTeDA	*9.70*		ng/L	12.3		79.0	10-130			
Surrogate: 13C3-PFBS	*21.7*		ng/L	24.6		88.3	55-150			
Surrogate: 13C3-PFHxS	*20.4*		ng/L	24.6		83.2	55-150			
Surrogate: 13C8-PFOS	*20.8*		ng/L	24.6		84.6	45-140			
Surrogate: 13C2-4:2FTS	*37.7*		ng/L	49.1		76.7	60-200			
Surrogate: 13C2-6:2FTS	*37.7*		ng/L	49.1		76.8	60-200			
Surrogate: 13C2-8:2FTS	*36.2*		ng/L	49.1		73.6	50-200			
Surrogate: 13C8-PFOSA	*20.2*		ng/L	24.6		82.3	30-130			
Surrogate: D3-NMeFOSA	*16.3*		ng/L	24.6		66.2	15-130			
Surrogate: D5-NEtFOSA	*17.1*		ng/L	24.6		69.7	10-130			
Surrogate: D3-NMeFOSAA	*42.2*		ng/L	49.1		85.9	45-200			
Surrogate: D5-NEtFOSAA	*40.5*		ng/L	49.1		82.5	10-200			
Surrogate: D7-NMeFOSE	*211*		ng/L	246		86.1	10-150			
Surrogate: D9-NEtFOSE	*183*		ng/L	246		74.7	10-150			
Surrogate: 13C3-HFPO-DA	*89.7*		ng/L	98.2		91.4	25-160			
LCS (B363513-BS1)				Prepared: 01/17/24 Analyzed: 01/19/24						
Perfluorobutanoic acid (PFBA)	89.0	3.9	ng/L	93.7		95.0	58-148			
Perfluoropentanoic acid (PFPeA)	41.9	2.0	ng/L	46.9		89.5	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363513 - Draft Method 1633										
LCS (B363513-BS1)				Prepared: 01/17/24 Analyzed: 01/19/24						
Perfluorohexanoic acid (PFHxA)	20.7	0.98	ng/L	23.4		88.5	55-152			
Perfluoroheptanoic acid (PFHpA)	21.0	0.98	ng/L	23.4		89.5	54-154			
Perfluorooctanoic acid (PFOA)	20.8	0.98	ng/L	23.4		88.7	52-161			
Perfluorononanoic acid (PFNA)	21.5	0.98	ng/L	23.4		91.9	59-149			
Perfluorodecanoic acid (PFDA)	20.6	0.98	ng/L	23.4		87.8	52-147			
Perfluoroundecanoic acid (PFUnA)	21.0	0.98	ng/L	23.4		89.7	48-159			
Perfluorododecanoic acid (PFDoA)	21.6	0.98	ng/L	23.4		92.0	64-142			
Perfluorotridecanoic acid (PFTrDA)	19.0	0.98	ng/L	23.4		81.1	49-148			
Perfluorotetradecanoic acid (PFTeDA)	21.4	0.98	ng/L	23.4		91.5	47-161			
Perfluorobutanesulfonic acid (PFBS)	18.6	0.98	ng/L	20.8		89.6	62-144			
Perfluoropentanesulfonic acid (PFPeS)	20.6	0.98	ng/L	22.0		93.4	59-151			
Perfluorohexanesulfonic acid (PFHxS)	20.0	0.98	ng/L	21.4		93.1	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	21.0	0.98	ng/L	22.3		93.9	55-152			
Perfluorooctanesulfonic acid (PFOS)	19.9	0.98	ng/L	21.7		91.7	58-149			
Perfluorononanesulfonic acid (PFNS)	20.7	0.98	ng/L	22.6		91.8	52-148			
Perfluorodecanesulfonic acid (PFDS)	19.5	0.98	ng/L	22.6		86.5	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.4	0.98	ng/L	22.7		80.9	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	80.8	3.9	ng/L	87.9		92.0	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	83.2	3.9	ng/L	89.0		93.4	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	84.5	3.9	ng/L	90.2		93.7	63-152			
Perfluorooctanesulfonamide (PFOSA)	21.5	0.98	ng/L	23.4		91.7	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	20.5	0.98	ng/L	23.4		87.4	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	20.6	0.98	ng/L	23.4		87.9	65-139			
N-MeFOSAA (NMeFOSAA)	19.2	0.98	ng/L	23.4		81.9	58-144			
N-EtFOSAA (NEtFOSAA)	20.8	0.98	ng/L	23.4		88.6	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	208	9.8	ng/L	234		88.8	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	229	9.8	ng/L	234		97.7	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	88.2	3.9	ng/L	93.7		94.1	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	80.2	3.9	ng/L	88.4		90.7	68-146			
9Cl-PF3ONS (F53B Minor)	78.9	3.9	ng/L	87.9		89.8	56-156			
11Cl-PF3OUdS (F53B Major)	77.6	3.9	ng/L	88.4		87.7	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	237	9.8	ng/L	234		101	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1110	49	ng/L	1170		94.9	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1040	49	ng/L	1170		88.8	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	38.2	2.0	ng/L	37.9		101	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	42.8	2.0	ng/L	42.6		100	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	42.7	2.0	ng/L	42.6		100	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	43.9	2.0	ng/L	42.6		103	48-161			
Surrogate: 13C4-PFBA	*80.9*		ng/L	97.6		82.8	10-130			
Surrogate: 13C5-PFPeA	*41.0*		ng/L	48.8		84.1	35-150			
Surrogate: 13C5-PFHxA	*20.1*		ng/L	24.4		82.3	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363513 - Draft Method 1633										
LCS (B363513-BS1)				Prepared: 01/17/24 Analyzed: 01/19/24						
Surrogate: 13C4-PFHpA	*19.9*		ng/L	24.4		81.4	55-150			
Surrogate: 13C8-PFOA	*19.3*		ng/L	24.4		79.0	60-140			
Surrogate: 13C9-PFNA	*9.66*		ng/L	12.2		79.1	55-140			
Surrogate: 13C6-PFDA	*10.1*		ng/L	12.2		82.8	50-140			
Surrogate: 13C7-PFUnA	*9.34*		ng/L	12.2		76.6	30-140			
Surrogate: 13C2-PFDoA	*9.55*		ng/L	12.2		78.3	10-150			
Surrogate: 13C2-PFTeDA	*8.67*		ng/L	12.2		71.0	10-130			
Surrogate: 13C3-PFBS	*20.8*		ng/L	24.4		85.1	55-150			
Surrogate: 13C3-PFHxS	*19.5*		ng/L	24.4		79.7	55-150			
Surrogate: 13C8-PFOS	*19.4*		ng/L	24.4		79.6	45-140			
Surrogate: 13C2-4:2FTS	*38.3*		ng/L	48.8		78.4	60-200			
Surrogate: 13C2-6:2FTS	*38.9*		ng/L	48.8		79.6	60-200			
Surrogate: 13C2-8:2FTS	*37.5*		ng/L	48.8		76.9	50-200			
Surrogate: 13C8-PFOSA	*19.2*		ng/L	24.4		78.7	30-130			
Surrogate: D3-NMeFOSA	*17.3*		ng/L	24.4		70.7	15-130			
Surrogate: D5-NEtFOSA	*17.8*		ng/L	24.4		73.0	10-130			
Surrogate: D3-NMeFOSAA	*40.3*		ng/L	48.8		82.5	45-200			
Surrogate: D5-NEtFOSAA	*38.5*		ng/L	48.8		78.8	10-200			
Surrogate: D7-NMeFOSE	*194*		ng/L	244		79.3	10-150			
Surrogate: D9-NEtFOSE	*175*		ng/L	244		71.6	10-150			
Surrogate: 13C3-HFPO-DA	*78.1*		ng/L	97.6		80.0	25-160			
MRL Check (B363513-MRL1)				Prepared: 01/17/24 Analyzed: 01/19/24						
Perfluorobutanoic acid (PFBA)	7.32	3.9	ng/L	7.85		93.3	44-157			
Perfluoropentanoic acid (PFPeA)	3.33	2.0	ng/L	3.93		84.8	57-148			
Perfluorohexanoic acid (PFHxA)	1.62	0.98	ng/L	1.96		82.8	62-149			
Perfluoroheptanoic acid (PFHpA)	1.62	0.98	ng/L	1.96		82.6	56-150			
Perfluorooctanoic acid (PFOA)	1.72	0.98	ng/L	1.96		87.7	57-161			
Perfluorononanoic acid (PFNA)	1.68	0.98	ng/L	1.96		85.5	53-157			
Perfluorodecanoic acid (PFDA)	1.58	0.98	ng/L	1.96		80.4	43-158			
Perfluoroundecanoic acid (PFUnA)	1.48	0.98	ng/L	1.96		75.2	50-155			
Perfluorododecanoic acid (PFDoA)	1.75	0.98	ng/L	1.96		89.3	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.31	0.98	ng/L	1.96		66.7	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.55	0.98	ng/L	1.96		78.8	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.58	0.98	ng/L	1.74		90.9	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.59	0.98	ng/L	1.85		86.3	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.41	0.98	ng/L	1.80		78.8	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.56	0.98	ng/L	1.87		83.4	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.66	0.98	ng/L	1.82		91.4	43-162			
Perfluorononanesulfonic acid (PFNS)	1.54	0.98	ng/L	1.89		81.5	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.58	0.98	ng/L	1.89		83.3	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.56	0.98	ng/L	1.90		81.8	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.35	3.9	ng/L	7.36		86.3	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.82	3.9	ng/L	7.46		91.5	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.54	3.9	ng/L	7.56		86.5	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.71	0.98	ng/L	1.96		87.4	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.65	0.98	ng/L	1.96		84.1	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.63	0.98	ng/L	1.96		82.9	49-156			
N-MeFOSAA (NMeFOSAA)	1.66	0.98	ng/L	1.96		84.4	32-160			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B363513 - Draft Method 1633										
MRL Check (B363513-MRL1)				Prepared: 01/17/24 Analyzed: 01/19/24						
N-EtFOSAA (NEtFOSAA)	1.68	0.98	ng/L	1.96		85.8	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	16.1	9.8	ng/L	19.6		81.9	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	16.9	9.8	ng/L	19.6		85.9	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.07	3.9	ng/L	7.85		77.3	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.81	3.9	ng/L	7.41		78.4	61-148			
9Cl-PF3ONS (F53B Minor)	5.82	3.9	ng/L	7.36		79.1	44-167			
11Cl-PF3OUdS (F53B Major)	5.59	3.9	ng/L	7.41		75.4	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	16.5	9.8	ng/L	19.6		84.2	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	78.0	49	ng/L	98.1		79.5	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.5	49	ng/L	98.1		74.9	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.72	2.0	ng/L	3.17		85.7	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.00	2.0	ng/L	3.57		84.2	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.79	2.0	ng/L	3.57		78.2	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.26	2.0	ng/L	3.57		91.3	47-160			
Surrogate: 13C4-PFBA	*79.8*		ng/L	98.1		81.3	10-130			
Surrogate: 13C5-PFPeA	*40.9*		ng/L	49.1		83.4	35-150			
Surrogate: 13C5-PFHxA	*19.9*		ng/L	24.5		81.1	55-150			
Surrogate: 13C4-PFHpA	*19.6*		ng/L	24.5		79.9	55-150			
Surrogate: 13C8-PFOA	*19.2*		ng/L	24.5		78.4	60-140			
Surrogate: 13C9-PFNA	*9.64*		ng/L	12.3		78.6	55-140			
Surrogate: 13C6-PFDA	*9.58*		ng/L	12.3		78.1	50-140			
Surrogate: 13C7-PFUnA	*9.36*		ng/L	12.3		76.3	30-140			
Surrogate: 13C2-PFDoA	*9.16*		ng/L	12.3		74.7	10-150			
Surrogate: 13C2-PFTeDA	*8.46*		ng/L	12.3		69.0	10-130			
Surrogate: 13C3-PFBS	*20.5*		ng/L	24.5		83.4	55-150			
Surrogate: 13C3-PFHxS	*19.8*		ng/L	24.5		80.5	55-150			
Surrogate: 13C8-PFOS	*19.6*		ng/L	24.5		80.0	45-140			
Surrogate: 13C2-4:2FTS	*35.7*		ng/L	49.1		72.7	60-200			
Surrogate: 13C2-6:2FTS	*35.8*		ng/L	49.1		73.0	60-200			
Surrogate: 13C2-8:2FTS	*33.3*		ng/L	49.1		67.8	50-200			
Surrogate: 13C8-PFOSA	*19.3*		ng/L	24.5		78.6	30-130			
Surrogate: D3-NMeFOSA	*16.3*		ng/L	24.5		66.3	15-130			
Surrogate: D5-NEtFOSA	*17.1*		ng/L	24.5		69.7	10-130			
Surrogate: D3-NMeFOSAA	*40.1*		ng/L	49.1		81.8	45-200			
Surrogate: D5-NEtFOSAA	*39.2*		ng/L	49.1		79.9	10-200			
Surrogate: D7-NMeFOSE	*196*		ng/L	245		79.7	10-150			
Surrogate: D9-NEtFOSE	*175*		ng/L	245		71.4	10-150			
Surrogate: 13C3-HFPO-DA	*80.0*		ng/L	98.1		81.5	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-17C	Extracted internal standard is outside of control limits. Analyte is a known difficult compound.
PF-23A	Qualifier ion ratio <50% of associated calibration.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

con-test®
A Pace Analytical® Laboratory

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

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2024
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

24A0759 1F

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☒ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No

Workorder: 40272930 **Workorder Name:** PFAS/1633 - BIOSOLID

Owner Received Date: 1/8/2024 **Results Requested By:** 2/6/2024

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved						Requested Analysis: 1633 PFAS												LAB USE ONLY
1	CLASSIFIER 3 010824	PS	1/8/2024 09:50	40272930001	Solid	1						X												
2	FIELD BLANK 010824	PS	1/8/2024 09:50	40272930002	Water	1						X												
3																								
4																								
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Kristin Hoffmann	1/8/24 1500	FedEx	1/8/24
2				1/9/24 #1004
3				

Comments

Need dry and wet weight reporting
BIOSOLIDS

Cooler Temperature on Receipt 1.3 °C | **Custody Seal** (Y) or N | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

FedEx

FedEx® Tracking

DELIVERED

Tuesday

1/9/24 at 10:04 AM

Signed for by: L.ARROYO

Obtain proof of delivery

How was your delivery?

DELIVERY STATUS

Delivered

TRACKING ID

621806446692

FROM
Schaumburg, IL US

Label Created
1/8/24 2:32 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
1/8/24 2:48 PM

ON THE WAY
WINDSOR LOCKS, CT
1/9/24 8:03 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
1/9/24 8:11 AM

DELIVERED
east longmeadow, MA US

Delivered
1/9/24 at 10:04 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client PACE

Project PFAS 1633 - BIOSOLIDS

MCP/RCP Required N/A

Deliverable Package Requirement N/A

Location PFAS 1633 - BIOSOLIDS

PWSID# (When Applicable) N/A

Arrival Method:

Courier ☐ Fed Ex ☒ Walk In ☐ Other ☐

Received By / Date / Time LA 11/9/24

Back-Sheet By / Date / Time LA 11/9/24 1031

Temperature Method Gun # 5

Temp ✓ < 6° C Actual Temperature 1.3

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client	☒	Analysis	☒	Sampler Name	☐
Project	☒	IDs	☒	Collection Date/Time	☒

All Samples Proper pH: N/A ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

Pace Analytical Services

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Quaitrax ID: 120836

Sample	Soils Jars (Circle Amb/Clear)				Ambers				Plastics												VOA Vials					Other / Fill in				
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	1 Liter			250mL	100mL	1 Liter		500mL	250mL																	
					Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Unpreserved	Trizma	Sulfuric	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc	Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact				
1																														
2																														
3																														
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2

2024 CDPHE PFAS SAMPLING

FEBRUARY 6, 2024

PACE NE-PROJECT No.: 40273957

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

February 29, 2024

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40273957

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on February 06, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Jon Gibson, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40273957

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40273957001	**PCD 02062024 CLASSIFIER 1**	Solid	02/06/24 10:29	02/06/24 11:17
40273957002	**Field Blank 02062024**	Water	02/06/24 10:29	02/06/24 11:17

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

40273957

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North Amenca	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus ketter@veolia com	**Purchase Order No: PO 1000321641**	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	**Project Name: PFAS/1633**	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

__ NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N) N

Analysis: 1633 PFAS; Residual Chlor

Pace Project Number Lab I D

Section D Required Client Information

SAMPLE ID

One Character per box
(A-Z, 0-9 / ,-)
Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	# OF CONTAINERS	Preservatives Unpreserved	Analysis: 1633 PFAS	Analysis: Residual Chlor	Pace Project Number Lab I D
1	FCD 02062024 Clarifier 1	SL	G	2-6-24	10:26 AM	2-6-24	10:29 AM	1		X		
2	Field Blank 02062024	W		2-6-24	10:26 AM	2-6-24	10:29 AM	1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO# : 40273957

40273957

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	2-6-24	11:17 AM	Mike [signature]	2/6/24	11:17
Mike [signature]	2/6/24	5:00	FedEx	2/6/24	5:00

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER Joseph Novalinski

SIGNATURE of SAMPLER [signature] DATE Signed (MM/DD/YY) 02/06/2024

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A Pace Analytical® Laboratory
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

February 29, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: IL
Client Job Number:
Project Number: 40273957
Laboratory Work Order Number: 24B0616

Enclosed are results of analyses for samples as received by the laboratory on February 7, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 2/29/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40273957

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24B0616

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

PROJECT LOCATION: IL

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD 02062024 CLASSIFIER 1	24B0616-01	Biosolids		Draft Method 1633	
				SM 2540G	
Field Blank 02062024	24B0616-02	Field Blank		Draft Method 1633	
PCD 02062024 CLASSIFIER 1- WET	24B0616-03	Biosolids		Draft Method 1633	

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

CASE NARRATIVE SUMMARY

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

Qualifications:

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

13C2-4:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

13C2-PFTeDA
S100583-CCB3

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

Perfluorotetradecanoic acid (PFTeDA)
S100583-CCB3

PF-17C

Extracted internal standard is outside of control limits. Analyte is a known difficult compound.

Analyte & Samples(s) Qualified:

13C2-6:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

13C2-8:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

PF-22A

Qualifier ion ratio >150% of associated calibration.

Analyte & Samples(s) Qualified:

1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

Perfluorononanoic acid (PFNA)
24B0616-01[PCD 02062024 CLASSIFIER 1]

PF-23A

Qualifier ion ratio <50% of associated calibration.

Analyte & Samples(s) Qualified:

Perfluoroheptanoic acid (PFHpA)
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

Perfluorononanoic acid (PFNA)
24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

Perfluoropentanoic acid (PFPeA)
24B0616-01[PCD 02062024 CLASSIFIER 1], 24B0616-03[PCD 02062024 CLASSIFIER 1- WET]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C2-PFTeDA
S100529-CCB3, S100529-CCV3, S100583-CCV3

D5-NEtFOSAA
S100529-CCV3

D7-NMeFOSE
S100529-CCV3, S100583-CCV3

D9-NEtFOSE
S100529-CCV3

N-EtFOSAA (NEtFOSAA)
S100529-CCV3

N-ethylperfluorooctanesulfonamidoethanol (NEtFO
S100529-CCV3

N-methylperfluorooctanesulfonamidoethanol(NMeF
S100529-CCV3, S100583-CCV3

Perfluorotetradecanoic acid (PFTeDA)
S100529-CCB3, S100529-CCV3, S100583-CCV3

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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

Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: PCD 02062024 CLASSIFIER 1 | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.4	1.1	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoropentanoic acid (PFPeA)	8.6	3.2	0.15	µg/kg dry	1	PF-23A	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorohexanoic acid (PFHxA)	0.59	1.6	0.080	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoroheptanoic acid (PFHpA)	0.81	1.6	0.12	µg/kg dry	1	J, PF-23A	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorooctanoic acid (PFOA)	0.57	1.6	0.23	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorononanoic acid (PFNA)	0.26	1.6	0.21	µg/kg dry	1	J, PF-22A	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorodecanoic acid (PFDA)	1.1	1.6	0.13	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoroundecanoic acid (PFUnA)	0.70	1.6	0.11	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorododecanoic acid (PFDoA)	1.0	1.6	0.13	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorotridecanoic acid (PFTrDA)	0.36	1.6	0.22	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.32	1.6	0.10	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.6	0.11	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.6	0.16	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.6	0.20	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.6	0.14	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorooctanesulfonic acid (PFOS)	12	1.6	0.13	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.6	0.24	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.6	0.14	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.6	0.14	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.4	0.31	µg/kg dry	1	PF-17	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.71	6.4	0.66	µg/kg dry	1	J, PF-17C	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.76	6.4	0.29	µg/kg dry	1	J, PF-22A, PF-17C	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorooctanesulfonamide (PFOSA)	0.33	1.6	0.072	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.6	0.15	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.6	0.11	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-MeFOSAA (NMeFOSAA)	2.8	1.6	0.22	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-EtFOSAA (NEtFOSAA)	2.0	1.6	0.34	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	16	0.76	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.4	16	1.3	µg/kg dry	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.4	0.39	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.4	0.65	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.4	0.62	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.4	0.84	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	16	1.4	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	80	9.6	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	80	7.5	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.2	0.16	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.2	0.34	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: PCD 02062024 CLASSIFIER 1 | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.2	0.25	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.2	0.28	µg/kg dry	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	78.5		10-130		2/15/24 20:55
13C5-PFPeA	71.3		35-150		2/15/24 20:55
13C5-PFHxA	83.7		55-150		2/15/24 20:55
13C4-PFHpA	95.3		55-150		2/15/24 20:55
13C8-PFOA	83.7		60-140		2/15/24 20:55
13C9-PFNA	83.3		55-140		2/15/24 20:55
13C6-PFDA	89.0		50-140		2/15/24 20:55
13C7-PFUnA	80.0		30-140		2/15/24 20:55
13C2-PFDoA	79.8		10-150		2/15/24 20:55
13C2-PFTeDA	80.2		10-130		2/15/24 20:55
13C3-PFBS	78.4		55-150		2/15/24 20:55
13C3-PFHxS	87.7		55-150		2/15/24 20:55
13C8-PFOS	82.3		45-150		2/15/24 20:55
13C2-4:2FTS	**205**	*	60-200	PF-17	2/15/24 20:55
13C2-6:2FTS	**234**	*	60-200	PF-17C	2/15/24 20:55
13C2-8:2FTS	**259**	*	50-200	PF-17C	2/15/24 20:55
13C8-PFOSA	86.2		30-130		2/15/24 20:55
D3-NMeFOSA	33.8		15-130		2/15/24 20:55
D5-NEtFOSA	25.9		10-130		2/15/24 20:55
D3-NMeFOSAA	104		45-200		2/15/24 20:55
D5-NEtFOSAA	92.0		10-200		2/15/24 20:55
D7-NMeFOSE	11.1		10-150		2/15/24 20:55
D9-NEtFOSE	29.4		10-150		2/15/24 20:55
13C3-HFPO-DA	71.6		25-160		2/15/24 20:55

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: PCD 02062024 CLASSIFIER 1 | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	75.6		% Wt	1		SM 2540G	2/7/24	2/7/24 9:09	AGG

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: Field Blank 02062024 | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.7	1.3	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.8	0.32	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.92	0.20	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.92	0.23	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorooctanoic acid (PFOA)	ND	0.92	0.21	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorononanoic acid (PFNA)	ND	0.92	0.18	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorodecanoic acid (PFDA)	ND	0.92	0.17	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.92	0.25	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.92	0.24	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.92	0.25	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.92	0.23	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.92	0.24	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.92	0.22	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.92	0.19	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.92	0.28	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.92	0.29	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.92	0.27	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.92	0.29	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.92	0.24	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.7	0.64	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.7	0.91	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.7	1.0	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.92	0.28	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.92	0.38	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.92	0.28	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.92	0.40	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.92	0.20	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.2	2.4	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.2	2.3	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.7	0.96	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.7	0.63	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.7	0.78	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.7	0.89	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.2	1.7	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	46	9.4	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	46	8.1	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.45	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.8	0.46	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: Field Blank 02062024 | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.8	0.37	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.80	ng/L	1		Draft Method 1633	2/9/24	2/12/24 14:52	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	84.0	10-130		2/12/24 14:52
13C5-PFPeA	89.2	35-150		2/12/24 14:52
13C5-PFHxA	84.0	55-150		2/12/24 14:52
13C4-PFHpA	85.0	55-150		2/12/24 14:52
13C8-PFOA	83.0	60-140		2/12/24 14:52
13C9-PFNA	82.8	55-140		2/12/24 14:52
13C6-PFDA	85.3	50-140		2/12/24 14:52
13C7-PFUnA	77.0	30-140		2/12/24 14:52
13C2-PFDoA	73.9	10-150		2/12/24 14:52
13C2-PFTeDA	106	10-130		2/12/24 14:52
13C3-PFBS	88.5	55-150		2/12/24 14:52
13C3-PFHxS	84.2	55-150		2/12/24 14:52
13C8-PFOS	81.3	45-140		2/12/24 14:52
13C2-4:2FTS	75.6	60-200		2/12/24 14:52
13C2-6:2FTS	78.4	60-200		2/12/24 14:52
13C2-8:2FTS	70.0	50-200		2/12/24 14:52
13C8-PFOSA	75.6	30-130		2/12/24 14:52
D3-NMeFOSA	66.6	15-130		2/12/24 14:52
D5-NEtFOSA	70.3	10-130		2/12/24 14:52
D3-NMeFOSAA	86.4	45-200		2/12/24 14:52
D5-NEtFOSAA	82.3	10-200		2/12/24 14:52
D7-NMeFOSE	73.6	10-150		2/12/24 14:52
D9-NEtFOSE	66.6	10-150		2/12/24 14:52
13C3-HFPO-DA	85.7	25-160		2/12/24 14:52

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: Field Blank 02062024 | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	2/8/24	2/8/24 9:08	LL

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: PCD 02062024 CLASSIFIER 1- WET | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	4.9	0.83	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoropentanoic acid (PFPeA)	6.5	2.4	0.12	µg/kg wet	1	PF-23A	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorohexanoic acid (PFHxA)	0.45	1.2	0.061	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoroheptanoic acid (PFHpA)	0.62	1.2	0.091	µg/kg wet	1	PF-23A, J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorooctanoic acid (PFOA)	0.43	1.2	0.18	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorononanoic acid (PFNA)	0.20	1.2	0.16	µg/kg wet	1	PF-23A, J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorodecanoic acid (PFDA)	0.84	1.2	0.097	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoroundecanoic acid (PFUnA)	0.53	1.2	0.085	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorododecanoic acid (PFDoA)	0.79	1.2	0.097	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorotridecanoic acid (PFTrDA)	0.27	1.2	0.16	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.24	1.2	0.079	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.2	0.085	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.2	0.12	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.2	0.15	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.2	0.10	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorooctanesulfonic acid (PFOS)	9.3	1.2	0.097	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.2	0.18	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.2	0.10	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.2	0.11	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	4.9	0.23	µg/kg wet	1	PF-17	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.54	4.9	0.50	µg/kg wet	1	PF-17C, J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.57	4.9	0.22	µg/kg wet	1	J, PF-17C, PF-22A	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluorooctanesulfonamide (PFOSA)	0.25	1.2	0.055	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.2	0.12	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.2	0.085	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-MeFOSAA (NMeFOSAA)	2.1	1.2	0.17	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-EtFOSAA (NEtFOSAA)	1.5	1.2	0.26	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	12	0.57	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.1	12	0.99	µg/kg wet	1	J	Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	4.9	0.30	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	4.9	0.49	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
9Cl-PF3ONS (F53B Minor)	ND	4.9	0.47	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
11Cl-PF3OUdS (F53B Major)	ND	4.9	0.64	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	12	1.0	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	61	7.2	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	61	5.6	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.4	0.12	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.4	0.26	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS

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Project Location: IL | Sample Description: | Work Order: 24B0616

Date Received: 2/7/2024

Field Sample #: PCD 02062024 CLASSIFIER 1- WET | Sampled: 2/6/2024 10:29

Sample ID: 24B0616-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.4	0.19	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.4	0.21	µg/kg wet	1		Draft Method 1633	2/14/24	2/15/24 20:55	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	78.5		10-130		2/15/24 20:55
13C5-PFPeA	71.3		35-150		2/15/24 20:55
13C5-PFHxA	83.7		55-150		2/15/24 20:55
13C4-PFHpA	95.3		55-150		2/15/24 20:55
13C8-PFOA	83.7		60-140		2/15/24 20:55
13C9-PFNA	83.3		55-140		2/15/24 20:55
13C6-PFDA	89.0		50-140		2/15/24 20:55
13C7-PFUnA	80.0		30-140		2/15/24 20:55
13C2-PFDoA	79.8		10-150		2/15/24 20:55
13C2-PFTeDA	80.2		10-130		2/15/24 20:55
13C3-PFBS	78.4		55-150		2/15/24 20:55
13C3-PFHxS	87.7		55-150		2/15/24 20:55
13C8-PFOS	82.3		45-150		2/15/24 20:55
13C2-4:2FTS	**205**	*	60-200	PF-17	2/15/24 20:55
13C2-6:2FTS	**234**	*	60-200	PF-17C	2/15/24 20:55
13C2-8:2FTS	**259**	*	50-200	PF-17C	2/15/24 20:55
13C8-PFOSA	86.2		30-130		2/15/24 20:55
D3-NMeFOSA	33.8		15-130		2/15/24 20:55
D5-NEtFOSA	25.9		10-130		2/15/24 20:55
D3-NMeFOSAA	104		45-200		2/15/24 20:55
D5-NEtFOSAA	92.0		10-200		2/15/24 20:55
D7-NMeFOSE	11.1		10-150		2/15/24 20:55
D9-NEtFOSE	29.4		10-150		2/15/24 20:55
13C3-HFPO-DA	71.6		25-160		2/15/24 20:55

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24B0616-01 [PCD 02062024 CLASSIFIER 1]	B365805	0.823	5.00	02/14/24
24B0616-03 [PCD 02062024 CLASSIFIER 1- WET]	B365805	0.823	5.00	02/14/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 2/8/2024 per NO PREP in Batch B365395**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24B0616-02 [Field Blank 02062024]	B365353	544	5.00	02/09/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24B0616-02 [Field Blank 02062024]	B365395	50.0	02/08/24

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

Lab Number [Field ID]	Batch	Date
24B0616-01 [PCD 02062024 CLASSIFIER 1]	B365274	02/07/24

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365353 - Draft Method 1633										
Blank (B365353-BLK1)				Prepared: 02/09/24 Analyzed: 02/12/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*92.7*		ng/L	98.2		94.3	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365353 - Draft Method 1633										
Blank (B365353-BLK1)				Prepared: 02/09/24 Analyzed: 02/12/24						
Surrogate: 13C5-PFPeA	*49.7*		ng/L	49.1		101	35-150			
Surrogate: 13C5-PFHxA	*23.1*		ng/L	24.6		94.0	55-150			
Surrogate: 13C4-PFHpA	*23.1*		ng/L	24.6		94.0	55-150			
Surrogate: 13C8-PFOA	*20.9*		ng/L	24.6		85.3	60-140			
Surrogate: 13C9-PFNA	*11.1*		ng/L	12.3		90.6	55-140			
Surrogate: 13C6-PFDA	*11.6*		ng/L	12.3		94.7	50-140			
Surrogate: 13C7-PFUnA	*10.1*		ng/L	12.3		82.3	30-140			
Surrogate: 13C2-PFDoA	*9.44*		ng/L	12.3		76.9	10-150			
Surrogate: 13C2-PFTeDA	*10.1*		ng/L	12.3		82.0	10-130			
Surrogate: 13C3-PFBS	*23.5*		ng/L	24.6		95.8	55-150			
Surrogate: 13C3-PFHxS	*22.3*		ng/L	24.6		90.7	55-150			
Surrogate: 13C8-PFOS	*20.8*		ng/L	24.6		84.6	45-140			
Surrogate: 13C2-4:2FTS	*39.4*		ng/L	49.1		80.2	60-200			
Surrogate: 13C2-6:2FTS	*41.7*		ng/L	49.1		84.9	60-200			
Surrogate: 13C2-8:2FTS	*39.1*		ng/L	49.1		79.7	50-200			
Surrogate: 13C8-PFOSA	*19.3*		ng/L	24.6		78.4	30-130			
Surrogate: D3-NMeFOSA	*17.8*		ng/L	24.6		72.4	15-130			
Surrogate: D5-NEtFOSA	*17.7*		ng/L	24.6		72.0	10-130			
Surrogate: D3-NMeFOSAA	*44.2*		ng/L	49.1		89.9	45-200			
Surrogate: D5-NEtFOSAA	*41.6*		ng/L	49.1		84.7	10-200			
Surrogate: D7-NMeFOSE	*188*		ng/L	246		76.6	10-150			
Surrogate: D9-NEtFOSE	*171*		ng/L	246		69.4	10-150			
Surrogate: 13C3-HFPO-DA	*94.1*		ng/L	98.2		95.8	25-160			
LCS (B365353-BS1)				Prepared: 02/09/24 Analyzed: 02/12/24						
Perfluorobutanoic acid (PFBA)	84.4	3.9	ng/L	94.5		89.3	58-148			
Perfluoropentanoic acid (PFPeA)	39.5	2.0	ng/L	47.3		83.5	54-152			
Perfluorohexanoic acid (PFHxA)	20.3	0.98	ng/L	23.6		85.7	55-152			
Perfluoroheptanoic acid (PFHpA)	20.6	0.98	ng/L	23.6		87.3	54-154			
Perfluorooctanoic acid (PFOA)	20.0	0.98	ng/L	23.6		84.7	52-161			
Perfluorononanoic acid (PFNA)	20.1	0.98	ng/L	23.6		85.0	59-149			
Perfluorodecanoic acid (PFDA)	20.0	0.98	ng/L	23.6		84.4	52-147			
Perfluoroundecanoic acid (PFUnA)	20.9	0.98	ng/L	23.6		88.6	48-159			
Perfluorododecanoic acid (PFDoA)	20.6	0.98	ng/L	23.6		87.0	64-142			
Perfluorotridecanoic acid (PFTrDA)	22.2	0.98	ng/L	23.6		94.0	49-148			
Perfluorotetradecanoic acid (PFTeDA)	20.1	0.98	ng/L	23.6		85.2	47-161			
Perfluorobutanesulfonic acid (PFBS)	18.2	0.98	ng/L	21.0		86.9	62-144			
Perfluoropentanesulfonic acid (PFPeS)	18.6	0.98	ng/L	22.2		83.8	59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.6	0.98	ng/L	21.6		85.8	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	20.0	0.98	ng/L	22.5		88.8	55-152			
Perfluorooctanesulfonic acid (PFOS)	18.9	0.98	ng/L	21.9		86.2	58-149			
Perfluorononanesulfonic acid (PFNS)	20.4	0.98	ng/L	22.7		89.8	52-148			
Perfluorodecanesulfonic acid (PFDS)	19.1	0.98	ng/L	22.8		83.6	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.8	0.98	ng/L	22.9		82.1	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	74.9	3.9	ng/L	88.6		84.5	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	77.4	3.9	ng/L	89.8		86.1	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	75.5	3.9	ng/L	91.0		83.0	63-152			
Perfluorooctanesulfonamide (PFOSA)	21.0	0.98	ng/L	23.6		88.6	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	19.2	0.98	ng/L	23.6		81.1	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365353 - Draft Method 1633										
LCS (B365353-BS1)				Prepared: 02/09/24 Analyzed: 02/12/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	19.1	0.98	ng/L	23.6		80.8	65-139			
N-MeFOSAA (NMeFOSAA)	18.8	0.98	ng/L	23.6		79.7	58-144			
N-EtFOSAA (NEtFOSAA)	20.2	0.98	ng/L	23.6		85.5	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	204	9.8	ng/L	236		86.3	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	222	9.8	ng/L	236		94.0	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	80.6	3.9	ng/L	94.5		85.2	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	72.5	3.9	ng/L	89.2		81.3	68-146			
9Cl-PF3ONS (F53B Minor)	73.4	3.9	ng/L	88.6		82.8	56-156			
11Cl-PF3OUdS (F53B Major)	73.9	3.9	ng/L	89.2		82.8	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	203	9.8	ng/L	236		86.1	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	961	49	ng/L	1180		81.3	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	926	49	ng/L	1180		78.3	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	39.8	2.0	ng/L	38.2		104	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	42.0	2.0	ng/L	43.0		97.9	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	42.6	2.0	ng/L	43.0		99.1	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	44.4	2.0	ng/L	43.0		103	48-161			
Surrogate: 13C4-PFBA	*90.4*		ng/L	98.5		91.8	10-130			
Surrogate: 13C5-PFPeA	*48.1*		ng/L	49.2		97.6	35-150			
Surrogate: 13C5-PFHxA	*22.0*		ng/L	24.6		89.2	55-150			
Surrogate: 13C4-PFHpA	*22.3*		ng/L	24.6		90.4	55-150			
Surrogate: 13C8-PFOA	*21.4*		ng/L	24.6		87.0	60-140			
Surrogate: 13C9-PFNA	*10.8*		ng/L	12.3		87.5	55-140			
Surrogate: 13C6-PFDA	*10.9*		ng/L	12.3		88.5	50-140			
Surrogate: 13C7-PFUnA	*9.25*		ng/L	12.3		75.1	30-140			
Surrogate: 13C2-PFDoA	*8.83*		ng/L	12.3		71.8	10-150			
Surrogate: 13C2-PFTeDA	*10.0*		ng/L	12.3		81.5	10-130			
Surrogate: 13C3-PFBS	*22.8*		ng/L	24.6		92.6	55-150			
Surrogate: 13C3-PFHxS	*22.3*		ng/L	24.6		90.6	55-150			
Surrogate: 13C8-PFOS	*21.6*		ng/L	24.6		87.5	45-140			
Surrogate: 13C2-4:2FTS	*41.6*		ng/L	49.2		84.6	60-200			
Surrogate: 13C2-6:2FTS	*44.6*		ng/L	49.2		90.7	60-200			
Surrogate: 13C2-8:2FTS	*40.8*		ng/L	49.2		82.8	50-200			
Surrogate: 13C8-PFOSA	*19.7*		ng/L	24.6		79.9	30-130			
Surrogate: D3-NMeFOSA	*18.1*		ng/L	24.6		73.5	15-130			
Surrogate: D5-NEtFOSA	*18.7*		ng/L	24.6		75.8	10-130			
Surrogate: D3-NMeFOSAA	*46.7*		ng/L	49.2		94.9	45-200			
Surrogate: D5-NEtFOSAA	*43.5*		ng/L	49.2		88.4	10-200			
Surrogate: D7-NMeFOSE	*190*		ng/L	246		77.3	10-150			
Surrogate: D9-NEtFOSE	*171*		ng/L	246		69.5	10-150			
Surrogate: 13C3-HFPO-DA	*91.5*		ng/L	98.5		92.9	25-160			
MRL Check (B365353-MRL1)				Prepared: 02/09/24 Analyzed: 02/12/24						
Perfluorobutanoic acid (PFBA)	7.33	3.9	ng/L	7.88		93.1	44-157			
Perfluoropentanoic acid (PFPeA)	3.26	2.0	ng/L	3.94		82.9	57-148			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365353 - Draft Method 1633										
MRL Check (B365353-MRL1)				Prepared: 02/09/24 Analyzed: 02/12/24						
Perfluorohexanoic acid (PFHxA)	1.64	0.98	ng/L	1.97		83.2	62-149			
Perfluoroheptanoic acid (PFHpA)	1.61	0.98	ng/L	1.97		81.6	56-150			
Perfluorooctanoic acid (PFOA)	1.70	0.98	ng/L	1.97		86.2	57-161			
Perfluorononanoic acid (PFNA)	1.56	0.98	ng/L	1.97		79.0	53-157			
Perfluorodecanoic acid (PFDA)	1.59	0.98	ng/L	1.97		80.6	43-158			
Perfluoroundecanoic acid (PFUnA)	1.56	0.98	ng/L	1.97		79.1	50-155			
Perfluorododecanoic acid (PFDoA)	1.64	0.98	ng/L	1.97		83.3	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.77	0.98	ng/L	1.97		90.1	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.59	0.98	ng/L	1.97		80.5	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.55	0.98	ng/L	1.75		88.5	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.55	0.98	ng/L	1.85		83.6	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.57	0.98	ng/L	1.80		87.2	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.72	0.98	ng/L	1.88		91.6	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.67	0.98	ng/L	1.83		91.5	43-162			
Perfluorononanesulfonic acid (PFNS)	1.66	0.98	ng/L	1.89		87.5	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.62	0.98	ng/L	1.90		85.2	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.46	0.98	ng/L	1.91		76.7	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	5.96	3.9	ng/L	7.38		80.8	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.55	3.9	ng/L	7.48		87.6	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	5.80	3.9	ng/L	7.58		76.5	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.68	0.98	ng/L	1.97		85.6	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.71	0.98	ng/L	1.97		86.9	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.62	0.98	ng/L	1.97		82.3	49-156			
N-MeFOSAA (NMeFOSAA)	1.54	0.98	ng/L	1.97		78.3	32-160			
N-EtFOSAA (NEtFOSAA)	1.69	0.98	ng/L	1.97		86.0	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	16.5	9.8	ng/L	19.7		83.8	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	17.9	9.8	ng/L	19.7		90.8	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.32	3.9	ng/L	7.88		80.2	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.84	3.9	ng/L	7.43		78.6	61-148			
9Cl-PF3ONS (F53B Minor)	6.07	3.9	ng/L	7.38		82.2	44-167			
11Cl-PF3OUdS (F53B Major)	5.94	3.9	ng/L	7.43		79.9	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	17.4	9.8	ng/L	19.7		88.3	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	79.2	49	ng/L	98.4		80.5	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.7	49	ng/L	98.4		74.9	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.18	2.0	ng/L	3.18		99.9	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.60	2.0	ng/L	3.58		101	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.39	2.0	ng/L	3.58		94.9	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.50	2.0	ng/L	3.58		126	47-160			
Surrogate: 13C4-PFBA	*83.3*		ng/L	98.4		84.6	10-130			
Surrogate: 13C5-PFPeA	*44.6*		ng/L	49.2		90.6	35-150			
Surrogate: 13C5-PFHxA	*20.7*		ng/L	24.6		84.3	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365353 - Draft Method 1633										
MRL Check (B365353-MRL1)				Prepared: 02/09/24 Analyzed: 02/12/24						
Surrogate: 13C4-PFHpA	*20.8*		ng/L	24.6		84.7	55-150			
Surrogate: 13C8-PFOA	*18.8*		ng/L	24.6		76.5	60-140			
Surrogate: 13C9-PFNA	*9.89*		ng/L	12.3		80.4	55-140			
Surrogate: 13C6-PFDA	*10.1*		ng/L	12.3		82.4	50-140			
Surrogate: 13C7-PFUnA	*9.27*		ng/L	12.3		75.4	30-140			
Surrogate: 13C2-PFDoA	*8.39*		ng/L	12.3		68.2	10-150			
Surrogate: 13C2-PFTeDA	*9.53*		ng/L	12.3		77.4	10-130			
Surrogate: 13C3-PFBS	*20.8*		ng/L	24.6		84.7	55-150			
Surrogate: 13C3-PFHxS	*19.9*		ng/L	24.6		80.8	55-150			
Surrogate: 13C8-PFOS	*19.5*		ng/L	24.6		79.4	45-140			
Surrogate: 13C2-4:2FTS	*35.1*		ng/L	49.2		71.3	60-200			
Surrogate: 13C2-6:2FTS	*38.2*		ng/L	49.2		77.6	60-200			
Surrogate: 13C2-8:2FTS	*35.2*		ng/L	49.2		71.6	50-200			
Surrogate: 13C8-PFOSA	*17.6*		ng/L	24.6		71.6	30-130			
Surrogate: D3-NMeFOSA	*16.1*		ng/L	24.6		65.4	15-130			
Surrogate: D5-NEtFOSA	*16.2*		ng/L	24.6		65.8	10-130			
Surrogate: D3-NMeFOSAA	*40.2*		ng/L	49.2		81.7	45-200			
Surrogate: D5-NEtFOSAA	*39.0*		ng/L	49.2		79.2	10-200			
Surrogate: D7-NMeFOSE	*167*		ng/L	246		67.7	10-150			
Surrogate: D9-NEtFOSE	*151*		ng/L	246		61.3	10-150			
Surrogate: 13C3-HFPO-DA	*84.8*		ng/L	98.4		86.1	25-160			
Batch B365805 - Draft Method 1633										
Blank (B365805-BLK1)				Prepared: 02/14/24 Analyzed: 02/15/24						
Perfluorobutanoic acid (PFBA)	ND	7.3	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	3.6	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.8	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.8	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.8	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.8	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.8	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.8	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.8	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.3	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.3	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.3	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.8	µg/kg wet							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	µg/kg wet							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365805 - Draft Method 1633										
Blank (B365805-BLK1)				Prepared: 02/14/24 Analyzed: 02/15/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.8	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.8	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.3	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.3	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	7.3	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	7.3	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	91	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	91	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.6	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.6	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.6	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	µg/kg wet							
Surrogate: 13C4-PFBA	*74.3*		µg/kg wet	90.7		81.9	10-130			
Surrogate: 13C5-PFPeA	*45.1*		µg/kg wet	45.4		99.4	35-150			
Surrogate: 13C5-PFHxA	*20.2*		µg/kg wet	22.7		89.2	55-150			
Surrogate: 13C4-PFHpA	*20.3*		µg/kg wet	22.7		89.6	55-150			
Surrogate: 13C8-PFOA	*19.5*		µg/kg wet	22.7		85.8	60-140			
Surrogate: 13C9-PFNA	*9.89*		µg/kg wet	11.3		87.2	55-140			
Surrogate: 13C6-PFDA	*10.0*		µg/kg wet	11.3		88.6	50-140			
Surrogate: 13C7-PFUnA	*7.78*		µg/kg wet	11.3		68.6	30-140			
Surrogate: 13C2-PFDoA	*8.92*		µg/kg wet	11.3		78.6	10-150			
Surrogate: 13C2-PFTeDA	*7.57*		µg/kg wet	11.3		66.7	10-130			
Surrogate: 13C3-PFBS	*19.8*		µg/kg wet	22.7		87.3	55-150			
Surrogate: 13C3-PFHxS	*19.9*		µg/kg wet	22.7		87.5	55-150			
Surrogate: 13C8-PFOS	*18.6*		µg/kg wet	22.7		81.9	45-150			
Surrogate: 13C2-4:2FTS	*32.8*		µg/kg wet	45.4		72.2	60-200			
Surrogate: 13C2-6:2FTS	*35.2*		µg/kg wet	45.4		77.5	60-200			
Surrogate: 13C2-8:2FTS	*29.6*		µg/kg wet	45.4		65.2	50-200			
Surrogate: 13C8-PFOSA	*18.8*		µg/kg wet	22.7		83.0	30-130			
Surrogate: D3-NMeFOSA	*12.5*		µg/kg wet	22.7		55.3	15-130			
Surrogate: D5-NEtFOSA	*12.4*		µg/kg wet	22.7		54.8	10-130			
Surrogate: D3-NMeFOSAA	*34.9*		µg/kg wet	45.4		76.9	45-200			
Surrogate: D5-NEtFOSAA	*31.6*		µg/kg wet	45.4		69.7	10-200			
Surrogate: D7-NMeFOSE	*154*		µg/kg wet	227		68.1	10-150			
Surrogate: D9-NEtFOSE	*133*		µg/kg wet	227		58.4	10-150			
Surrogate: 13C3-HFPO-DA	*75.8*		µg/kg wet	90.7		83.5	25-160			
LCS (B365805-BS1)				Prepared: 02/14/24 Analyzed: 02/15/24						
Perfluorobutanoic acid (PFBA)	75.0	6.6	µg/kg wet	79.6		94.2	58-148			
Perfluoropentanoic acid (PFPeA)	35.2	3.3	µg/kg wet	39.8		88.4	54-152			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365805 - Draft Method 1633										
LCS (B365805-BS1)				Prepared: 02/14/24 Analyzed: 02/15/24						
Perfluorohexanoic acid (PFHxA)	17.7	1.7	µg/kg wet	19.9		89.0	55-152			
Perfluoroheptanoic acid (PFHpA)	17.1	1.7	µg/kg wet	19.9		85.9	54-154			
Perfluorooctanoic acid (PFOA)	17.8	1.7	µg/kg wet	19.9		89.3	52-161			
Perfluorononanoic acid (PFNA)	17.5	1.7	µg/kg wet	19.9		87.9	59-149			
Perfluorodecanoic acid (PFDA)	18.4	1.7	µg/kg wet	19.9		92.3	52-147			
Perfluoroundecanoic acid (PFUnA)	17.1	1.7	µg/kg wet	19.9		86.1	48-159			
Perfluorododecanoic acid (PFDoA)	18.3	1.7	µg/kg wet	19.9		91.8	64-142			
Perfluorotridecanoic acid (PFTrDA)	15.7	1.7	µg/kg wet	19.9		78.7	49-148			
Perfluorotetradecanoic acid (PFTeDA)	18.1	1.7	µg/kg wet	19.9		91.0	47-161			
Perfluorobutanesulfonic acid (PFBS)	15.8	1.7	µg/kg wet	17.7		89.3	62-144			
Perfluoropentanesulfonic acid (PFPeS)	16.5	1.7	µg/kg wet	18.7		88.3	59-151			
Perfluorohexanesulfonic acid (PFHxS)	15.8	1.7	µg/kg wet	18.2		86.6	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	17.6	1.7	µg/kg wet	19.0		92.8	55-152			
Perfluorooctanesulfonic acid (PFOS)	16.4	1.7	µg/kg wet	18.5		89.1	58-149			
Perfluorononanesulfonic acid (PFNS)	17.1	1.7	µg/kg wet	19.2		89.3	52-148			
Perfluorodecanesulfonic acid (PFDS)	16.8	1.7	µg/kg wet	19.2		87.3	51-147			
Perfluorododecanesulfonic acid (PFDoS)	15.4	1.7	µg/kg wet	19.3		79.9	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	66.5	6.6	µg/kg wet	74.6		89.1	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	68.9	6.6	µg/kg wet	75.6		91.1	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	65.7	6.6	µg/kg wet	76.6		85.7	63-152			
Perfluorooctanesulfonamide (PFOSA)	17.0	1.7	µg/kg wet	19.9		85.4	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	16.7	1.7	µg/kg wet	19.9		83.8	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	16.3	1.7	µg/kg wet	19.9		82.0	65-139			
N-MeFOSAA (NMeFOSAA)	16.8	1.7	µg/kg wet	19.9		84.4	58-144			
N-EtFOSAA (NEtFOSAA)	16.1	1.7	µg/kg wet	19.9		80.7	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	169	17	µg/kg wet	199		85.1	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	184	17	µg/kg wet	199		92.4	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	72.1	6.6	µg/kg wet	79.6		90.6	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	71.0	6.6	µg/kg wet	75.1		94.5	68-146			
9Cl-PF3ONS (F53B Minor)	72.6	6.6	µg/kg wet	74.6		97.3	56-156			
11Cl-PF3OUdS (F53B Major)	73.6	6.6	µg/kg wet	75.1		98.0	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	207	17	µg/kg wet	199		104	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	997	83	µg/kg wet	995		100	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	964	83	µg/kg wet	995		96.9	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	36.2	3.3	µg/kg wet	32.2		112	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	39.4	3.3	µg/kg wet	36.2		109	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.6	3.3	µg/kg wet	36.2		112	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	34.3	3.3	µg/kg wet	36.2		95.0	48-161			
Surrogate: 13C4-PFBA	*70.5*		µg/kg wet	82.9		85.0	10-130			
Surrogate: 13C5-PFPeA	*37.2*		µg/kg wet	41.5		89.8	35-150			
Surrogate: 13C5-PFHxA	*17.3*		µg/kg wet	20.7		83.6	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365805 - Draft Method 1633										
LCS (B365805-BS1)				Prepared: 02/14/24 Analyzed: 02/15/24						
Surrogate: 13C4-PFHpA	*17.8*		µg/kg wet	20.7		86.0	55-150			
Surrogate: 13C8-PFOA	*17.4*		µg/kg wet	20.7		83.9	60-140			
Surrogate: 13C9-PFNA	*8.66*		µg/kg wet	10.4		83.6	55-140			
Surrogate: 13C6-PFDA	*8.30*		µg/kg wet	10.4		80.1	50-140			
Surrogate: 13C7-PFUnA	*7.08*		µg/kg wet	10.4		68.3	30-140			
Surrogate: 13C2-PFDoA	*7.53*		µg/kg wet	10.4		72.6	10-150			
Surrogate: 13C2-PFTeDA	*6.22*		µg/kg wet	10.4		60.1	10-130			
Surrogate: 13C3-PFBS	*17.7*		µg/kg wet	20.7		85.6	55-150			
Surrogate: 13C3-PFHxS	*17.7*		µg/kg wet	20.7		85.5	55-150			
Surrogate: 13C8-PFOS	*16.7*		µg/kg wet	20.7		80.6	45-150			
Surrogate: 13C2-4:2FTS	*32.5*		µg/kg wet	41.5		78.3	60-200			
Surrogate: 13C2-6:2FTS	*35.4*		µg/kg wet	41.5		85.3	60-200			
Surrogate: 13C2-8:2FTS	*30.5*		µg/kg wet	41.5		73.6	50-200			
Surrogate: 13C8-PFOSA	*16.5*		µg/kg wet	20.7		79.6	30-130			
Surrogate: D3-NMeFOSA	*11.2*		µg/kg wet	20.7		54.1	15-130			
Surrogate: D5-NEtFOSA	*10.8*		µg/kg wet	20.7		52.1	10-130			
Surrogate: D3-NMeFOSAA	*32.3*		µg/kg wet	41.5		77.9	45-200			
Surrogate: D5-NEtFOSAA	*29.6*		µg/kg wet	41.5		71.4	10-200			
Surrogate: D7-NMeFOSE	*130*		µg/kg wet	207		62.8	10-150			
Surrogate: D9-NEtFOSE	*115*		µg/kg wet	207		55.3	10-150			
Surrogate: 13C3-HFPO-DA	*64.4*		µg/kg wet	82.9		77.6	25-160			
MRL Check (B365805-MRL1)				Prepared: 02/14/24 Analyzed: 02/15/24						
Perfluorobutanoic acid (PFBA)	6.61	6.3	µg/kg wet	6.30		105	44-157			
Perfluoropentanoic acid (PFPeA)	2.79	3.1	µg/kg wet	3.15		88.6	57-148			J
Perfluorohexanoic acid (PFHxA)	1.37	1.6	µg/kg wet	1.57		86.8	62-149			J
Perfluoroheptanoic acid (PFHpA)	1.23	1.6	µg/kg wet	1.57		78.4	56-150			J
Perfluorooctanoic acid (PFOA)	1.34	1.6	µg/kg wet	1.57		84.9	57-161			J
Perfluorononanoic acid (PFNA)	1.32	1.6	µg/kg wet	1.57		83.8	53-157			J
Perfluorodecanoic acid (PFDA)	1.28	1.6	µg/kg wet	1.57		81.2	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.38	1.6	µg/kg wet	1.57		87.6	50-155			J
Perfluorododecanoic acid (PFDoA)	1.43	1.6	µg/kg wet	1.57		90.7	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.23	1.6	µg/kg wet	1.57		78.3	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.43	1.6	µg/kg wet	1.57		90.8	52-156			J
Perfluorobutanesulfonic acid (PFBS)	1.30	1.6	µg/kg wet	1.40		93.2	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.37	1.6	µg/kg wet	1.48		92.8	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.35	1.6	µg/kg wet	1.44		93.8	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.31	1.6	µg/kg wet	1.50		87.4	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.37	1.6	µg/kg wet	1.46		93.9	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.51	1.6	µg/kg wet	1.52		99.5	46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.25	1.6	µg/kg wet	1.52		82.2	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.27	1.6	µg/kg wet	1.53		83.3	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	5.08	6.3	µg/kg wet	5.91		86.0	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	5.38	6.3	µg/kg wet	5.98		89.9	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	4.69	6.3	µg/kg wet	6.06		77.4	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.48	1.6	µg/kg wet	1.57		93.7	47-163			J
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.43	1.6	µg/kg wet	1.57		90.9	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.28	1.6	µg/kg wet	1.57		81.5	49-156			J
N-MeFOSAA (NMeFOSAA)	1.11	1.6	µg/kg wet	1.57		70.6	32-160			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B365805 - Draft Method 1633										
MRL Check (B365805-MRL1)				Prepared: 02/14/24 Analyzed: 02/15/24						
N-EtFOSAA (NEtFOSAA)	1.36	1.6	µg/kg wet	1.57		86.5	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	13.2	16	µg/kg wet	15.7		83.9	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	14.4	16	µg/kg wet	15.7		91.6	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.60	6.3	µg/kg wet	6.30		88.8	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.49	6.3	µg/kg wet	5.94		92.3	61-148			J
9Cl-PF3ONS (F53B Minor)	5.51	6.3	µg/kg wet	5.91		93.3	44-167			J
11Cl-PF3OUdS (F53B Major)	5.74	6.3	µg/kg wet	5.94		96.6	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	14.1	16	µg/kg wet	15.7		89.5	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	66.4	79	µg/kg wet	78.7		84.3	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	64.1	79	µg/kg wet	78.7		81.4	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.77	3.1	µg/kg wet	2.55		109	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.04	3.1	µg/kg wet	2.86		106	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.97	3.1	µg/kg wet	2.86		104	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.48	3.1	µg/kg wet	2.86		86.7	47-160			J
Surrogate: 13C4-PFBA	*63.6*		µg/kg wet	78.7		80.8	10-130			
Surrogate: 13C5-PFPeA	*35.9*		µg/kg wet	39.4		91.1	35-150			
Surrogate: 13C5-PFHxA	*16.6*		µg/kg wet	19.7		84.5	55-150			
Surrogate: 13C4-PFHpA	*16.4*		µg/kg wet	19.7		83.2	55-150			
Surrogate: 13C8-PFOA	*15.9*		µg/kg wet	19.7		80.9	60-140			
Surrogate: 13C9-PFNA	*8.03*		µg/kg wet	9.84		81.6	55-140			
Surrogate: 13C6-PFDA	*8.54*		µg/kg wet	9.84		86.8	50-140			
Surrogate: 13C7-PFUnA	*6.90*		µg/kg wet	9.84		70.1	30-140			
Surrogate: 13C2-PFDoA	*7.56*		µg/kg wet	9.84		76.8	10-150			
Surrogate: 13C2-PFTeDA	*6.26*		µg/kg wet	9.84		63.6	10-130			
Surrogate: 13C3-PFBS	*16.6*		µg/kg wet	19.7		84.2	55-150			
Surrogate: 13C3-PFHxS	*15.8*		µg/kg wet	19.7		80.4	55-150			
Surrogate: 13C8-PFOS	*15.6*		µg/kg wet	19.7		79.1	45-150			
Surrogate: 13C2-4:2FTS	*27.6*		µg/kg wet	39.4		70.2	60-200			
Surrogate: 13C2-6:2FTS	*30.5*		µg/kg wet	39.4		77.4	60-200			
Surrogate: 13C2-8:2FTS	*24.8*		µg/kg wet	39.4		63.0	50-200			
Surrogate: 13C8-PFOSA	*15.0*		µg/kg wet	19.7		76.2	30-130			
Surrogate: D3-NMeFOSA	*9.38*		µg/kg wet	19.7		47.7	15-130			
Surrogate: D5-NEtFOSA	*8.75*		µg/kg wet	19.7		44.5	10-130			
Surrogate: D3-NMeFOSAA	*29.7*		µg/kg wet	39.4		75.4	45-200			
Surrogate: D5-NEtFOSAA	*27.1*		µg/kg wet	39.4		69.0	10-200			
Surrogate: D7-NMeFOSE	*122*		µg/kg wet	197		61.9	10-150			
Surrogate: D9-NEtFOSE	*107*		µg/kg wet	197		54.4	10-150			
Surrogate: 13C3-HFPO-DA	*61.0*		µg/kg wet	78.7		77.5	25-160			

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

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-17C	Extracted internal standard is outside of control limits. Analyte is a known difficult compound.
PF-22A	Qualifier ion ratio >150% of associated calibration.
PF-23A	Qualifier ion ratio <50% of associated calibration.
S-29	Extracted Internal Standard is outside of control limits.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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

Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

24130616

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier_____X
☐ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 2/6/2024 **Results Requested By:** 3/5/2024

Workorder: 40273957 **Workorder Name:** PFAS/1633

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	1633 PFAS	LAB USE ONLY
1	PCD 02062024 CLASSIFIER 1	PS	2/6/2024 10:29	40273957001	Solid	1	X	
2	Field Blank 02062024	PS	2/6/2024 10:29	40273957002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Mike	2/6/24 5:00	FedEx	2/6/24 5:46
2			CUSTODY	2/7/24 1002
3				

Comments

Need Wet weight and dry weight reporting

BIOSOLID

Cooler Temperature on Receipt 2.8 °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

FedEx

FedEx® Tracking

DELIVERED

Wednesday

2/7/24 at 10:02 AM

Signed for by: L.ARROYO

Obtain proof of delivery

DELIVERY STATUS

Delivered

TRACKING ID

621806447037

FROM
Schaumburg, IL US

Label Created
2/6/24 2:47 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
2/6/24 4:48 PM

ON THE WAY
WINDSOR LOCKS, CT
2/7/24 8:21 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
2/7/24 8:33 AM

DELIVERED
east longmeadow, MA US

Delivered
2/7/24 at 10:02 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL

SUBMIT

✖ Your email is a required field.

MORE OPTIONS

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client Pace - WI

Project 40273957

MCP/RCP Required no

Deliverable Package Requirement no

Location WI

PWSID# (When Applicable) NA

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time GC 2/7/24 1002

Back-Sheet By / Date / Time GC 2/7/24 1343

Temperature Method gun # 5

Temp < 6° C Actual Temperature 2.8

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

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

	True	False
Received on Ice	☑	☐
Received in Cooler	☑	☐
Custody Seal: DATE 2/6/24 TIME	☑	☒ N/A
COC Relinquished	☑	☐
COC/Samples Labels Agree	☑	☐
All Samples in Good Condition	☑	☐
Samples Received within Holding Time	☑	☐
Is there enough Volume	☑	☐
Proper Media/Container Used	☑	☐
Splitting Samples Required	☐	☑
MS/MSD	☐	☑
Trip Blanks	☐	☑
Lab to Filters	☐	☑
COC Legible	☑	☐

COC Included: (Check all included)

Client ☑ Analysis ☑ Sampler Name ☑

Project ☑ IDs ☑ Collection Date/Time ☑

All Samples Proper pH: (N/A) ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Sample			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16oz Amb/Clear	(Circle Amb/Clear)	Soils Jars																				
8oz Amb/Clear																						
4oz Amb/Clear																						
2oz Amb/Clear																						
Unpreserved	1 Liter	Ambers																				
HCL																						
Sulfuric																						
Sulfuric	250mL																					
Phosphoric																						
HCl																						
Unpreserved	100mL																					
Unpreserved	1 Liter	Plastics																				
Sulfuric																						
Unpreserved	500mL			2																		
Sulfuric																						
Unpreserved	250mL																					
Trizma																						
Sulfuric																						
Nitric																						
NaOH																						
Ammonium Acetate																						
NaOH/Zinc																						
Unpreserved		VOA Vials																				
HCl																						
MeOH																						
D.I. Water																						
BiSulfate																						
Col/Bact		Other/Fill in																				
125 plastic			–																			

3

CDPHE PFAS SAMPLING

MARCH 5, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40275004

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

March 25, 2024

Cletus Ketter
Veolia North America
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40275004

Dear Cletus Ketter:

Enclosed are the analytical results for sample(s) received by the laboratory on March 05, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Jon Gibson, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40275004

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40275004001	**PCD 030524 CLASSIFIER 2**	Solid	03/05/24 10:21	03/05/24 11:14
40275004002	**FIELD BLANK 030524**	Water	03/05/24 10:23	03/05/24 11:14

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

40275004

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North Amenca	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus ketter@veolia com	**Purchase Order No: PO 1000321641**	Pace Quote Reference na
Phone 708 652 0575 Fax. N/A	**Project Name: PFAS/1633**	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY: __ NPDES __GROUND WATER __DRINKING WATER __UST __RCRA OTHER X

SITE LOCATION: __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N): N

Section D Required Client Information

SAMPLE ID
One Character per box
(A-Z, 0-9 / ,-)
Samples IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives Unpresreved	Analysis: 1633 PFAS	Analysis: Residual Chlor	Pace Project Number Lab I D
1	PCD 030524 Classifier 2	SL	G	3-5-24	10:24AM			1		X		
2	Field Blank 030524	W	G	3-5-24	10:13AM			1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO# : 40275004

40275004

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	3-5-24	11:14AM	Kaitlin Hoffman	3-5-24	1114

SAMPLE CONDITIONS

Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jose Morales

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 3/5/2024

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A Pace Analytical® Laboratory

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

March 25, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633
Client Job Number:
Project Number: 40275004
Laboratory Work Order Number: 24C0523

Enclosed are results of analyses for samples as received by the laboratory on March 6, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 3/25/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40275004

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24C0523

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

PROJECT LOCATION: PFAS/1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD 030524 CLASSIFIER 2	24C0523-01	Biosolids		Draft Method 1633	
				SM 2540G	
Field Blank 030524	24C0523-02	Water		Draft Method 1633	
PCD 030524 CLASSIFIER 2- wet weight	24C0523-03	Biosolids		Draft Method 1633	

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

CASE NARRATIVE SUMMARY

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

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

Qualifications:

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

D3-NMeFOSA
S101952-CCB1

N-methyl perfluoroocatnesulfonamide (NMeFOSA)
S101952-CCB1

PF-17C

Extracted internal standard is outside of control limits. Analyte is a known difficult compound.

Analyte & Samples(s) Qualified:

13C2-4:2FTS
24C0523-01[PCD 030524 CLASSIFIER 2], 24C0523-02[Field Blank 030524], 24C0523-03[PCD 030524 CLASSIFIER 2- wet weight], B367867-BLK1

13C2-6:2FTS
24C0523-02[Field Blank 030524]

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FT
24C0523-01[PCD 030524 CLASSIFIER 2], 24C0523-02[Field Blank 030524], 24C0523-03[PCD 030524 CLASSIFIER 2- wet weight], B367867-BLK1

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
24C0523-02[Field Blank 030524]

PF-23A

Qualifier ion ratio <50% of associated calibration.

Analyte & Samples(s) Qualified:

Perfluoroheptanoic acid (PFHpA)
24C0523-01[PCD 030524 CLASSIFIER 2], 24C0523-03[PCD 030524 CLASSIFIER 2- wet weight]

Perfluoropentanoic acid (PFPeA)
24C0523-01[PCD 030524 CLASSIFIER 2], 24C0523-03[PCD 030524 CLASSIFIER 2- wet weight]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C2-PFTeDA
S102102-CCV3

13C3-PFBS
24C0523-02[Field Blank 030524]

Perfluorobutanesulfonic acid (PFBS)
24C0523-02[Field Blank 030524]

Perfluorotetradecanoic acid (PFTeDA)
S102102-CCV3

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
24C0523-02[Field Blank 030524], S102088-CCV2, S102088-CCV3

Perfluoro-4-methoxybutanoic acid (PFMBA)
S101952-CCV1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorododecanesulfonic acid (PFDoS)
S102102-CCV3

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

V-20

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

Analyte & Samples(s) Qualified:

11Cl-PF3OUdS (F53B Major)
S102102-CCV3

Perfluoro-3-methoxypropanoic acid (PFMPA)
S102088-CCV1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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A Pace Analytical® Laboratory

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

Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: PCD 030524 CLASSIFIER 2 Sampled: 3/5/2024 10:21

Sample ID: 24C0523-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.7	2.7	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoropentanoic acid (PFPeA)	3.2	3.4	0.38	µg/kg dry	1	PF-23A, J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorohexanoic acid (PFHxA)	0.61	1.7	0.28	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoroheptanoic acid (PFHpA)	0.95	1.7	0.12	µg/kg dry	1	J, PF-23A	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorooctanoic acid (PFOA)	ND	1.7	0.26	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorononanoic acid (PFNA)	0.49	1.7	0.12	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorodecanoic acid (PFDA)	1.0	1.7	0.15	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoroundecanoic acid (PFUnA)	0.50	1.7	0.20	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorododecanoic acid (PFDoA)	0.64	1.7	0.18	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorotridecanoic acid (PFTrDA)	0.22	1.7	0.19	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.19	1.7	0.17	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.18	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	0.22	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.66	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.18	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorooctanesulfonic acid (PFOS)	7.2	1.7	0.27	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.19	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.27	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.7	0.26	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.7	0.59	µg/kg dry	1	PF-17C	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.7	4.2	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.7	0.78	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorooctanesulfonamide (PFOSA)	0.30	1.7	0.26	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.7	0.21	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.7	0.20	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-MeFOSAA (NMeFOSAA)	2.3	1.7	0.30	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-EtFOSAA (NEtFOSAA)	1.5	1.7	0.25	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	2.5	17	1.8	µg/kg dry	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	17	1.8	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.7	0.43	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.7	0.50	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.7	0.49	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.7	0.75	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	17	1.6	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	84	11	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	84	13	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.4	0.27	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.4	0.28	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: PCD 030524 CLASSIFIER 2 Sampled: 3/5/2024 10:21

Sample ID: 24C0523-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.4	0.28	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.4	0.51	µg/kg dry	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual		
13C4-PFBA	53.1		10-130		3/22/24	3:06
13C5-PFPeA	73.7		35-150		3/22/24	3:06
13C5-PFHxA	74.8		55-150		3/22/24	3:06
13C4-PFHpA	82.4		55-150		3/22/24	3:06
13C8-PFOA	73.6		60-140		3/22/24	3:06
13C9-PFNA	74.5		55-140		3/22/24	3:06
13C6-PFDA	77.1		50-140		3/22/24	3:06
13C7-PFUnA	70.0		30-140		3/22/24	3:06
13C2-PFDoA	65.7		10-150		3/22/24	3:06
13C2-PFTeDA	86.5		10-130		3/22/24	3:06
13C3-PFBS	73.0		55-150		3/22/24	3:06
13C3-PFHxS	78.3		55-150		3/22/24	3:06
13C8-PFOS	76.9		45-150		3/22/24	3:06
13C2-4:2FTS	**52.7**	*	60-200	PF-17C	3/22/24	3:06
13C2-6:2FTS	76.4		60-200		3/22/24	3:06
13C2-8:2FTS	87.9		50-200		3/22/24	3:06
13C8-PFOSA	61.8		30-130		3/22/24	3:06
D3-NMeFOSA	29.2		15-130		3/22/24	3:06
D5-NEtFOSA	20.0		10-130		3/22/24	3:06
D3-NMeFOSAA	51.4		45-200		3/22/24	3:06
D5-NEtFOSAA	59.8		10-200		3/22/24	3:06
D7-NMeFOSE	10.0		10-150		3/22/24	3:06
D9-NEtFOSE	27.8		10-150		3/22/24	3:06
13C3-HFPO-DA	87.0		25-160		3/22/24	3:06

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: PCD 030524 CLASSIFIER 2 Sampled: 3/5/2024 10:21

Sample ID: 24C0523-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	94.4		% Wt	1		SM 2540G	3/7/24	3/7/24 9:33	DML

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: Field Blank 030524 Sampled: 3/5/2024 10:23

Sample ID: 24C0523-02

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.6	2.0	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.8	0.39	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.91	0.22	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.91	0.24	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorooctanoic acid (PFOA)	ND	0.91	0.24	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorononanoic acid (PFNA)	ND	0.91	0.17	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorodecanoic acid (PFDA)	ND	0.91	0.19	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.91	0.19	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.91	0.18	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.91	0.27	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.91	0.24	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.91	0.19	ng/L	1	S-29	Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.91	0.23	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.91	0.25	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.91	0.30	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.91	0.35	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.91	0.23	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.91	0.26	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.91	0.26	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.6	0.68	ng/L	1	PF-17C	Draft Method 1633	3/14/24	3/22/24 15:20	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.6	2.8	ng/L	1	PF-17C	Draft Method 1633	3/14/24	3/22/24 15:20	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.6	1.0	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.91	0.21	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.91	0.30	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.91	0.31	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.91	0.33	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.91	0.36	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.1	2.5	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.1	2.4	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.6	0.94	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.6	0.75	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.6	0.88	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.6	0.98	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.1	2.0	ng/L	1	V-05	Draft Method 1633	3/14/24	3/22/24 15:20	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	46	10	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	46	8.7	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.32	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.8	0.51	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: Field Blank 030524 Sampled: 3/5/2024 10:23

Sample ID: 24C0523-02

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.8	0.49	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.50	ng/L	1		Draft Method 1633	3/14/24	3/22/24 15:20	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	68.5		10-130		3/22/24 15:20
13C5-PFPeA	90.2		35-150		3/22/24 15:20
13C5-PFHxA	68.9		55-150		3/22/24 15:20
13C4-PFHpA	73.9		55-150		3/22/24 15:20
13C8-PFOA	68.3		60-140		3/22/24 15:20
13C9-PFNA	67.0		55-140		3/22/24 15:20
13C6-PFDA	72.7		50-140		3/22/24 15:20
13C7-PFUnA	63.8		30-140		3/22/24 15:20
13C2-PFDoA	64.2		10-150		3/22/24 15:20
13C2-PFTeDA	69.6		10-130		3/22/24 15:20
13C3-PFBS	**54.5**	*	55-150	S-29	3/22/24 15:20
13C3-PFHxS	68.1		55-150		3/22/24 15:20
13C8-PFOS	65.7		45-140		3/22/24 15:20
13C2-4:2FTS	**46.4**	*	60-200	PF-17C	3/22/24 15:20
13C2-6:2FTS	**57.7**	*	60-200	PF-17C	3/22/24 15:20
13C2-8:2FTS	61.8		50-200		3/22/24 15:20
13C8-PFOSA	58.6		30-130		3/22/24 15:20
D3-NMeFOSA	55.0		15-130		3/22/24 15:20
D5-NEtFOSA	55.1		10-130		3/22/24 15:20
D3-NMeFOSAA	61.9		45-200		3/22/24 15:20
D5-NEtFOSAA	59.0		10-200		3/22/24 15:20
D7-NMeFOSE	56.4		10-150		3/22/24 15:20
D9-NEtFOSE	55.1		10-150		3/22/24 15:20
13C3-HFPO-DA	75.9		25-160		3/22/24 15:20

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: Field Blank 030524 Sampled: 3/5/2024 10:23

Sample ID: 24C0523-02

Sample Matrix: Water

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	3/7/24	3/7/24 6:21	LL

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: PCD 030524 CLASSIFIER 2- wet weight Sampled: 3/5/2024 10:21

Sample ID: 24C0523-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.4	2.6	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoropentanoic acid (PFPeA)	3.0	3.2	0.36	µg/kg wet	1	PF-23A, J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorohexanoic acid (PFHxA)	0.57	1.6	0.26	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoroheptanoic acid (PFHpA)	0.90	1.6	0.12	µg/kg wet	1	PF-23A, J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorooctanoic acid (PFOA)	ND	1.6	0.25	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorononanoic acid (PFNA)	0.46	1.6	0.11	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorodecanoic acid (PFDA)	0.95	1.6	0.14	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoroundecanoic acid (PFUnA)	0.47	1.6	0.19	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorododecanoic acid (PFDoA)	0.61	1.6	0.17	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorotridecanoic acid (PFTrDA)	0.21	1.6	0.18	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.18	1.6	0.16	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.6	0.17	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.6	0.20	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.6	0.62	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.6	0.17	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorooctanesulfonic acid (PFOS)	6.8	1.6	0.25	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.6	0.18	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.6	0.25	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.6	0.24	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.4	0.56	µg/kg wet	1	PF-17C	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.4	4.0	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.4	0.74	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluorooctanesulfonamide (PFOSA)	0.29	1.6	0.25	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.6	0.20	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.6	0.19	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-MeFOSAA (NMeFOSAA)	2.1	1.6	0.28	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-EtFOSAA (NEtFOSAA)	1.4	1.6	0.24	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	2.3	16	1.7	µg/kg wet	1	J	Draft Method 1633	3/19/24	3/22/24 3:06	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	16	1.7	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.4	0.41	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.4	0.48	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.4	0.46	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.4	0.70	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	16	1.5	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	79	11	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	79	12	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.2	0.25	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.2	0.26	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24C0523

Date Received: 3/6/2024

Field Sample #: PCD 030524 CLASSIFIER 2- wet weight Sampled: 3/5/2024 10:21

Sample ID: 24C0523-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.2	0.26	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.2	0.48	µg/kg wet	1		Draft Method 1633	3/19/24	3/22/24 3:06	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	53.1		10-130		3/22/24 3:06
13C5-PFPeA	73.7		35-150		3/22/24 3:06
13C5-PFHxA	74.8		55-150		3/22/24 3:06
13C4-PFHpA	82.4		55-150		3/22/24 3:06
13C8-PFOA	73.6		60-140		3/22/24 3:06
13C9-PFNA	74.5		55-140		3/22/24 3:06
13C6-PFDA	77.1		50-140		3/22/24 3:06
13C7-PFUnA	70.0		30-140		3/22/24 3:06
13C2-PFDoA	65.7		10-150		3/22/24 3:06
13C2-PFTeDA	86.5		10-130		3/22/24 3:06
13C3-PFBS	73.0		55-150		3/22/24 3:06
13C3-PFHxS	78.3		55-150		3/22/24 3:06
13C8-PFOS	76.9		45-150		3/22/24 3:06
13C2-4:2FTS	**52.7**	*	60-200	PF-17C	3/22/24 3:06
13C2-6:2FTS	76.4		60-200		3/22/24 3:06
13C2-8:2FTS	87.9		50-200		3/22/24 3:06
13C8-PFOSA	61.8		30-130		3/22/24 3:06
D3-NMeFOSA	29.2		15-130		3/22/24 3:06
D5-NEtFOSA	20.0		10-130		3/22/24 3:06
D3-NMeFOSAA	51.4		45-200		3/22/24 3:06
D5-NEtFOSAA	59.8		10-200		3/22/24 3:06
D7-NMeFOSE	10.0		10-150		3/22/24 3:06
D9-NEtFOSE	27.8		10-150		3/22/24 3:06
13C3-HFPO-DA	87.0		25-160		3/22/24 3:06

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24C0523-01 [PCD 030524 CLASSIFIER 2]	B367867	0.629	5.00	03/19/24
24C0523-03 [PCD 030524 CLASSIFIER 2- wet weight]	B367867	0.629	5.00	03/19/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24C0523-02 [Field Blank 030524]	B367782	50.0	03/07/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 3/7/2024 per NO PREP in Batch B367782**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24C0523-02 [Field Blank 030524]	B367908	548	5.00	03/14/24

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

Lab Number [Field ID]	Batch	Date
24C0523-01 [PCD 030524 CLASSIFIER 2]	B367816	03/07/24

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367867 - Draft Method 1633										
Blank (B367867-BLK1)				Prepared: 03/19/24 Analyzed: 03/22/24						
Perfluorobutanoic acid (PFBA)	ND	7.0	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	3.5	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.8	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.8	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.8	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.8	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.8	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.8	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.8	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.8	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.8	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.8	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.8	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.0	µg/kg wet							PF-17C
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.0	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.0	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.8	µg/kg wet							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	µg/kg wet							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.8	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.8	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.0	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.0	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	7.0	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	7.0	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	88	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	88	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.5	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.5	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.5	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.5	µg/kg wet							
Surrogate: 13C4-PFBA	*70.7*		µg/kg wet	87.6		80.7	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B367867 - Draft Method 1633											
Blank (B367867-BLK1)				Prepared: 03/19/24 Analyzed: 03/22/24							
Surrogate: 13C5-PFPeA	*38.5*		µg/kg wet	43.8		88.0		35-150			
Surrogate: 13C5-PFHxA	*17.1*		µg/kg wet	21.9		78.3		55-150			
Surrogate: 13C4-PFHpA	*17.8*		µg/kg wet	21.9		81.5		55-150			
Surrogate: 13C8-PFOA	*16.6*		µg/kg wet	21.9		76.0		60-140			
Surrogate: 13C9-PFNA	*8.61*		µg/kg wet	10.9		78.7		55-140			
Surrogate: 13C6-PFDA	*8.54*		µg/kg wet	10.9		78.0		50-140			
Surrogate: 13C7-PFUnA	*8.76*		µg/kg wet	10.9		80.0		30-140			
Surrogate: 13C2-PFDoA	*7.21*		µg/kg wet	10.9		65.9		10-150			
Surrogate: 13C2-PFTeDA	*10.7*		µg/kg wet	10.9		97.5		10-130			
Surrogate: 13C3-PFBS	*16.3*		µg/kg wet	21.9		74.4		55-150			
Surrogate: 13C3-PFHxS	*17.4*		µg/kg wet	21.9		79.3		55-150			
Surrogate: 13C8-PFOS	*16.8*		µg/kg wet	21.9		76.8		45-150			
Surrogate: 13C2-4:2FTS	*26.1*		µg/kg wet	43.8		**59.7**	*	60-200			PF-17C
Surrogate: 13C2-6:2FTS	*32.2*		µg/kg wet	43.8		73.7		60-200			
Surrogate: 13C2-8:2FTS	*43.1*		µg/kg wet	43.8		98.5		50-200			
Surrogate: 13C8-PFOSA	*13.7*		µg/kg wet	21.9		62.8		30-130			
Surrogate: D3-NMeFOSA	*9.60*		µg/kg wet	21.9		43.8		15-130			
Surrogate: D5-NEtFOSA	*9.61*		µg/kg wet	21.9		43.9		10-130			
Surrogate: D3-NMeFOSAA	*30.4*		µg/kg wet	43.8		69.4		45-200			
Surrogate: D5-NEtFOSAA	*31.1*		µg/kg wet	43.8		71.1		10-200			
Surrogate: D7-NMeFOSE	*115*		µg/kg wet	219		52.4		10-150			
Surrogate: D9-NEtFOSE	*114*		µg/kg wet	219		52.1		10-150			
Surrogate: 13C3-HFPO-DA	*74.4*		µg/kg wet	87.6		85.0		25-160			
LCS (B367867-BS1)				Prepared: 03/19/24 Analyzed: 03/22/24							
Perfluorobutanoic acid (PFBA)	70.0	6.9	µg/kg wet	82.5		84.9		58-148			
Perfluoropentanoic acid (PFPeA)	34.4	3.4	µg/kg wet	41.2		83.3		54-152			
Perfluorohexanoic acid (PFHxA)	17.5	1.7	µg/kg wet	20.6		84.9		55-152			
Perfluoroheptanoic acid (PFHpA)	17.4	1.7	µg/kg wet	20.6		84.5		54-154			
Perfluorooctanoic acid (PFOA)	15.7	1.7	µg/kg wet	20.6		76.2		52-161			
Perfluorononanoic acid (PFNA)	17.3	1.7	µg/kg wet	20.6		84.0		59-149			
Perfluorodecanoic acid (PFDA)	17.5	1.7	µg/kg wet	20.6		84.7		52-147			
Perfluoroundecanoic acid (PFUnA)	17.0	1.7	µg/kg wet	20.6		82.4		48-159			
Perfluorododecanoic acid (PFDoA)	17.0	1.7	µg/kg wet	20.6		82.2		64-142			
Perfluorotridecanoic acid (PFTrDA)	18.5	1.7	µg/kg wet	20.6		89.6		49-148			
Perfluorotetradecanoic acid (PFTeDA)	16.9	1.7	µg/kg wet	20.6		81.8		47-161			
Perfluorobutanesulfonic acid (PFBS)	14.7	1.7	µg/kg wet	18.3		80.2		62-144			
Perfluoropentanesulfonic acid (PFPeS)	16.0	1.7	µg/kg wet	19.4		82.3		59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.4	1.7	µg/kg wet	18.9		97.7		57-146			
Perfluoroheptanesulfonic acid (PFHpS)	15.9	1.7	µg/kg wet	19.6		81.1		55-152			
Perfluorooctanesulfonic acid (PFOS)	15.6	1.7	µg/kg wet	19.1		81.6		58-149			
Perfluorononanesulfonic acid (PFNS)	15.3	1.7	µg/kg wet	19.8		77.1		52-148			
Perfluorodecanesulfonic acid (PFDS)	16.3	1.7	µg/kg wet	19.9		81.7		51-147			
Perfluorododecanesulfonic acid (PFDoS)	15.9	1.7	µg/kg wet	20.0		79.3		36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	68.5	6.9	µg/kg wet	77.3		88.5		67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	68.8	6.9	µg/kg wet	78.4		87.8		61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	70.4	6.9	µg/kg wet	79.4		88.7		63-152			
Perfluorooctanesulfonamide (PFOSA)	16.6	1.7	µg/kg wet	20.6		80.6		61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	18.2	1.7	µg/kg wet	20.6		88.1		63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367867 - Draft Method 1633										
LCS (B367867-BS1)				Prepared: 03/19/24 Analyzed: 03/22/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	19.6	1.7	µg/kg wet	20.6		95.2	65-139			
N-MeFOSAA (NMeFOSAA)	20.5	1.7	µg/kg wet	20.6		99.4	58-144			
N-EtFOSAA (NEtFOSAA)	20.3	1.7	µg/kg wet	20.6		98.4	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	190	17	µg/kg wet	206		92.0	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	176	17	µg/kg wet	206		85.1	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	83.6	6.9	µg/kg wet	82.5		101	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	76.1	6.9	µg/kg wet	77.8		97.8	68-146			
9Cl-PF3ONS (F53B Minor)	97.2	6.9	µg/kg wet	77.3		126	56-156			
11Cl-PF3OUdS (F53B Major)	112	6.9	µg/kg wet	77.8		144	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	150	17	µg/kg wet	206		72.8	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	845	86	µg/kg wet	1030		82.0	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	874	86	µg/kg wet	1030		84.7	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	36.3	3.4	µg/kg wet	33.4		109	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	32.7	3.4	µg/kg wet	37.5		87.3	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	33.4	3.4	µg/kg wet	37.5		89.1	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	38.9	3.4	µg/kg wet	37.5		104	48-161			
Surrogate: 13C4-PFBA	*72.0*		µg/kg wet	85.9		83.8	10-130			
Surrogate: 13C5-PFPeA	*42.9*		µg/kg wet	43.0		99.9	35-150			
Surrogate: 13C5-PFHxA	*18.3*		µg/kg wet	21.5		85.2	55-150			
Surrogate: 13C4-PFHpA	*18.1*		µg/kg wet	21.5		84.1	55-150			
Surrogate: 13C8-PFOA	*18.2*		µg/kg wet	21.5		84.8	60-140			
Surrogate: 13C9-PFNA	*8.84*		µg/kg wet	10.7		82.3	55-140			
Surrogate: 13C6-PFDA	*8.89*		µg/kg wet	10.7		82.8	50-140			
Surrogate: 13C7-PFUnA	*9.02*		µg/kg wet	10.7		84.0	30-140			
Surrogate: 13C2-PFDoA	*7.80*		µg/kg wet	10.7		72.6	10-150			
Surrogate: 13C2-PFTeDA	*11.6*		µg/kg wet	10.7		108	10-130			
Surrogate: 13C3-PFBS	*17.1*		µg/kg wet	21.5		79.8	55-150			
Surrogate: 13C3-PFHxS	*17.8*		µg/kg wet	21.5		82.8	55-150			
Surrogate: 13C8-PFOS	*17.7*		µg/kg wet	21.5		82.3	45-150			
Surrogate: 13C2-4:2FTS	*28.6*		µg/kg wet	43.0		66.5	60-200			
Surrogate: 13C2-6:2FTS	*33.6*		µg/kg wet	43.0		78.1	60-200			
Surrogate: 13C2-8:2FTS	*41.2*		µg/kg wet	43.0		95.8	50-200			
Surrogate: 13C8-PFOSA	*14.5*		µg/kg wet	21.5		67.7	30-130			
Surrogate: D3-NMeFOSA	*10.4*		µg/kg wet	21.5		48.4	15-130			
Surrogate: D5-NEtFOSA	*9.41*		µg/kg wet	21.5		43.8	10-130			
Surrogate: D3-NMeFOSAA	*32.8*		µg/kg wet	43.0		76.5	45-200			
Surrogate: D5-NEtFOSAA	*31.9*		µg/kg wet	43.0		74.4	10-200			
Surrogate: D7-NMeFOSE	*112*		µg/kg wet	215		52.3	10-150			
Surrogate: D9-NEtFOSE	*113*		µg/kg wet	215		52.8	10-150			
Surrogate: 13C3-HFPO-DA	*78.1*		µg/kg wet	85.9		90.9	25-160			
MRL Check (B367867-MRL1)				Prepared: 03/19/24 Analyzed: 03/22/24						
Perfluorobutanoic acid (PFBA)	6.97	6.6	µg/kg wet	6.63		105	44-157			
Perfluoropentanoic acid (PFPeA)	3.28	3.3	µg/kg wet	3.32		98.8	57-148			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367867 - Draft Method 1633										
MRL Check (B367867-MRL1)				Prepared: 03/19/24 Analyzed: 03/22/24						
Perfluorohexanoic acid (PFHxA)	1.70	1.7	µg/kg wet	1.66		102	62-149			
Perfluoroheptanoic acid (PFHpA)	1.63	1.7	µg/kg wet	1.66		98.0	56-150			J
Perfluorooctanoic acid (PFOA)	1.70	1.7	µg/kg wet	1.66		103	57-161			
Perfluorononanoic acid (PFNA)	1.70	1.7	µg/kg wet	1.66		103	53-157			
Perfluorodecanoic acid (PFDA)	1.54	1.7	µg/kg wet	1.66		93.1	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.63	1.7	µg/kg wet	1.66		98.4	50-155			J
Perfluorododecanoic acid (PFDoA)	1.58	1.7	µg/kg wet	1.66		95.1	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.62	1.7	µg/kg wet	1.66		97.9	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.64	1.7	µg/kg wet	1.66		99.0	52-156			J
Perfluorobutanesulfonic acid (PFBS)	1.46	1.7	µg/kg wet	1.47		99.5	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.53	1.7	µg/kg wet	1.56		98.4	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.74	1.7	µg/kg wet	1.52		114	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.56	1.7	µg/kg wet	1.58		98.8	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.57	1.7	µg/kg wet	1.54		102	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.69	1.7	µg/kg wet	1.60		106	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.61	1.7	µg/kg wet	1.60		101	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.49	1.7	µg/kg wet	1.61		92.4	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.31	6.6	µg/kg wet	6.22		102	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.11	6.6	µg/kg wet	6.30		96.9	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.15	6.6	µg/kg wet	6.38		112	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.68	1.7	µg/kg wet	1.66		101	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.61	1.7	µg/kg wet	1.66		97.2	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.64	1.7	µg/kg wet	1.66		99.1	49-156			J
N-MeFOSAA (NMeFOSAA)	1.92	1.7	µg/kg wet	1.66		116	32-160			
N-EtFOSAA (NEtFOSAA)	2.12	1.7	µg/kg wet	1.66		128	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	16.2	17	µg/kg wet	16.6		97.9	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	15.9	17	µg/kg wet	16.6		95.7	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.85	6.6	µg/kg wet	6.63		88.2	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.66	6.6	µg/kg wet	6.26		90.4	61-148			J
9Cl-PF3ONS (F53B Minor)	6.06	6.6	µg/kg wet	6.22		97.4	44-167			J
11Cl-PF3OUdS (F53B Major)	6.59	6.6	µg/kg wet	6.26		105	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	11.5	17	µg/kg wet	16.6		69.2	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	60.8	83	µg/kg wet	82.9		73.3	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	61.1	83	µg/kg wet	82.9		73.6	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.56	3.3	µg/kg wet	2.68		95.4	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.49	3.3	µg/kg wet	3.01		82.6	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.44	3.3	µg/kg wet	3.01		81.0	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.32	3.3	µg/kg wet	3.01		110	47-160			J
Surrogate: 13C4-PFBA	*68.7*		µg/kg wet	82.9		82.9	10-130			
Surrogate: 13C5-PFPeA	*41.1*		µg/kg wet	41.5		99.0	35-150			
Surrogate: 13C5-PFHxA	*17.5*		µg/kg wet	20.7		84.6	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367867 - Draft Method 1633										
MRL Check (B367867-MRL1)				Prepared: 03/19/24 Analyzed: 03/22/24						
Surrogate: 13C4-PFHpA	*17.2*		µg/kg wet	20.7		83.1	55-150			
Surrogate: 13C8-PFOA	*16.7*		µg/kg wet	20.7		80.4	60-140			
Surrogate: 13C9-PFNA	*8.28*		µg/kg wet	10.4		79.8	55-140			
Surrogate: 13C6-PFDA	*8.64*		µg/kg wet	10.4		83.4	50-140			
Surrogate: 13C7-PFUnA	*8.06*		µg/kg wet	10.4		77.8	30-140			
Surrogate: 13C2-PFDoA	*7.41*		µg/kg wet	10.4		71.5	10-150			
Surrogate: 13C2-PFTeDA	*11.0*		µg/kg wet	10.4		106	10-130			
Surrogate: 13C3-PFBS	*17.1*		µg/kg wet	20.7		82.3	55-150			
Surrogate: 13C3-PFHxS	*17.4*		µg/kg wet	20.7		83.9	55-150			
Surrogate: 13C8-PFOS	*16.0*		µg/kg wet	20.7		77.3	45-150			
Surrogate: 13C2-4:2FTS	*29.7*		µg/kg wet	41.5		71.8	60-200			
Surrogate: 13C2-6:2FTS	*29.4*		µg/kg wet	41.5		70.9	60-200			
Surrogate: 13C2-8:2FTS	*30.7*		µg/kg wet	41.5		74.1	50-200			
Surrogate: 13C8-PFOSA	*14.1*		µg/kg wet	20.7		67.9	30-130			
Surrogate: D3-NMeFOSA	*10.1*		µg/kg wet	20.7		48.9	15-130			
Surrogate: D5-NEtFOSA	*9.97*		µg/kg wet	20.7		48.1	10-130			
Surrogate: D3-NMeFOSAA	*31.3*		µg/kg wet	41.5		75.4	45-200			
Surrogate: D5-NEtFOSAA	*30.7*		µg/kg wet	41.5		74.0	10-200			
Surrogate: D7-NMeFOSE	*119*		µg/kg wet	207		57.6	10-150			
Surrogate: D9-NEtFOSE	*115*		µg/kg wet	207		55.3	10-150			
Surrogate: 13C3-HFPO-DA	*73.2*		µg/kg wet	82.9		88.2	25-160			
Batch B367908 - Draft Method 1633										
Blank (B367908-BLK1)				Prepared: 03/14/24 Analyzed: 03/20/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.98	ng/L							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367908 - Draft Method 1633										
Blank (B367908-BLK1)				Prepared: 03/14/24 Analyzed: 03/20/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*89.5*		ng/L	98.4		90.9	10-130			
Surrogate: 13C5-PFPeA	*63.8*		ng/L	49.2		130	35-150			
Surrogate: 13C5-PFHxA	*22.5*		ng/L	24.6		91.3	55-150			
Surrogate: 13C4-PFHpA	*22.6*		ng/L	24.6		92.0	55-150			
Surrogate: 13C8-PFOA	*22.7*		ng/L	24.6		92.4	60-140			
Surrogate: 13C9-PFNA	*10.5*		ng/L	12.3		85.3	55-140			
Surrogate: 13C6-PFDA	*10.9*		ng/L	12.3		88.3	50-140			
Surrogate: 13C7-PFUnA	*10.3*		ng/L	12.3		83.4	30-140			
Surrogate: 13C2-PFDoA	*10.2*		ng/L	12.3		83.2	10-150			
Surrogate: 13C2-PFTeDA	*10.3*		ng/L	12.3		84.1	10-130			
Surrogate: 13C3-PFBS	*21.5*		ng/L	24.6		87.4	55-150			
Surrogate: 13C3-PFHxS	*22.3*		ng/L	24.6		90.8	55-150			
Surrogate: 13C8-PFOS	*22.3*		ng/L	24.6		90.5	45-140			
Surrogate: 13C2-4:2FTS	*41.6*		ng/L	49.2		84.6	60-200			
Surrogate: 13C2-6:2FTS	*47.2*		ng/L	49.2		95.9	60-200			
Surrogate: 13C2-8:2FTS	*46.4*		ng/L	49.2		94.4	50-200			
Surrogate: 13C8-PFOSA	*22.1*		ng/L	24.6		89.8	30-130			
Surrogate: D3-NMeFOSA	*19.2*		ng/L	24.6		77.9	15-130			
Surrogate: D5-NEtFOSA	*21.4*		ng/L	24.6		86.8	10-130			
Surrogate: D3-NMeFOSAA	*49.7*		ng/L	49.2		101	45-200			
Surrogate: D5-NEtFOSAA	*48.5*		ng/L	49.2		98.6	10-200			
Surrogate: D7-NMeFOSE	*214*		ng/L	246		86.9	10-150			
Surrogate: D9-NEtFOSE	*216*		ng/L	246		87.7	10-150			
Surrogate: 13C3-HFPO-DA	*95.2*		ng/L	98.4		96.7	25-160			
LCS (B367908-BS1)				Prepared: 03/14/24 Analyzed: 03/20/24						
Perfluorobutanoic acid (PFBA)	87.5	3.9	ng/L	93.4		93.7	58-148			
Perfluoropentanoic acid (PFPeA)	43.9	1.9	ng/L	46.7		93.9	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367908 - Draft Method 1633										
LCS (B367908-BS1)				Prepared: 03/14/24 Analyzed: 03/20/24						
Perfluorohexanoic acid (PFHxA)	20.9	0.97	ng/L	23.4		89.7	55-152			
Perfluoroheptanoic acid (PFHpA)	21.5	0.97	ng/L	23.4		92.2	54-154			
Perfluorooctanoic acid (PFOA)	21.9	0.97	ng/L	23.4		93.7	52-161			
Perfluorononanoic acid (PFNA)	21.7	0.97	ng/L	23.4		92.9	59-149			
Perfluorodecanoic acid (PFDA)	22.7	0.97	ng/L	23.4		97.2	52-147			
Perfluoroundecanoic acid (PFUnA)	22.1	0.97	ng/L	23.4		94.7	48-159			
Perfluorododecanoic acid (PFDoA)	22.2	0.97	ng/L	23.4		95.1	64-142			
Perfluorotridecanoic acid (PFTrDA)	21.7	0.97	ng/L	23.4		92.7	49-148			
Perfluorotetradecanoic acid (PFTeDA)	21.6	0.97	ng/L	23.4		92.4	47-161			
Perfluorobutanesulfonic acid (PFBS)	18.9	0.97	ng/L	20.7		91.2	62-144			
Perfluoropentanesulfonic acid (PFPeS)	20.1	0.97	ng/L	22.0		91.7	59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.6	0.97	ng/L	21.4		86.9	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	20.8	0.97	ng/L	22.2		93.6	55-152			
Perfluorooctanesulfonic acid (PFOS)	19.7	0.97	ng/L	21.7		90.9	58-149			
Perfluorononanesulfonic acid (PFNS)	20.8	0.97	ng/L	22.5		92.4	52-148			
Perfluorodecanesulfonic acid (PFDS)	19.9	0.97	ng/L	22.5		88.4	51-147			
Perfluorododecanesulfonic acid (PFDoS)	19.9	0.97	ng/L	22.7		88.1	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	84.6	3.9	ng/L	87.6		96.6	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	80.9	3.9	ng/L	88.7		91.2	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	86.6	3.9	ng/L	89.9		96.3	63-152			
Perfluorooctanesulfonamide (PFOSA)	20.9	0.97	ng/L	23.4		89.5	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	23.6	0.97	ng/L	23.4		101	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	23.3	0.97	ng/L	23.4		99.8	65-139			
N-MeFOSAA (NMeFOSAA)	20.7	0.97	ng/L	23.4		88.6	58-144			
N-EtFOSAA (NEtFOSAA)	20.7	0.97	ng/L	23.4		88.6	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	236	9.7	ng/L	234		101	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	232	9.7	ng/L	234		99.2	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	95.6	3.9	ng/L	93.4		102	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	90.2	3.9	ng/L	88.2		102	68-146			
9Cl-PF3ONS (F53B Minor)	80.2	3.9	ng/L	87.6		91.5	56-156			
11Cl-PF3OUdS (F53B Major)	78.6	3.9	ng/L	88.2		89.2	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	203	9.7	ng/L	234		86.8	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1150	49	ng/L	1170		98.5	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1040	49	ng/L	1170		89.1	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	48.0	1.9	ng/L	37.8		127	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	45.4	1.9	ng/L	42.4		107	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	31.1	1.9	ng/L	42.4		73.2	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	54.4	1.9	ng/L	42.4		128	48-161			
Surrogate: 13C4-PFBA	*78.6*		ng/L	97.3		80.8	10-130			
Surrogate: 13C5-PFPeA	*57.2*		ng/L	48.7		118	35-150			
Surrogate: 13C5-PFHxA	*19.4*		ng/L	24.3		79.6	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367908 - Draft Method 1633										
LCS (B367908-BS1)				Prepared: 03/14/24 Analyzed: 03/20/24						
Surrogate: 13C4-PFHpA	*19.8*		ng/L	24.3		81.3	55-150			
Surrogate: 13C8-PFOA	*19.1*		ng/L	24.3		78.7	60-140			
Surrogate: 13C9-PFNA	*9.54*		ng/L	12.2		78.4	55-140			
Surrogate: 13C6-PFDA	*9.74*		ng/L	12.2		80.1	50-140			
Surrogate: 13C7-PFUnA	*9.42*		ng/L	12.2		77.4	30-140			
Surrogate: 13C2-PFDoA	*9.30*		ng/L	12.2		76.5	10-150			
Surrogate: 13C2-PFTeDA	*9.41*		ng/L	12.2		77.3	10-130			
Surrogate: 13C3-PFBS	*18.5*		ng/L	24.3		76.1	55-150			
Surrogate: 13C3-PFHxS	*19.2*		ng/L	24.3		79.0	55-150			
Surrogate: 13C8-PFOS	*18.9*		ng/L	24.3		77.9	45-140			
Surrogate: 13C2-4:2FTS	*36.7*		ng/L	48.7		75.5	60-200			
Surrogate: 13C2-6:2FTS	*42.7*		ng/L	48.7		87.7	60-200			
Surrogate: 13C2-8:2FTS	*42.0*		ng/L	48.7		86.4	50-200			
Surrogate: 13C8-PFOSA	*17.6*		ng/L	24.3		72.4	30-130			
Surrogate: D3-NMeFOSA	*16.1*		ng/L	24.3		66.2	15-130			
Surrogate: D5-NEtFOSA	*17.8*		ng/L	24.3		73.1	10-130			
Surrogate: D3-NMeFOSAA	*43.8*		ng/L	48.7		90.0	45-200			
Surrogate: D5-NEtFOSAA	*44.2*		ng/L	48.7		90.9	10-200			
Surrogate: D7-NMeFOSE	*170*		ng/L	243		69.8	10-150			
Surrogate: D9-NEtFOSE	*173*		ng/L	243		70.9	10-150			
Surrogate: 13C3-HFPO-DA	*85.4*		ng/L	97.3		87.8	25-160			
MRL Check (B367908-MRL1)				Prepared: 03/14/24 Analyzed: 03/20/24						
Perfluorobutanoic acid (PFBA)	7.34	3.9	ng/L	7.82		93.8	44-157			
Perfluoropentanoic acid (PFPeA)	3.63	2.0	ng/L	3.91		92.9	57-148			
Perfluorohexanoic acid (PFHxA)	1.76	0.98	ng/L	1.96		90.1	62-149			
Perfluoroheptanoic acid (PFHpA)	1.81	0.98	ng/L	1.96		92.4	56-150			
Perfluorooctanoic acid (PFOA)	2.12	0.98	ng/L	1.96		109	57-161			
Perfluorononanoic acid (PFNA)	1.87	0.98	ng/L	1.96		95.6	53-157			
Perfluorodecanoic acid (PFDA)	1.97	0.98	ng/L	1.96		101	43-158			
Perfluoroundecanoic acid (PFUnA)	1.84	0.98	ng/L	1.96		94.3	50-155			
Perfluorododecanoic acid (PFDoA)	1.80	0.98	ng/L	1.96		91.9	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.67	0.98	ng/L	1.96		85.2	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.70	0.98	ng/L	1.96		86.8	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.60	0.98	ng/L	1.74		92.2	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.68	0.98	ng/L	1.84		91.6	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.61	0.98	ng/L	1.79		90.2	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.59	0.98	ng/L	1.86		85.4	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.45	0.98	ng/L	1.81		80.2	43-162			
Perfluorononanesulfonic acid (PFNS)	1.99	0.98	ng/L	1.88		106	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.68	0.98	ng/L	1.89		89.2	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.75	0.98	ng/L	1.90		92.2	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.57	3.9	ng/L	7.34		89.5	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.89	3.9	ng/L	7.43		92.7	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.84	3.9	ng/L	7.53		90.9	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.77	0.98	ng/L	1.96		90.2	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.81	0.98	ng/L	1.96		92.6	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.85	0.98	ng/L	1.96		94.6	49-156			
N-MeFOSAA (NMeFOSAA)	1.84	0.98	ng/L	1.96		93.9	32-160			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B367908 - Draft Method 1633										
MRL Check (B367908-MRL1)				Prepared: 03/14/24 Analyzed: 03/20/24						
N-EtFOSAA (NEtFOSAA)	1.85	0.98	ng/L	1.96		94.4	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	18.1	9.8	ng/L	19.6		92.7	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	17.5	9.8	ng/L	19.6		89.4	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.27	3.9	ng/L	7.82		92.9	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.63	3.9	ng/L	7.38		89.8	61-148			
9Cl-PF3ONS (F53B Minor)	5.83	3.9	ng/L	7.34		79.5	44-167			
11Cl-PF3OUdS (F53B Major)	5.75	3.9	ng/L	7.38		77.8	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.1	9.8	ng/L	19.6		66.9	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	77.4	49	ng/L	97.8		79.2	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	71.7	49	ng/L	97.8		73.3	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.41	2.0	ng/L	3.48		97.9	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.94	2.0	ng/L	3.91		75.1	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.29	2.0	ng/L	3.91		58.5	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.89	2.0	ng/L	3.91		99.4	47-160			
Surrogate: 13C4-PFBA	*80.4*		ng/L	97.8		82.3	10-130			
Surrogate: 13C5-PFPeA	*55.2*		ng/L	48.9		113	35-150			
Surrogate: 13C5-PFHxA	*19.9*		ng/L	24.5		81.5	55-150			
Surrogate: 13C4-PFHpA	*20.0*		ng/L	24.5		81.8	55-150			
Surrogate: 13C8-PFOA	*19.3*		ng/L	24.5		78.9	60-140			
Surrogate: 13C9-PFNA	*9.73*		ng/L	12.2		79.6	55-140			
Surrogate: 13C6-PFDA	*9.94*		ng/L	12.2		81.3	50-140			
Surrogate: 13C7-PFUnA	*9.17*		ng/L	12.2		75.0	30-140			
Surrogate: 13C2-PFDoA	*9.24*		ng/L	12.2		75.6	10-150			
Surrogate: 13C2-PFTeDA	*10.1*		ng/L	12.2		82.4	10-130			
Surrogate: 13C3-PFBS	*19.4*		ng/L	24.5		79.5	55-150			
Surrogate: 13C3-PFHxS	*20.2*		ng/L	24.5		82.5	55-150			
Surrogate: 13C8-PFOS	*20.0*		ng/L	24.5		81.6	45-140			
Surrogate: 13C2-4:2FTS	*34.4*		ng/L	48.9		70.3	60-200			
Surrogate: 13C2-6:2FTS	*42.9*		ng/L	48.9		87.7	60-200			
Surrogate: 13C2-8:2FTS	*39.5*		ng/L	48.9		80.8	50-200			
Surrogate: 13C8-PFOSA	*18.3*		ng/L	24.5		75.0	30-130			
Surrogate: D3-NMeFOSA	*16.6*		ng/L	24.5		67.9	15-130			
Surrogate: D5-NEtFOSA	*16.8*		ng/L	24.5		68.9	10-130			
Surrogate: D3-NMeFOSAA	*41.9*		ng/L	48.9		85.6	45-200			
Surrogate: D5-NEtFOSAA	*42.0*		ng/L	48.9		85.8	10-200			
Surrogate: D7-NMeFOSE	*172*		ng/L	245		70.2	10-150			
Surrogate: D9-NEtFOSE	*174*		ng/L	245		71.3	10-150			
Surrogate: 13C3-HFPO-DA	*89.1*		ng/L	97.8		91.1	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-17C	Extracted internal standard is outside of control limits. Analyte is a known difficult compound.
PF-23A	Qualifier ion ratio <50% of associated calibration.
S-29	Extracted Internal Standard is outside of control limits.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Soil	
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV
Perfluorotetradecanoic acid (PFTeDA)	NH-P,PA,WV
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA,WV
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA,WV
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA,WV
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA,WV
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV
N-EtFOSAA (NEtFOSAA)	NH-P,PA,WV
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA,WV
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA,WV
9Cl-PF3ONS (F53B Minor)	NH-P,PA,WV
11Cl-PF3OUdS (F53B Major)	NH-P,PA,WV
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA,WV
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,PA,WV
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

Internal Transfer Chain of Custody

24C0523 LF

☐ Rush Multiplier____X
☒ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 3/5/2024 **Results Requested By:** 4/2/2024

Workorder: 40275004 **Workorder Name:** PFAS/1633

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	1633 PFAS	LAB USE ONLY
1	PCD 030524 CLASSIFIER 2	PS	3/5/2024 10:21	40275004001	Solid	1	X	
2	FIELD BLANK 030524	PS	3/5/2024 10:23	40275004002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Katelin Hoffmann	3/5/24 1500	FedEx	3/5/24
2				3-6-24 753
3				

Comments

BIOSOLID
Need dry weight and wet reporting

Cooler Temperature on Receipt 4.0 °C | **Custody Seal** (Y) or N | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

FedEx

FedEx® Tracking

DELIVERED

Wednesday

3/6/24 at 9:53 AM

Signed for by: A.MULINARE

Obtain proof of delivery

DELIVERY STATUS

Delivered

TRACKING ID

621806447276

FROM
Schaumburg, IL US

Label Created
3/5/24 2:38 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
3/5/24 3:01 PM

ON THE WAY
WINDSOR LOCKS, CT
3/6/24 8:31 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
3/6/24 8:39 AM

DELIVERED
east longmeadow, MA US

Delivered
3/6/24 at 9:53 AM

↓ View travel history

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL SUBMIT

MORE OPTIONS

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client PLLC

Project PEAS/1633

MCP/RCP Required N/A

Deliverable Package Requirement N/A

Location PEAS/1633

PWSID# (When Applicable) N/A

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time AM 3/6/24 953

Back-Sheet By / Date / Time LA 3/6/24 1046

Temperature Method Gun # 6

Temp ✓ < 6° C Actual Temperature 4.0

Rush Samples: Yes / ~~No~~ Notify

Short Hold: Yes / No Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client ☑ Analysis ☑ Sampler Name ☐

Project ☑ IDs ☑ Collection Date/Time ☑

All Samples Proper pH: N/A ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

Pace ANALYTICAL SERVICES

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Sample			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16oz Amb/Clear	(Circle Amb/Clear)	Soils Jars																				
8oz Amb/Clear																						
4oz Amb/Clear																						
2oz Amb/Clear																						
Unpreserved	1 Liter	Ambers																				
HCL																						
Sulfuric																						
Sulfuric	250mL																					
Phosphoric																						
HCl																						
Unpreserved	100mL																					
Unpreserved	1 Liter	Plastics																				
Sulfuric																						
Unpreserved	500mL			2																		
Sulfuric																						
Unpreserved	250mL																					
Trizma																						
Sulfuric																						
Nitric																						
NaOH																						
Ammonium Acetate																						
NaOH/Zinc																						
Unpreserved	VOA Vials																					
HCl																						
MeOH																						
D.I. Water																						
BiSulfate																						
Col/Bact	Other / Fill in																					
Other			1																			

Qualtrax ID: 120836

Page 2 of 2

4

CDPHE PFAS SAMPLING

APRIL 2, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40276200

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

April 19, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40276200

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40276200

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40276200001	PCD040224 CLASSIFIER 3	Solid	04/02/24 10:02	04/02/24 11:31
40276200002	FIELD BLANK 040224	Water	04/02/24 10:02	04/02/24 11:31

4027609

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To clelus.ketter@veolia.com	Purchase Order No: PO 1000321641	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	Project Name: PFAS/1633	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N): N

Analysis: 1633 PFAS; Residual Chlorine

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	Section D Required Client Information SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	# OF CONTAINERS	Preservatives: Unpreserved	Pace Project Number / Lab I D
1	PCD040724 Classifier 3 040224	SL	G	4-2-24	10:00AM			1		X
2	Field Blank	W		4-2-24	10:00AM			1		
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

WO# : 40276200

40276200

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	4-2-24	11:30	AM [signature]	4/2/24	11:30
[signature]	4/2/24	5:00	FedEx	4/2/24	5:00

SAMPLE CONDITIONS

	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

Temp in °C | Received on Ice | Custody Sealed Cooler | Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jose Morales

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 04/02/2024

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

April 19, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633
Client Job Number:
Project Number: 40276200
Laboratory Work Order Number: 24D0443

Enclosed are results of analyses for samples as received by the laboratory on April 3, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 4/19/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40276200

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24D0443

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

PROJECT LOCATION: PFAS/1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD040224 CLASSIFIER 3	24D0443-01	Biosolids		Draft Method 1633	
				SM 2540G	
FIELD BLANK 040224	24D0443-02	Water		Draft Method 1633	
PCD040224 CLASSIFIER 3 Wet Weight	24D0443-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

PF-22

Qualifier ion ratio >150% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorohexanoic acid (PFHxA)
24D0443-01[PCD040224 CLASSIFIER 3], 24D0443-03[PCD040224 CLASSIFIER 3 Wet Weight]

Perfluorooctanesulfonamide (PFOSA)
24D0443-01[PCD040224 CLASSIFIER 3], 24D0443-03[PCD040224 CLASSIFIER 3 Wet Weight]

Perfluorooctanesulfonic acid (PFOS)
24D0443-01[PCD040224 CLASSIFIER 3], 24D0443-03[PCD040224 CLASSIFIER 3 Wet Weight]

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorohexanesulfonic acid (PFHxS)
24D0443-01[PCD040224 CLASSIFIER 3], 24D0443-03[PCD040224 CLASSIFIER 3 Wet Weight]

Perfluoropentanoic acid (PFPeA)
24D0443-01[PCD040224 CLASSIFIER 3], 24D0443-03[PCD040224 CLASSIFIER 3 Wet Weight]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C8-PFOSA
S103344-CCV2

D7-NMeFOSE
S103344-CCV2

N-methylperfluorooctanesulfonamidoethanol(NMeF
S103344-CCV2

Perfluorooctanesulfonamide (PFOSA)
S103344-CCV2

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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

Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: PCD040224 CLASSIFIER 3 Sampled: 4/2/2024 10:02

Sample ID: 24D0443-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.5	3.0	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoropentanoic acid (PFPeA)	3.8	3.7	0.43	µg/kg dry	1	PF-23	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorohexanoic acid (PFHxA)	0.88	1.9	0.31	µg/kg dry	1	PF-22, J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.9	0.14	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorooctanoic acid (PFOA)	0.50	1.9	0.29	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorononanoic acid (PFNA)	0.30	1.9	0.13	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorodecanoic acid (PFDA)	1.2	1.9	0.16	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoroundecanoic acid (PFUnA)	0.58	1.9	0.22	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorododecanoic acid (PFDoA)	0.89	1.9	0.20	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorotridecanoic acid (PFTrDA)	0.24	1.9	0.21	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.32	1.9	0.19	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	0.20	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	0.24	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorohexanesulfonic acid (PFHxS)	2.9	1.9	0.73	µg/kg dry	1	PF-23	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	0.20	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorooctanesulfonic acid (PFOS)	9.8	1.9	0.30	µg/kg dry	1	PF-22	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.9	0.21	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	0.30	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.9	0.29	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.5	0.65	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.5	4.7	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.5	0.87	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorooctanesulfonamide (PFOSA)	0.45	1.9	0.29	µg/kg dry	1	PF-22, J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.9	0.23	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.9	0.22	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-MeFOSAA (NMeFOSAA)	2.1	1.9	0.33	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-EtFOSAA (NEtFOSAA)	1.8	1.9	0.28	µg/kg dry	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	19	2.0	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	19	2.0	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.5	0.48	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.5	0.56	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.5	0.54	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.5	0.83	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	19	1.8	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	94	13	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	94	14	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.7	0.29	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.7	0.31	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: PCD040224 CLASSIFIER 3 Sampled: 4/2/2024 10:02

Sample ID: 24D0443-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.7	0.31	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.7	0.56	µg/kg dry	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	44.0	10-130		4/17/24 12:02
13C5-PFPeA	61.5	35-150		4/17/24 12:02
13C5-PFHxA	70.6	55-150		4/17/24 12:02
13C4-PFHpA	74.3	55-150		4/17/24 12:02
13C8-PFOA	70.6	60-140		4/17/24 12:02
13C9-PFNA	71.3	55-140		4/17/24 12:02
13C6-PFDA	73.8	50-140		4/17/24 12:02
13C7-PFUnA	71.1	30-140		4/17/24 12:02
13C2-PFDoA	70.6	10-150		4/17/24 12:02
13C2-PFTeDA	68.6	10-130		4/17/24 12:02
13C3-PFBS	71.0	55-150		4/17/24 12:02
13C3-PFHxS	73.1	55-150		4/17/24 12:02
13C8-PFOS	79.4	45-150		4/17/24 12:02
13C2-4:2FTS	131	60-200		4/17/24 12:02
13C2-6:2FTS	154	60-200		4/17/24 12:02
13C2-8:2FTS	177	50-200		4/17/24 12:02
13C8-PFOSA	67.2	30-130		4/17/24 12:02
D3-NMeFOSA	40.9	15-130		4/17/24 12:02
D5-NEtFOSA	31.1	10-130		4/17/24 12:02
D3-NMeFOSAA	68.7	45-200		4/17/24 12:02
D5-NEtFOSAA	61.8	10-200		4/17/24 12:02
D7-NMeFOSE	30.8	10-150		4/17/24 12:02
D9-NEtFOSE	25.0	10-150		4/17/24 12:02
13C3-HFPO-DA	65.1	25-160		4/17/24 12:02

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Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: PCD040224 CLASSIFIER 3 Sampled: 4/2/2024 10:02

Sample ID: 24D0443-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	95.3		% Wt	1		SM 2540G	4/4/24	4/4/24 9:33	LTD

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Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: FIELD BLANK 040224 Sampled: 4/2/2024 10:02

Sample ID: 24D0443-02

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.7	2.0	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	0.40	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.93	0.22	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.93	0.25	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorooctanoic acid (PFOA)	ND	0.93	0.24	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorononanoic acid (PFNA)	ND	0.93	0.18	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorodecanoic acid (PFDA)	ND	0.93	0.19	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.93	0.19	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.93	0.19	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.93	0.28	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.93	0.24	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.93	0.20	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.93	0.24	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.93	0.26	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.93	0.31	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.93	0.36	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.93	0.23	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.93	0.27	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.93	0.27	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.7	0.69	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.7	2.8	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.7	1.0	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.93	0.22	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.93	0.30	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.93	0.31	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.93	0.33	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.93	0.37	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.3	2.5	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.3	2.5	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.7	0.96	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.7	0.76	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.7	0.90	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.7	1.0	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.3	2.0	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	46	10	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	46	8.8	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.32	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	0.52	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: FIELD BLANK 040224 Sampled: 4/2/2024 10:02

Sample ID: 24D0443-02

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	0.50	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.51	ng/L	1		Draft Method 1633	4/9/24	4/9/24 14:22	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	81.7	10-130		4/9/24 14:22
13C5-PFPeA	79.5	35-150		4/9/24 14:22
13C5-PFHxA	81.6	55-150		4/9/24 14:22
13C4-PFHpA	81.6	55-150		4/9/24 14:22
13C8-PFOA	79.5	60-140		4/9/24 14:22
13C9-PFNA	78.1	55-140		4/9/24 14:22
13C6-PFDA	79.8	50-140		4/9/24 14:22
13C7-PFUnA	75.6	30-140		4/9/24 14:22
13C2-PFDoA	74.9	10-150		4/9/24 14:22
13C2-PFTeDA	87.7	10-130		4/9/24 14:22
13C3-PFBS	80.9	55-150		4/9/24 14:22
13C3-PFHxS	82.2	55-150		4/9/24 14:22
13C8-PFOS	84.5	45-140		4/9/24 14:22
13C2-4:2FTS	89.5	60-200		4/9/24 14:22
13C2-6:2FTS	82.1	60-200		4/9/24 14:22
13C2-8:2FTS	75.7	50-200		4/9/24 14:22
13C8-PFOSA	78.3	30-130		4/9/24 14:22
D3-NMeFOSA	68.9	15-130		4/9/24 14:22
D5-NEtFOSA	70.1	10-130		4/9/24 14:22
D3-NMeFOSAA	87.4	45-200		4/9/24 14:22
D5-NEtFOSAA	78.0	10-200		4/9/24 14:22
D7-NMeFOSE	78.8	10-150		4/9/24 14:22
D9-NEtFOSE	74.0	10-150		4/9/24 14:22
13C3-HFPO-DA	79.3	25-160		4/9/24 14:22

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Project Location: PFAS/1633
Sample Description:
Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: FIELD BLANK 040224
Sampled: 4/2/2024 10:02

Sample ID: 24D0443-02

Sample Matrix: Water

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	4/4/24	4/4/24 12:27	LL

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Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: PCD040224 CLASSIFIER 3 Wet Weight Sampled: 4/2/2024 10:02

Sample ID: 24D0443-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.1	2.9	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoropentanoic acid (PFPeA)	3.7	3.6	0.41	µg/kg wet	1	PF-23	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorohexanoic acid (PFHxA)	0.84	1.8	0.30	µg/kg wet	1	PF-22, J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.8	0.13	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorooctanoic acid (PFOA)	0.48	1.8	0.28	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorononanoic acid (PFNA)	0.29	1.8	0.12	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorodecanoic acid (PFDA)	1.1	1.8	0.16	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoroundecanoic acid (PFUnA)	0.55	1.8	0.21	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorododecanoic acid (PFDoA)	0.85	1.8	0.19	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorotridecanoic acid (PFTrDA)	0.23	1.8	0.20	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.31	1.8	0.18	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.19	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.23	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorohexanesulfonic acid (PFHxS)	2.8	1.8	0.70	µg/kg wet	1	PF-23	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.19	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorooctanesulfonic acid (PFOS)	9.4	1.8	0.28	µg/kg wet	1	PF-22	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.20	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.28	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.27	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.1	0.62	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.1	4.5	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.1	0.83	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluorooctanesulfonamide (PFOSA)	0.42	1.8	0.28	µg/kg wet	1	PF-22, J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.8	0.22	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.21	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-MeFOSAA (NMeFOSAA)	2.0	1.8	0.32	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-EtFOSAA (NEtFOSAA)	1.7	1.8	0.26	µg/kg wet	1	J	Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	1.9	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	1.9	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.1	0.45	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.1	0.53	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.1	0.52	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.1	0.79	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	1.7	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	89	12	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	89	13	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.6	0.28	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.6	0.29	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24D0443

Date Received: 4/3/2024

Field Sample #: PCD040224 CLASSIFIER 3 Wet Weight Sampled: 4/2/2024 10:02

Sample ID: 24D0443-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.6	0.29	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	0.54	µg/kg wet	1		Draft Method 1633	4/12/24	4/17/24 12:02	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	44.0	10-130		4/17/24 12:02
13C5-PFPeA	61.5	35-150		4/17/24 12:02
13C5-PFHxA	70.6	55-150		4/17/24 12:02
13C4-PFHpA	74.3	55-150		4/17/24 12:02
13C8-PFOA	70.6	60-140		4/17/24 12:02
13C9-PFNA	71.3	55-140		4/17/24 12:02
13C6-PFDA	73.8	50-140		4/17/24 12:02
13C7-PFUnA	71.1	30-140		4/17/24 12:02
13C2-PFDoA	70.6	10-150		4/17/24 12:02
13C2-PFTeDA	68.6	10-130		4/17/24 12:02
13C3-PFBS	71.0	55-150		4/17/24 12:02
13C3-PFHxS	73.1	55-150		4/17/24 12:02
13C8-PFOS	79.4	45-150		4/17/24 12:02
13C2-4:2FTS	131	60-200		4/17/24 12:02
13C2-6:2FTS	154	60-200		4/17/24 12:02
13C2-8:2FTS	177	50-200		4/17/24 12:02
13C8-PFOSA	67.2	30-130		4/17/24 12:02
D3-NMeFOSA	40.9	15-130		4/17/24 12:02
D5-NEtFOSA	31.1	10-130		4/17/24 12:02
D3-NMeFOSAA	68.7	45-200		4/17/24 12:02
D5-NEtFOSAA	61.8	10-200		4/17/24 12:02
D7-NMeFOSE	30.8	10-150		4/17/24 12:02
D9-NEtFOSE	25.0	10-150		4/17/24 12:02
13C3-HFPO-DA	65.1	25-160		4/17/24 12:02

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24D0443-01 [PCD040224 CLASSIFIER 3]	B370657	0.561	5.00	04/12/24
24D0443-03 [PCD040224 CLASSIFIER 3 Wet Weight]	B370657	0.561	5.00	04/12/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 4/4/2024 per NO PREP in Batch B370522**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24D0443-02 [FIELD BLANK 040224]	B370398	538	5.00	04/09/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24D0443-02 [FIELD BLANK 040224]	B370522	50.0	04/04/24

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

Lab Number [Field ID]	Batch	Date
24D0443-01 [PCD040224 CLASSIFIER 3]	B370483	04/04/24

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370398 - Draft Method 1633										
Blank (B370398-BLK1)				Prepared & Analyzed: 04/09/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*83.6*		ng/L	98.2		85.1	10-130			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370398 - Draft Method 1633										
Blank (B370398-BLK1)				Prepared & Analyzed: 04/09/24						
Surrogate: 13C5-PFPeA	*40.4*		ng/L	49.1		82.2	35-150			
Surrogate: 13C5-PFHxA	*21.1*		ng/L	24.6		85.7	55-150			
Surrogate: 13C4-PFHpA	*20.1*		ng/L	24.6		81.8	55-150			
Surrogate: 13C8-PFOA	*19.8*		ng/L	24.6		80.5	60-140			
Surrogate: 13C9-PFNA	*10.2*		ng/L	12.3		82.9	55-140			
Surrogate: 13C6-PFDA	*10.1*		ng/L	12.3		82.3	50-140			
Surrogate: 13C7-PFUnA	*9.64*		ng/L	12.3		78.5	30-140			
Surrogate: 13C2-PFDoA	*9.63*		ng/L	12.3		78.4	10-150			
Surrogate: 13C2-PFTeDA	*9.83*		ng/L	12.3		80.1	10-130			
Surrogate: 13C3-PFBS	*20.2*		ng/L	24.6		82.2	55-150			
Surrogate: 13C3-PFHxS	*20.4*		ng/L	24.6		83.0	55-150			
Surrogate: 13C8-PFOS	*22.2*		ng/L	24.6		90.3	45-140			
Surrogate: 13C2-4:2FTS	*39.7*		ng/L	49.1		80.8	60-200			
Surrogate: 13C2-6:2FTS	*38.0*		ng/L	49.1		77.4	60-200			
Surrogate: 13C2-8:2FTS	*34.4*		ng/L	49.1		70.0	50-200			
Surrogate: 13C8-PFOSA	*21.6*		ng/L	24.6		88.0	30-130			
Surrogate: D3-NMeFOSA	*17.5*		ng/L	24.6		71.1	15-130			
Surrogate: D5-NEtFOSA	*18.2*		ng/L	24.6		74.1	10-130			
Surrogate: D3-NMeFOSAA	*42.4*		ng/L	49.1		86.3	45-200			
Surrogate: D5-NEtFOSAA	*39.3*		ng/L	49.1		80.1	10-200			
Surrogate: D7-NMeFOSE	*225*		ng/L	246		91.6	10-150			
Surrogate: D9-NEtFOSE	*208*		ng/L	246		84.6	10-150			
Surrogate: 13C3-HFPO-DA	*82.0*		ng/L	98.2		83.4	25-160			
LCS (B370398-BS1)				Prepared & Analyzed: 04/09/24						
Perfluorobutanoic acid (PFBA)	98.8	3.9	ng/L	93.7		105	58-148			
Perfluoropentanoic acid (PFPeA)	49.7	2.0	ng/L	46.8		106	54-152			
Perfluorohexanoic acid (PFHxA)	24.6	0.98	ng/L	23.4		105	55-152			
Perfluoroheptanoic acid (PFHpA)	23.9	0.98	ng/L	23.4		102	54-154			
Perfluorooctanoic acid (PFOA)	24.3	0.98	ng/L	23.4		104	52-161			
Perfluorononanoic acid (PFNA)	24.4	0.98	ng/L	23.4		104	59-149			
Perfluorodecanoic acid (PFDA)	23.7	0.98	ng/L	23.4		101	52-147			
Perfluoroundecanoic acid (PFUnA)	24.6	0.98	ng/L	23.4		105	48-159			
Perfluorododecanoic acid (PFDoA)	23.8	0.98	ng/L	23.4		101	64-142			
Perfluorotridecanoic acid (PFTrDA)	24.4	0.98	ng/L	23.4		104	49-148			
Perfluorotetradecanoic acid (PFTeDA)	24.3	0.98	ng/L	23.4		104	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.0	0.98	ng/L	20.8		101	62-144			
Perfluoropentanesulfonic acid (PFPeS)	23.0	0.98	ng/L	22.0		104	59-151			
Perfluorohexanesulfonic acid (PFHxS)	20.9	0.98	ng/L	21.4		97.7	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.5	0.98	ng/L	22.3		101	55-152			
Perfluorooctanesulfonic acid (PFOS)	19.7	0.98	ng/L	21.7		90.7	58-149			
Perfluorononanesulfonic acid (PFNS)	21.3	0.98	ng/L	22.5		94.6	52-148			
Perfluorodecanesulfonic acid (PFDS)	21.4	0.98	ng/L	22.6		94.5	51-147			
Perfluorododecanesulfonic acid (PFDoS)	21.9	0.98	ng/L	22.7		96.6	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	94.8	3.9	ng/L	87.8		108	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	106	3.9	ng/L	89.0		119	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	105	3.9	ng/L	90.2		116	63-152			
Perfluorooctanesulfonamide (PFOSA)	22.8	0.98	ng/L	23.4		97.3	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	23.1	0.98	ng/L	23.4		98.8	63-145			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370398 - Draft Method 1633										
LCS (B370398-BS1)				Prepared & Analyzed: 04/09/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	24.1	0.98	ng/L	23.4		103	65-139			
N-MeFOSAA (NMeFOSAA)	24.5	0.98	ng/L	23.4		105	58-144			
N-EtFOSAA (NEtFOSAA)	24.8	0.98	ng/L	23.4		106	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	262	9.8	ng/L	234		112	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	262	9.8	ng/L	234		112	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	109	3.9	ng/L	93.7		117	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	102	3.9	ng/L	88.4		116	68-146			
9Cl-PF3ONS (F53B Minor)	96.7	3.9	ng/L	87.8		110	56-156			
11Cl-PF3OUdS (F53B Major)	99.2	3.9	ng/L	88.4		112	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	262	9.8	ng/L	234		112	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1240	49	ng/L	1170		106	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1200	49	ng/L	1170		102	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	43.8	2.0	ng/L	37.9		116	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	51.7	2.0	ng/L	42.6		121	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	50.3	2.0	ng/L	42.6		118	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	48.8	2.0	ng/L	42.6		115	48-161			
Surrogate: 13C4-PFBA	*73.5*		ng/L	97.6		75.3	10-130			
Surrogate: 13C5-PFPeA	*35.1*		ng/L	48.8		71.9	35-150			
Surrogate: 13C5-PFHxA	*18.1*		ng/L	24.4		74.4	55-150			
Surrogate: 13C4-PFHpA	*17.7*		ng/L	24.4		72.7	55-150			
Surrogate: 13C8-PFOA	*18.1*		ng/L	24.4		74.4	60-140			
Surrogate: 13C9-PFNA	*8.48*		ng/L	12.2		69.5	55-140			
Surrogate: 13C6-PFDA	*9.27*		ng/L	12.2		76.0	50-140			
Surrogate: 13C7-PFUnA	*8.69*		ng/L	12.2		71.3	30-140			
Surrogate: 13C2-PFDoA	*8.59*		ng/L	12.2		70.4	10-150			
Surrogate: 13C2-PFTeDA	*8.18*		ng/L	12.2		67.1	10-130			
Surrogate: 13C3-PFBS	*18.1*		ng/L	24.4		74.1	55-150			
Surrogate: 13C3-PFHxS	*17.9*		ng/L	24.4		73.6	55-150			
Surrogate: 13C8-PFOS	*18.5*		ng/L	24.4		76.0	45-140			
Surrogate: 13C2-4:2FTS	*36.9*		ng/L	48.8		75.7	60-200			
Surrogate: 13C2-6:2FTS	*33.4*		ng/L	48.8		68.4	60-200			
Surrogate: 13C2-8:2FTS	*30.2*		ng/L	48.8		61.9	50-200			
Surrogate: 13C8-PFOSA	*18.1*		ng/L	24.4		74.3	30-130			
Surrogate: D3-NMeFOSA	*16.0*		ng/L	24.4		65.5	15-130			
Surrogate: D5-NEtFOSA	*16.0*		ng/L	24.4		65.6	10-130			
Surrogate: D3-NMeFOSAA	*36.7*		ng/L	48.8		75.2	45-200			
Surrogate: D5-NEtFOSAA	*34.7*		ng/L	48.8		71.1	10-200			
Surrogate: D7-NMeFOSE	*184*		ng/L	244		75.5	10-150			
Surrogate: D9-NEtFOSE	*176*		ng/L	244		72.3	10-150			
Surrogate: 13C3-HFPO-DA	*71.1*		ng/L	97.6		72.9	25-160			
MRL Check (B370398-MRL1)				Prepared & Analyzed: 04/09/24						
Perfluorobutanoic acid (PFBA)	8.08	3.9	ng/L	7.78		104	44-157			
Perfluoropentanoic acid (PFPeA)	3.86	1.9	ng/L	3.89		99.2	57-148			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370398 - Draft Method 1633										
MRL Check (B370398-MRL1)				Prepared & Analyzed: 04/09/24						
Perfluorohexanoic acid (PFHxA)	1.86	0.97	ng/L	1.95		95.8	62-149			
Perfluoroheptanoic acid (PFHpA)	1.77	0.97	ng/L	1.95		91.1	56-150			
Perfluorooctanoic acid (PFOA)	2.18	0.97	ng/L	1.95		112	57-161			
Perfluorononanoic acid (PFNA)	1.84	0.97	ng/L	1.95		94.4	53-157			
Perfluorodecanoic acid (PFDA)	1.83	0.97	ng/L	1.95		94.2	43-158			
Perfluoroundecanoic acid (PFUnA)	1.76	0.97	ng/L	1.95		90.5	50-155			
Perfluorododecanoic acid (PFDoA)	1.75	0.97	ng/L	1.95		89.8	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.76	0.97	ng/L	1.95		90.3	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.74	0.97	ng/L	1.95		89.6	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.57	0.97	ng/L	1.73		91.2	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.75	0.97	ng/L	1.83		95.9	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.62	0.97	ng/L	1.78		90.8	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.85	0.97	ng/L	1.85		100	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.63	0.97	ng/L	1.80		90.2	43-162			
Perfluorononanesulfonic acid (PFNS)	1.60	0.97	ng/L	1.87		85.3	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.57	0.97	ng/L	1.88		83.6	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.71	0.97	ng/L	1.89		90.6	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.50	3.9	ng/L	7.30		103	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.16	3.9	ng/L	7.39		96.9	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.86	3.9	ng/L	7.49		105	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.86	0.97	ng/L	1.95		95.4	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.96	0.97	ng/L	1.95		101	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.99	0.97	ng/L	1.95		102	49-156			
N-MeFOSAA (NMeFOSAA)	1.97	0.97	ng/L	1.95		101	32-160			
N-EtFOSAA (NEtFOSAA)	2.00	0.97	ng/L	1.95		103	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	21.0	9.7	ng/L	19.5		108	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	20.8	9.7	ng/L	19.5		107	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.88	3.9	ng/L	7.78		101	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.47	3.9	ng/L	7.34		102	61-148			
9Cl-PF3ONS (F53B Minor)	7.27	3.9	ng/L	7.30		99.6	44-167			
11Cl-PF3OUdS (F53B Major)	7.30	3.9	ng/L	7.34		99.3	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	20.4	9.7	ng/L	19.5		105	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	96.3	49	ng/L	97.3		99.0	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	91.3	49	ng/L	97.3		93.8	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.94	1.9	ng/L	3.46		85.0	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.34	1.9	ng/L	3.89		85.7	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.29	1.9	ng/L	3.89		84.6	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.44	1.9	ng/L	3.89		88.3	47-160			
Surrogate: 13C4-PFBA	*70.4*		ng/L	97.3		72.4	10-130			
Surrogate: 13C5-PFPeA	*33.6*		ng/L	48.6		69.0	35-150			
Surrogate: 13C5-PFHxA	*17.1*		ng/L	24.3		70.5	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370398 - Draft Method 1633										
MRL Check (B370398-MRL1)				Prepared & Analyzed: 04/09/24						
Surrogate: 13C4-PFHpA	*16.9*		ng/L	24.3		69.6	55-150			
Surrogate: 13C8-PFOA	*16.5*		ng/L	24.3		67.9	60-140			
Surrogate: 13C9-PFNA	*8.31*		ng/L	12.2		68.4	55-140			
Surrogate: 13C6-PFDA	*8.44*		ng/L	12.2		69.4	50-140			
Surrogate: 13C7-PFUnA	*8.02*		ng/L	12.2		66.0	30-140			
Surrogate: 13C2-PFDoA	*7.62*		ng/L	12.2		62.7	10-150			
Surrogate: 13C2-PFTeDA	*8.89*		ng/L	12.2		73.1	10-130			
Surrogate: 13C3-PFBS	*17.2*		ng/L	24.3		70.8	55-150			
Surrogate: 13C3-PFHxS	*17.5*		ng/L	24.3		72.0	55-150			
Surrogate: 13C8-PFOS	*17.0*		ng/L	24.3		69.8	45-140			
Surrogate: 13C2-4:2FTS	*35.5*		ng/L	48.6		73.0	60-200			
Surrogate: 13C2-6:2FTS	*34.2*		ng/L	48.6		70.4	60-200			
Surrogate: 13C2-8:2FTS	*28.7*		ng/L	48.6		59.1	50-200			
Surrogate: 13C8-PFOSA	*17.0*		ng/L	24.3		69.7	30-130			
Surrogate: D3-NMeFOSA	*15.1*		ng/L	24.3		62.1	15-130			
Surrogate: D5-NEtFOSA	*14.6*		ng/L	24.3		60.0	10-130			
Surrogate: D3-NMeFOSAA	*33.8*		ng/L	48.6		69.5	45-200			
Surrogate: D5-NEtFOSAA	*32.4*		ng/L	48.6		66.6	10-200			
Surrogate: D7-NMeFOSE	*176*		ng/L	243		72.4	10-150			
Surrogate: D9-NEtFOSE	*164*		ng/L	243		67.6	10-150			
Surrogate: 13C3-HFPO-DA	*65.4*		ng/L	97.3		67.2	25-160			
Batch B370657 - Draft Method 1633										
Blank (B370657-BLK1)				Prepared: 04/12/24 Analyzed: 04/17/24						
Perfluorobutanoic acid (PFBA)	ND	7.5	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	3.8	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.9	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.9	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.9	µg/kg wet							
Perfluorodecanoic acid (PFDA)	0.45	1.9	µg/kg wet							J
Perfluoroundecanoic acid (PFUnA)	ND	1.9	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.9	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.9	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.9	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.5	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.5	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.5	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.9	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.9	µg/kg wet							

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370657 - Draft Method 1633										
Blank (B370657-BLK1)				Prepared: 04/12/24 Analyzed: 04/17/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.9	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.9	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.9	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	19	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	19	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.5	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.5	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	7.5	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	7.5	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	19	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	94	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	94	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.8	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.8	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.8	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.8	µg/kg wet							
Surrogate: 13C4-PFBA	*74.6*		µg/kg wet	94.3		79.1	10-130			
Surrogate: 13C5-PFPeA	*38.7*		µg/kg wet	47.2		82.1	35-150			
Surrogate: 13C5-PFHxA	*19.1*		µg/kg wet	23.6		81.1	55-150			
Surrogate: 13C4-PFHpA	*18.8*		µg/kg wet	23.6		79.6	55-150			
Surrogate: 13C8-PFOA	*18.6*		µg/kg wet	23.6		79.0	60-140			
Surrogate: 13C9-PFNA	*9.50*		µg/kg wet	11.8		80.6	55-140			
Surrogate: 13C6-PFDA	*9.83*		µg/kg wet	11.8		83.4	50-140			
Surrogate: 13C7-PFUnA	*9.26*		µg/kg wet	11.8		78.5	30-140			
Surrogate: 13C2-PFDoA	*8.81*		µg/kg wet	11.8		74.7	10-150			
Surrogate: 13C2-PFTeDA	*10.3*		µg/kg wet	11.8		87.3	10-130			
Surrogate: 13C3-PFBS	*19.3*		µg/kg wet	23.6		82.0	55-150			
Surrogate: 13C3-PFHxS	*18.7*		µg/kg wet	23.6		79.5	55-150			
Surrogate: 13C8-PFOS	*19.2*		µg/kg wet	23.6		81.4	45-150			
Surrogate: 13C2-4:2FTS	*41.4*		µg/kg wet	47.2		87.8	60-200			
Surrogate: 13C2-6:2FTS	*37.2*		µg/kg wet	47.2		78.8	60-200			
Surrogate: 13C2-8:2FTS	*41.6*		µg/kg wet	47.2		88.3	50-200			
Surrogate: 13C8-PFOSA	*18.2*		µg/kg wet	23.6		77.1	30-130			
Surrogate: D3-NMeFOSA	*13.8*		µg/kg wet	23.6		58.6	15-130			
Surrogate: D5-NEtFOSA	*13.8*		µg/kg wet	23.6		58.7	10-130			
Surrogate: D3-NMeFOSAA	*37.1*		µg/kg wet	47.2		78.6	45-200			
Surrogate: D5-NEtFOSAA	*35.1*		µg/kg wet	47.2		74.4	10-200			
Surrogate: D7-NMeFOSE	*159*		µg/kg wet	236		67.2	10-150			
Surrogate: D9-NEtFOSE	*157*		µg/kg wet	236		66.6	10-150			
Surrogate: 13C3-HFPO-DA	*81.2*		µg/kg wet	94.3		86.1	25-160			
LCS (B370657-BS1)				Prepared: 04/12/24 Analyzed: 04/17/24						
Perfluorobutanoic acid (PFBA)	81.5	7.2	µg/kg wet	86.8		93.9	58-148			
Perfluoropentanoic acid (PFPeA)	41.2	3.6	µg/kg wet	43.4		95.0	54-152			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370657 - Draft Method 1633										
LCS (B370657-BS1)				Prepared: 04/12/24 Analyzed: 04/17/24						
Perfluorohexanoic acid (PFHxA)	20.0	1.8	µg/kg wet	21.7		92.4	55-152			
Perfluoroheptanoic acid (PFHpA)	19.8	1.8	µg/kg wet	21.7		91.4	54-154			
Perfluorooctanoic acid (PFOA)	20.2	1.8	µg/kg wet	21.7		93.2	52-161			
Perfluorononanoic acid (PFNA)	20.5	1.8	µg/kg wet	21.7		94.6	59-149			
Perfluorodecanoic acid (PFDA)	21.0	1.8	µg/kg wet	21.7		96.7	52-147			
Perfluoroundecanoic acid (PFUnA)	20.0	1.8	µg/kg wet	21.7		92.0	48-159			
Perfluorododecanoic acid (PFDoA)	21.2	1.8	µg/kg wet	21.7		97.6	64-142			
Perfluorotridecanoic acid (PFTrDA)	21.5	1.8	µg/kg wet	21.7		98.9	49-148			
Perfluorotetradecanoic acid (PFTeDA)	20.0	1.8	µg/kg wet	21.7		92.3	47-161			
Perfluorobutanesulfonic acid (PFBS)	17.9	1.8	µg/kg wet	19.3		92.8	62-144			
Perfluoropentanesulfonic acid (PFPeS)	19.1	1.8	µg/kg wet	20.4		93.6	59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.1	1.8	µg/kg wet	19.9		91.1	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	19.1	1.8	µg/kg wet	20.7		92.3	55-152			
Perfluorooctanesulfonic acid (PFOS)	16.9	1.8	µg/kg wet	20.1		83.8	58-149			
Perfluorononanesulfonic acid (PFNS)	19.1	1.8	µg/kg wet	20.9		91.3	52-148			
Perfluorodecanesulfonic acid (PFDS)	19.0	1.8	µg/kg wet	20.9		90.6	51-147			
Perfluorododecanesulfonic acid (PFDoS)	18.0	1.8	µg/kg wet	21.0		85.5	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	80.6	7.2	µg/kg wet	81.4		99.1	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	80.9	7.2	µg/kg wet	82.5		98.1	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	80.7	7.2	µg/kg wet	83.5		96.6	63-152			
Perfluorooctanesulfonamide (PFOSA)	20.0	1.8	µg/kg wet	21.7		92.3	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	19.5	1.8	µg/kg wet	21.7		89.8	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	19.6	1.8	µg/kg wet	21.7		90.3	65-139			
N-MeFOSAA (NMeFOSAA)	18.6	1.8	µg/kg wet	21.7		85.7	58-144			
N-EtFOSAA (NEtFOSAA)	20.8	1.8	µg/kg wet	21.7		95.7	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	212	18	µg/kg wet	217		97.7	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	222	18	µg/kg wet	217		102	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	90.9	7.2	µg/kg wet	86.8		105	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	79.8	7.2	µg/kg wet	81.9		97.4	68-146			
9Cl-PF3ONS (F53B Minor)	90.6	7.2	µg/kg wet	81.4		111	56-156			
11Cl-PF3OUdS (F53B Major)	90.4	7.2	µg/kg wet	81.9		110	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	194	18	µg/kg wet	217		89.4	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	977	90	µg/kg wet	1080		90.1	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	980	90	µg/kg wet	1080		90.3	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	39.1	3.6	µg/kg wet	35.1		111	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	39.8	3.6	µg/kg wet	39.4		101	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.8	3.6	µg/kg wet	39.4		103	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	42.6	3.6	µg/kg wet	39.4		108	48-161			
Surrogate: 13C4-PFBA	73.6		µg/kg wet	90.4		81.4	10-130			
Surrogate: 13C5-PFPeA	37.9		µg/kg wet	45.2		83.9	35-150			
Surrogate: 13C5-PFHxA	18.7		µg/kg wet	22.6		82.7	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370657 - Draft Method 1633										
LCS (B370657-BS1)				Prepared: 04/12/24 Analyzed: 04/17/24						
Surrogate: 13C4-PFHpA	*18.5*		µg/kg wet	22.6		81.8	55-150			
Surrogate: 13C8-PFOA	*18.6*		µg/kg wet	22.6		82.2	60-140			
Surrogate: 13C9-PFNA	*9.29*		µg/kg wet	11.3		82.2	55-140			
Surrogate: 13C6-PFDA	*9.22*		µg/kg wet	11.3		81.6	50-140			
Surrogate: 13C7-PFUnA	*9.14*		µg/kg wet	11.3		80.9	30-140			
Surrogate: 13C2-PFDoA	*8.59*		µg/kg wet	11.3		76.0	10-150			
Surrogate: 13C2-PFTeDA	*10.1*		µg/kg wet	11.3		89.4	10-130			
Surrogate: 13C3-PFBS	*18.8*		µg/kg wet	22.6		83.1	55-150			
Surrogate: 13C3-PFHxS	*18.9*		µg/kg wet	22.6		83.8	55-150			
Surrogate: 13C8-PFOS	*19.1*		µg/kg wet	22.6		84.6	45-150			
Surrogate: 13C2-4:2FTS	*39.4*		µg/kg wet	45.2		87.1	60-200			
Surrogate: 13C2-6:2FTS	*37.7*		µg/kg wet	45.2		83.4	60-200			
Surrogate: 13C2-8:2FTS	*41.2*		µg/kg wet	45.2		91.2	50-200			
Surrogate: 13C8-PFOSA	*19.3*		µg/kg wet	22.6		85.2	30-130			
Surrogate: D3-NMeFOSA	*14.1*		µg/kg wet	22.6		62.4	15-130			
Surrogate: D5-NEtFOSA	*14.3*		µg/kg wet	22.6		63.4	10-130			
Surrogate: D3-NMeFOSAA	*38.5*		µg/kg wet	45.2		85.1	45-200			
Surrogate: D5-NEtFOSAA	*36.6*		µg/kg wet	45.2		81.0	10-200			
Surrogate: D7-NMeFOSE	*160*		µg/kg wet	226		70.7	10-150			
Surrogate: D9-NEtFOSE	*155*		µg/kg wet	226		68.5	10-150			
Surrogate: 13C3-HFPO-DA	*73.8*		µg/kg wet	90.4		81.6	25-160			
MRL Check (B370657-MRL1)				Prepared: 04/12/24 Analyzed: 04/17/24						
Perfluorobutanoic acid (PFBA)	7.78	7.7	µg/kg wet	7.66		102	44-157			
Perfluoropentanoic acid (PFPeA)	3.54	3.8	µg/kg wet	3.83		92.4	57-148			J
Perfluorohexanoic acid (PFHxA)	1.79	1.9	µg/kg wet	1.92		93.5	62-149			J
Perfluoroheptanoic acid (PFHpA)	1.64	1.9	µg/kg wet	1.92		85.9	56-150			J
Perfluorooctanoic acid (PFOA)	2.02	1.9	µg/kg wet	1.92		106	57-161			
Perfluorononanoic acid (PFNA)	1.71	1.9	µg/kg wet	1.92		89.4	53-157			J
Perfluorodecanoic acid (PFDA)	1.86	1.9	µg/kg wet	1.92		97.2	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.62	1.9	µg/kg wet	1.92		84.5	50-155			J
Perfluorododecanoic acid (PFDoA)	1.75	1.9	µg/kg wet	1.92		91.6	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.78	1.9	µg/kg wet	1.92		92.7	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.73	1.9	µg/kg wet	1.92		90.4	52-156			J
Perfluorobutanesulfonic acid (PFBS)	1.52	1.9	µg/kg wet	1.70		89.2	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.49	1.9	µg/kg wet	1.80		82.7	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.60	1.9	µg/kg wet	1.75		91.6	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.45	1.9	µg/kg wet	1.82		79.6	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.58	1.9	µg/kg wet	1.78		88.8	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.57	1.9	µg/kg wet	1.84		85.3	46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.50	1.9	µg/kg wet	1.85		81.4	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.47	1.9	µg/kg wet	1.86		78.9	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.36	7.7	µg/kg wet	7.18		88.6	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.11	7.7	µg/kg wet	7.28		97.6	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.25	7.7	µg/kg wet	7.38		98.3	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.78	1.9	µg/kg wet	1.92		92.7	47-163			J
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.86	1.9	µg/kg wet	1.92		96.9	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.60	1.9	µg/kg wet	1.92		83.5	49-156			J
N-MeFOSAA (NMeFOSAA)	1.71	1.9	µg/kg wet	1.92		89.3	32-160			J

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B370657 - Draft Method 1633										
MRL Check (B370657-MRL1)				Prepared: 04/12/24 Analyzed: 04/17/24						
N-EtFOSAA (NEtFOSAA)	1.63	1.9	µg/kg wet	1.92		85.1	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	19.1	19	µg/kg wet	19.2		99.6	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	19.3	19	µg/kg wet	19.2		101	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.49	7.7	µg/kg wet	7.66		84.7	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.81	7.7	µg/kg wet	7.23		80.3	61-148			J
9Cl-PF3ONS (F53B Minor)	6.07	7.7	µg/kg wet	7.18		84.5	44-167			J
11Cl-PF3OUdS (F53B Major)	6.10	7.7	µg/kg wet	7.23		84.3	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	15.8	19	µg/kg wet	19.2		82.4	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	80.9	96	µg/kg wet	95.8		84.5	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	74.0	96	µg/kg wet	95.8		77.3	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.00	3.8	µg/kg wet	3.41		88.1	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.43	3.8	µg/kg wet	3.83		89.4	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.17	3.8	µg/kg wet	3.83		82.6	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.54	3.8	µg/kg wet	3.83		92.3	47-160			J
Surrogate: 13C4-PFBA	*70.4*		µg/kg wet	95.8		73.5	10-130			
Surrogate: 13C5-PFPeA	*36.7*		µg/kg wet	47.9		76.6	35-150			
Surrogate: 13C5-PFHxA	*17.7*		µg/kg wet	23.9		73.9	55-150			
Surrogate: 13C4-PFHpA	*17.7*		µg/kg wet	23.9		74.0	55-150			
Surrogate: 13C8-PFOA	*17.1*		µg/kg wet	23.9		71.5	60-140			
Surrogate: 13C9-PFNA	*8.89*		µg/kg wet	12.0		74.3	55-140			
Surrogate: 13C6-PFDA	*8.92*		µg/kg wet	12.0		74.5	50-140			
Surrogate: 13C7-PFUnA	*8.44*		µg/kg wet	12.0		70.5	30-140			
Surrogate: 13C2-PFDoA	*8.25*		µg/kg wet	12.0		68.9	10-150			
Surrogate: 13C2-PFTeDA	*9.08*		µg/kg wet	12.0		75.8	10-130			
Surrogate: 13C3-PFBS	*18.5*		µg/kg wet	23.9		77.4	55-150			
Surrogate: 13C3-PFHxS	*17.9*		µg/kg wet	23.9		74.7	55-150			
Surrogate: 13C8-PFOS	*18.3*		µg/kg wet	23.9		76.5	45-150			
Surrogate: 13C2-4:2FTS	*35.7*		µg/kg wet	47.9		74.5	60-200			
Surrogate: 13C2-6:2FTS	*32.2*		µg/kg wet	47.9		67.2	60-200			
Surrogate: 13C2-8:2FTS	*31.0*		µg/kg wet	47.9		64.7	50-200			
Surrogate: 13C8-PFOSA	*16.5*		µg/kg wet	23.9		68.9	30-130			
Surrogate: D3-NMeFOSA	*14.7*		µg/kg wet	23.9		61.5	15-130			
Surrogate: D5-NEtFOSA	*14.6*		µg/kg wet	23.9		60.8	10-130			
Surrogate: D3-NMeFOSAA	*32.0*		µg/kg wet	47.9		66.9	45-200			
Surrogate: D5-NEtFOSAA	*32.9*		µg/kg wet	47.9		68.7	10-200			
Surrogate: D7-NMeFOSE	*164*		µg/kg wet	239		68.6	10-150			
Surrogate: D9-NEtFOSE	*159*		µg/kg wet	239		66.4	10-150			
Surrogate: 13C3-HFPO-DA	*75.6*		µg/kg wet	95.8		78.9	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-22	Qualifier ion ratio >150% of associated calibration. Detection is suspect.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
S-29	Extracted Internal Standard is outside of control limits.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2024
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

24D0443 HF

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 4/2/2024 **Results Requested By:** 4/30/2024

Workorder: 40276200 **Workorder Name:** PFAS/1633

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	Requested Analysis: 1663 PFAS	LAB USE ONLY
1	PCD040224 CLASSIFIER 3	PS	4/2/2024 10:02	40276200001	Solid	1	X	
2	FIELD BLANK 040224	PS	4/2/2024 10:02	40276200002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Mike	4/2/24 5:00	FedEx	4/3/24 5:00
2				4/3/24
3				

Comments

BIOSOLID

Need Dry weight and wet reporting

Cooler Temperature on Receipt 2.1°C **Custody Seal** (Y) or N **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

FedEx

FedEx® Tracking

DELIVERED

Wednesday

4/3/24 at 9:40 AM

Signed for by: A.MULINARE

Obtain proof of delivery

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

621806447817

FROM
Schaumburg, IL US

Label Created
4/2/24 3:57 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
4/2/24 4:45 PM

ON THE WAY
WINDSOR LOCKS, CT
4/3/24 8:39 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
4/3/24 8:39 AM

DELIVERED
east longmeadow, MA US

Delivered
4/3/24 at 9:40 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL SUBMIT

MORE OPTIONS

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client Pace

Project PEAS/1633

MCP/RCP Required MA

Deliverable Package Requirement MA

Location PEAS/1633

PWSID# (When Applicable) MA

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time LA 4/13/24 940

Back-Sheet By / Date / Time LA 4/13/24 941

Temperature Method Gun #6

Temp ✓ < 6° C Actual Temperature 2.4

Rush Samples: Yes / No Notify

Short Hold: Yes / No Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client	☑	Analysis	☑	Sampler Name	☐
Project	☑	IDs	☑	Collection Date/Time	☑

All Samples Proper pH: N/A ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Sample			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16oz Amb/Clear	(Circle Amb/Clear)	Soils Jars																				
8oz Amb/Clear																						
4oz Amb/Clear																						
2oz Amb/Clear																						
Unpreserved	1 Liter	Ambers																				
HCL																						
Sulfuric																						
Sulfuric	250mL																					
Phosphoric																						
HCl																						
Unpreserved	100mL																					
Unpreserved	1 Liter	Plastics																				
Sulfuric																						
Unpreserved	500mL			2																		
Sulfuric																						
Unpreserved	250mL																					
Trizma																						
Sulfuric																						
Nitric																						
NaOH																						
Ammonium Acetate																						
NaOH/Zinc																						
Unpreserved		VOA Vials																				
HCl																						
MeOH																						
D.I. Water																						
BiSulfate																						
Col/Bact		Other / Fill in																				
			1																			

Other

5

CDPHE PFAS SAMPLING

MAY 7, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40277897

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

June 04, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40277897

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on May 07, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40277897

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40277897001	PCD 050724 CLASSIFIER 1	Solid	05/07/24 10:01	05/07/24 14:38
40277897002	FIELD BLANK 050724	Water	05/07/24 10:02	05/07/24 14:38

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

40277897

Page: 1 of 1

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information	REGULATORY AGENCY
Veolia North America	Report To Same	Attention Veolia Support Services North	_ NPDES _ GROUND WATER _ DRINKING WATER
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North	_ UST _ RCRA OTHER X
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214	SITE LOCATION _ GA X IL _ IN _ MI _ NC _ OH _ SC _ WI OTHER_
Email To cletus ketter@veolia com	Purchase Order No: PO 1000361834	Pace Quote Reference na	
Phone 708 652 0575 Fax N/A	Project Name: PFAS/1633	Pace Project Manager Cindy Varga	
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083	Filtered (Y/N) N

Section D Required Client Information

SAMPLE ID — One Character per box. (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	# OF CONTAINERS	Preservatives: Unpreserved	Analysis: 1633 PFAS	Residual Chlor	Pace Project Number Lab I D
1	PCD 050724 Classifier 1	SL	G	5-7-24	10:01AM			1		X		
2	Field Blank 050724	W	W	5-7-24	10:02AM			1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO#: 40277897

40277897

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
[signature]	5-7-24	2:38pm	[signature]	5/7/24	1438		Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N
						Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Josef Novak MSW

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 5/7/24

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

May 30, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633
Client Job Number:
Project Number: 40277897
Laboratory Work Order Number: 24E1056

Enclosed are results of analyses for samples as received by the laboratory on May 8, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 5/30/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40277897

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24E1056

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

PROJECT LOCATION: PFAS/1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD 050724 CLASSIFIER 1	24E1056-01	Soil		Draft Method 1633	
				SM 2540G	
FIELD BLANK 050724	24E1056-02	Field Blank		Draft Method 1633	
PCD 050724 CLASSIFIER 1 -WET WEIGHT	24E1056-03	Soil		Draft Method 1633	

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

CASE NARRATIVE SUMMARY

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

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Draft Method 1633

Qualifications:

MS-07A

Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.

Analyte & Samples(s) Qualified:

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
B374293-MS1, B374293-MSD1

Perfluorodecanesulfonic acid (PFDS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluorododecanesulfonic acid (PFDoS)
B374293-MS1, B374293-MSD1

Perfluorononanesulfonic acid (PFNS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluorotridecanoic acid (PFTrDA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

MS-12

Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

Analyte & Samples(s) Qualified:

11Cl-PF3OUdS (F53B Major)
B374293-MS1, B374293-MSD1

3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

9Cl-PF3ONS (F53B Minor)
B374293-MS1, B374293-MSD1

N-methylperfluorooctanesulfonamidoethanol(NMeF
B374293-MS1, B374293-MSD1

MS-22

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

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonic acid (PFOS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MSD1

Perfluoropentanoic acid (PFPeA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1

PF-18

Re-analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

13C2-4:2FTS
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

13C3-PFBS
B374293-MS1, B374293-MSD1

13C4-PFBA
B374293-MS1, B374293-MSD1

13C4-PFHpA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

13C5-PFHxA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

13C5-PFPeA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

13C8-PFOA
B374293-MS1, B374293-MSD1

1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FT
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FT
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

D3-NMeFOSA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

D3-NMeFOSAA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

D5-NEtFOSA
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

D7-NMeFOSE
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

D9-NEtFOSE
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

N-ethyl perfluorooctanesulfonamide (NEtFOSA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

N-ethylperfluorooctanesulfonamidoethanol (NEtFO
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

N-MeFOSAA (NMeFOSAA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

N-methyl perfluoroocatnesulfonamide (NMeFOSA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

N-methylperfluorooctanesulfonamidoethanol(NMeF
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluoro-3-methoxypropanoic acid (PFMPA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluoro-4-methoxybutanoic acid (PFMBA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluorobutanesulfonic acid (PFBS)
B374293-MS1, B374293-MSD1

Perfluorobutanoic acid (PFBA)
B374293-MS1, B374293-MSD1

Perfluoroheptanoic acid (PFHpA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

Perfluorohexanoic acid (PFHxA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

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PF-18

Re-analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

Perfluorooctanoic acid (PFOA)
B374293-MS1, B374293-MSD1

Perfluoropentanoic acid (PFPeA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT], B374293-MS1, B374293-MSD1

PF-22

Qualifier ion ratio >150% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

Perfluoroundecanoic acid (PFUnA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluorodecanesulfonic acid (PFDS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

Perfluoroheptanesulfonic acid (PFHpS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

Perfluorohexanesulfonic acid (PFHxS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

Perfluorononanesulfonic acid (PFNS)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

Perfluoropentanoic acid (PFPeA)
24E1056-01[PCD 050724 CLASSIFIER 1], 24E1056-03[PCD 050724 CLASSIFIER 1 -WET WEIGHT]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C8-PFOSA
B374293-MSD1

13C9-PFNA
B374293-MSD1

Perfluorononanoic acid (PFNA)
B374293-MSD1

Perfluorooctanesulfonamide (PFOSA)
B374293-MSD1

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Meghan E. Kelley

Meghan E. Kelley
Reporting Specialist

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

Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: PCD 050724 CLASSIFIER 1 Sampled: 5/7/2024 10:01

Sample ID: 24E1056-01

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	0.78	0.32	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoropentanoic acid (PFPeA)	2.6	0.39	0.044	µg/kg dry	1	MS-22, PF-18, PF-23	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorohexanoic acid (PFHxA)	1.1	0.20	0.032	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.20	0.014	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorooctanoic acid (PFOA)	0.33	0.20	0.031	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorononanoic acid (PFNA)	0.25	0.20	0.014	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorodecanoic acid (PFDA)	1.0	0.20	0.017	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoroundecanoic acid (PFUnA)	0.52	0.20	0.023	µg/kg dry	1	PF-22	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorododecanoic acid (PFDoA)	0.85	0.20	0.021	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorotridecanoic acid (PFTrDA)	0.084	0.20	0.022	µg/kg dry	1	MS-07A, J	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.26	0.20	0.020	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorobutanesulfonic acid (PFBS)	0.26	0.20	0.020	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.20	0.025	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorohexanesulfonic acid (PFHxS)	5.4	0.20	0.077	µg/kg dry	1	PF-23	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoroheptanesulfonic acid (PFHpS)	7.6	0.20	0.021	µg/kg dry	1	PF-23	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorooctanesulfonic acid (PFOS)	4.8	0.20	0.031	µg/kg dry	1	MS-22	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorononanesulfonic acid (PFNS)	0.27	0.20	0.022	µg/kg dry	1	MS-07A, PF-23	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorodecanesulfonic acid (PFDS)	0.69	0.20	0.031	µg/kg dry	1	MS-07A, PF-23	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.20	0.030	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.78	0.068	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	0.78	0.49	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.41	0.78	0.091	µg/kg dry	1	PF-22, J	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluorooctanesulfonamide (PFOSA)	0.54	0.20	0.030	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.20	0.024	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.20	0.023	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
N-MeFOSAA (NMeFOSAA)	1.8	0.20	0.035	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
N-EtFOSAA (NEtFOSAA)	1.6	0.20	0.029	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	2.0	0.21	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.5	2.0	0.21	µg/kg dry	1	PF-18, J	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.78	0.050	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.78	0.058	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
9Cl-PF3ONS (F53B Minor)	ND	0.78	0.057	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
11Cl-PF3OUdS (F53B Major)	ND	0.78	0.087	µg/kg dry	1		Draft Method 1633	5/22/24	5/28/24 23:26	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	2.0	0.19	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	4.3	9.8	1.3	µg/kg dry	1	PF-18, J	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	2.2	9.8	1.5	µg/kg dry	1	MS-12, PF-18, J	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.39	0.031	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.39	0.032	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS

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

Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: PCD 050724 CLASSIFIER 1 Sampled: 5/7/2024 10:01

Sample ID: 24E1056-01

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.39	0.032	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.39	0.059	µg/kg dry	1	PF-18	Draft Method 1633	5/22/24	5/28/24 23:26	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	12.4		10-130		5/28/24 23:26
13C5-PFPeA	**24.3**	*	35-150	PF-18	5/28/24 23:26
13C5-PFHxA	**41.1**	*	55-150	PF-18	5/28/24 23:26
13C4-PFHpA	**49.6**	*	55-150	PF-18	5/28/24 23:26
13C8-PFOA	60.1		60-140		5/28/24 23:26
13C9-PFNA	62.7		55-140		5/28/24 23:26
13C6-PFDA	65.8		50-140		5/28/24 23:26
13C7-PFUnA	42.0		30-140		5/28/24 23:26
13C2-PFDoA	42.4		10-150		5/28/24 23:26
13C2-PFTeDA	22.3		10-130		5/28/24 23:26
13C3-PFBS	56.4		55-150		5/28/24 23:26
13C3-PFHxS	64.4		55-150		5/28/24 23:26
13C8-PFOS	109		45-140		5/28/24 23:26
13C2-4:2FTS	**30.4**	*	60-200	PF-18	5/28/24 23:26
13C2-6:2FTS	104		60-200		5/28/24 23:26
13C2-8:2FTS	86.6		50-200		5/28/24 23:26
13C8-PFOSA	35.2		30-130		5/28/24 23:26
D3-NMeFOSA	**3.37**	*	15-130	PF-18	5/28/24 23:26
D5-NEtFOSA	**8.51**	*	10-130	PF-18	5/28/24 23:26
D3-NMeFOSAA	**25.9**	*	45-200	PF-18	5/28/24 23:26
D5-NEtFOSAA	15.2		10-200		5/28/24 23:26
D7-NMeFOSE	**1.47**	*	10-150	PF-18	5/28/24 23:26
D9-NEtFOSE	**2.80**	*	10-150	PF-18	5/28/24 23:26
13C3-HFPO-DA	36.3		25-160		5/28/24 23:26

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Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: PCD 050724 CLASSIFIER 1 Sampled: 5/7/2024 10:01

Sample ID: 24E1056-01

Sample Matrix: Soil

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	95.9		% Wt	1		SM 2540G	5/14/24	5/14/24 11:32	NC

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Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: FIELD BLANK 050724 Sampled: 5/7/2024 10:02

Sample ID: 24E1056-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.8	2.1	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	0.41	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.95	0.23	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.95	0.25	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorooctanoic acid (PFOA)	ND	0.95	0.25	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorononanoic acid (PFNA)	ND	0.95	0.18	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorodecanoic acid (PFDA)	ND	0.95	0.20	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.95	0.19	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.95	0.19	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.95	0.28	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.95	0.25	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.95	0.20	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.95	0.24	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.95	0.27	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.95	0.31	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.95	0.37	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.95	0.24	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.95	0.27	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.95	0.28	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.8	0.71	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.8	2.9	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.8	1.1	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.95	0.22	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.95	0.31	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.95	0.32	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.95	0.34	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.95	0.38	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.5	2.6	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.5	2.5	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	0.98	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	0.78	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.8	0.92	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.8	1.0	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.5	2.1	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	48	11	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	48	9.0	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.33	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	0.53	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: FIELD BLANK 050724 Sampled: 5/7/2024 10:02

Sample ID: 24E1056-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	0.51	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.53	ng/L	1		Draft Method 1633	5/14/24	5/15/24 13:53	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	83.8	10-130		5/15/24 13:53
13C5-PFPeA	86.3	35-150		5/15/24 13:53
13C5-PFHxA	83.0	55-150		5/15/24 13:53
13C4-PFHpA	87.9	55-150		5/15/24 13:53
13C8-PFOA	87.9	60-140		5/15/24 13:53
13C9-PFNA	80.3	55-140		5/15/24 13:53
13C6-PFDA	82.8	50-140		5/15/24 13:53
13C7-PFUnA	82.1	30-140		5/15/24 13:53
13C2-PFDoA	77.7	10-150		5/15/24 13:53
13C2-PFTeDA	71.1	10-130		5/15/24 13:53
13C3-PFBS	86.2	55-150		5/15/24 13:53
13C3-PFHxS	82.3	55-150		5/15/24 13:53
13C8-PFOS	87.2	45-140		5/15/24 13:53
13C2-4:2FTS	103	60-200		5/15/24 13:53
13C2-6:2FTS	93.9	60-200		5/15/24 13:53
13C2-8:2FTS	87.7	50-200		5/15/24 13:53
13C8-PFOSA	77.5	30-130		5/15/24 13:53
D3-NMeFOSA	70.8	15-130		5/15/24 13:53
D5-NEtFOSA	74.3	10-130		5/15/24 13:53
D3-NMeFOSAA	90.6	45-200		5/15/24 13:53
D5-NEtFOSAA	89.7	10-200		5/15/24 13:53
D7-NMeFOSE	77.0	10-150		5/15/24 13:53
D9-NEtFOSE	75.8	10-150		5/15/24 13:53
13C3-HFPO-DA	83.9	25-160		5/15/24 13:53

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Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: FIELD BLANK 050724 Sampled: 5/7/2024 10:02

Sample ID: 24E1056-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	5/10/24	5/10/24 11:57	LL

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Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: PCD 050724 CLASSIFIER 1 -WET WEIGH Sampled: 5/7/2024 10:01

Sample ID: 24E1056-03

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	0.75	0.30	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoropentanoic acid (PFPeA)	2.5	0.37	0.043	µg/kg wet	1	MS-22, PF-18, PF-23	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorohexanoic acid (PFHxA)	1.1	0.19	0.031	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.19	0.014	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorooctanoic acid (PFOA)	0.32	0.19	0.029	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorononanoic acid (PFNA)	0.24	0.19	0.013	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorodecanoic acid (PFDA)	0.97	0.19	0.017	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoroundecanoic acid (PFUnA)	0.50	0.19	0.022	µg/kg wet	1	PF-22	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorododecanoic acid (PFDoA)	0.81	0.19	0.020	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorotridecanoic acid (PFTrDA)	0.081	0.19	0.021	µg/kg wet	1	MS-07A, J	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.25	0.19	0.019	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorobutanesulfonic acid (PFBS)	0.25	0.19	0.020	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.19	0.024	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorohexanesulfonic acid (PFHxS)	5.2	0.19	0.074	µg/kg wet	1	PF-23	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoroheptanesulfonic acid (PFHpS)	7.3	0.19	0.020	µg/kg wet	1	PF-23	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorooctanesulfonic acid (PFOS)	4.6	0.19	0.030	µg/kg wet	1	MS-22	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorononanesulfonic acid (PFNS)	0.26	0.19	0.021	µg/kg wet	1	MS-07A, PF-23	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorodecanesulfonic acid (PFDS)	0.66	0.19	0.030	µg/kg wet	1	MS-07A, PF-23	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.19	0.029	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.75	0.066	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	0.75	0.47	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.39	0.75	0.087	µg/kg wet	1	PF-22, J	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluorooctanesulfonamide (PFOSA)	0.51	0.19	0.029	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.19	0.023	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.19	0.022	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
N-MeFOSAA (NMeFOSAA)	1.8	0.19	0.034	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
N-EtFOSAA (NEtFOSAA)	1.6	0.19	0.028	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	1.9	0.20	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.4	1.9	0.20	µg/kg wet	1	PF-18, J	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.75	0.048	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.75	0.056	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
9Cl-PF3ONS (F53B Minor)	ND	0.75	0.054	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
11Cl-PF3OUdS (F53B Major)	ND	0.75	0.083	µg/kg wet	1		Draft Method 1633	5/28/24	5/28/24 23:26	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	1.9	0.18	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	4.1	9.4	1.3	µg/kg wet	1	PF-18, J	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	2.1	9.4	1.4	µg/kg wet	1	MS-12, PF-18, J	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.37	0.030	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.37	0.031	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24E1056

Date Received: 5/8/2024

Field Sample #: PCD 050724 CLASSIFIER 1 -WET WEIGH Sampled: 5/7/2024 10:01

Sample ID: 24E1056-03

Sample Matrix: Soil

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.37	0.031	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.37	0.057	µg/kg wet	1	PF-18	Draft Method 1633	5/28/24	5/28/24 23:26	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	12.4		10-130		5/28/24 23:26
13C5-PFPeA	**24.3**	*	35-150	PF-18	5/28/24 23:26
13C5-PFHxA	**41.1**	*	55-150	PF-18	5/28/24 23:26
13C4-PFHpA	**49.6**	*	55-150	PF-18	5/28/24 23:26
13C8-PFOA	60.1		60-140		5/28/24 23:26
13C9-PFNA	62.7		55-140		5/28/24 23:26
13C6-PFDA	65.8		50-140		5/28/24 23:26
13C7-PFUnA	42.0		30-140		5/28/24 23:26
13C2-PFDoA	42.4		10-150		5/28/24 23:26
13C2-PFTeDA	22.3		10-130		5/28/24 23:26
13C3-PFBS	56.4		55-150		5/28/24 23:26
13C3-PFHxS	64.4		55-150		5/28/24 23:26
13C8-PFOS	109		45-140		5/28/24 23:26
13C2-4:2FTS	**30.4**	*	60-200	PF-18	5/28/24 23:26
13C2-6:2FTS	104		60-200		5/28/24 23:26
13C2-8:2FTS	86.6		50-200		5/28/24 23:26
13C8-PFOSA	35.2		30-130		5/28/24 23:26
D3-NMeFOSA	**3.37**	*	15-130	PF-18	5/28/24 23:26
D5-NEtFOSA	**8.51**	*	10-130	PF-18	5/28/24 23:26
D3-NMeFOSAA	**25.9**	*	45-200	PF-18	5/28/24 23:26
D5-NEtFOSAA	15.2		10-200		5/28/24 23:26
D7-NMeFOSE	**1.47**	*	10-150	PF-18	5/28/24 23:26
D9-NEtFOSE	**2.80**	*	10-150	PF-18	5/28/24 23:26
13C3-HFPO-DA	36.3		25-160		5/28/24 23:26

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24E1056-01 [PCD 050724 CLASSIFIER 1]	B374293	5.33	5.00	05/22/24
24E1056-03 [PCD 050724 CLASSIFIER 1 -WET WEIGHT]	B374293	5.33	5.00	05/28/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 5/10/2024 per NO PREP in Batch B374011**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24E1056-02 [FIELD BLANK 050724]	B373733	525	5.00	05/14/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24E1056-02 [FIELD BLANK 050724]	B374011	50.0	05/10/24

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

Lab Number [Field ID]	Batch	Date
24E1056-01 [PCD 050724 CLASSIFIER 1]	B374302	05/14/24

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B373733 - Draft Method 1633										
Blank (B373733-BLK1)				Prepared: 05/14/24 Analyzed: 05/15/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*98.7*		ng/L	98.4		100	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B373733 - Draft Method 1633										
Blank (B373733-BLK1)				Prepared: 05/14/24 Analyzed: 05/15/24						
Surrogate: 13C5-PFPeA	*50.7*		ng/L	49.2		103	35-150			
Surrogate: 13C5-PFHxA	*24.4*		ng/L	24.6		99.3	55-150			
Surrogate: 13C4-PFHpA	*25.7*		ng/L	24.6		104	55-150			
Surrogate: 13C8-PFOA	*25.2*		ng/L	24.6		103	60-140			
Surrogate: 13C9-PFNA	*12.5*		ng/L	12.3		101	55-140			
Surrogate: 13C6-PFDA	*12.5*		ng/L	12.3		102	50-140			
Surrogate: 13C7-PFUnA	*12.1*		ng/L	12.3		98.8	30-140			
Surrogate: 13C2-PFDoA	*11.4*		ng/L	12.3		92.4	10-150			
Surrogate: 13C2-PFTeDA	*10.9*		ng/L	12.3		88.3	10-130			
Surrogate: 13C3-PFBS	*26.6*		ng/L	24.6		108	55-150			
Surrogate: 13C3-PFHxS	*24.1*		ng/L	24.6		98.1	55-150			
Surrogate: 13C8-PFOS	*24.5*		ng/L	24.6		99.7	45-140			
Surrogate: 13C2-4:2FTS	*60.8*		ng/L	49.2		124	60-200			
Surrogate: 13C2-6:2FTS	*46.0*		ng/L	49.2		93.4	60-200			
Surrogate: 13C2-8:2FTS	*41.9*		ng/L	49.2		85.3	50-200			
Surrogate: 13C8-PFOSA	*21.7*		ng/L	24.6		88.1	30-130			
Surrogate: D3-NMeFOSA	*20.8*		ng/L	24.6		84.4	15-130			
Surrogate: D5-NEtFOSA	*22.1*		ng/L	24.6		89.9	10-130			
Surrogate: D3-NMeFOSAA	*46.1*		ng/L	49.2		93.6	45-200			
Surrogate: D5-NEtFOSAA	*43.0*		ng/L	49.2		87.4	10-200			
Surrogate: D7-NMeFOSE	*222*		ng/L	246		90.4	10-150			
Surrogate: D9-NEtFOSE	*224*		ng/L	246		91.0	10-150			
Surrogate: 13C3-HFPO-DA	*100*		ng/L	98.4		102	25-160			
LCS (B373733-BS1)				Prepared: 05/14/24 Analyzed: 05/15/24						
Perfluorobutanoic acid (PFBA)	92.6	3.9	ng/L	94.6		97.9	58-148			
Perfluoropentanoic acid (PFPeA)	45.6	2.0	ng/L	47.3		96.5	54-152			
Perfluorohexanoic acid (PFHxA)	23.3	0.99	ng/L	23.7		98.7	55-152			
Perfluoroheptanoic acid (PFHpA)	22.5	0.99	ng/L	23.7		95.1	54-154			
Perfluorooctanoic acid (PFOA)	22.8	0.99	ng/L	23.7		96.6	52-161			
Perfluorononanoic acid (PFNA)	23.0	0.99	ng/L	23.7		97.2	59-149			
Perfluorodecanoic acid (PFDA)	22.3	0.99	ng/L	23.7		94.3	52-147			
Perfluoroundecanoic acid (PFUnA)	21.5	0.99	ng/L	23.7		91.0	48-159			
Perfluorododecanoic acid (PFDoA)	22.5	0.99	ng/L	23.7		95.2	64-142			
Perfluorotridecanoic acid (PFTrDA)	21.5	0.99	ng/L	23.7		91.1	49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.0	0.99	ng/L	23.7		97.3	47-161			
Perfluorobutanesulfonic acid (PFBS)	20.2	0.99	ng/L	21.0		96.2	62-144			
Perfluoropentanesulfonic acid (PFPeS)	22.8	0.99	ng/L	22.2		103	59-151			
Perfluorohexanesulfonic acid (PFHxS)	20.4	0.99	ng/L	21.6		94.1	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	21.9	0.99	ng/L	22.5		97.0	55-152			
Perfluorooctanesulfonic acid (PFOS)	19.7	0.99	ng/L	21.9		89.9	58-149			
Perfluorononanesulfonic acid (PFNS)	20.8	0.99	ng/L	22.8		91.3	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.7	0.99	ng/L	22.8		90.6	51-147			
Perfluorododecanesulfonic acid (PFDoS)	20.3	0.99	ng/L	22.9		88.6	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	89.4	3.9	ng/L	88.7		101	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	84.6	3.9	ng/L	89.9		94.1	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	91.8	3.9	ng/L	91.1		101	63-152			
Perfluorooctanesulfonamide (PFOSA)	22.5	0.99	ng/L	23.7		95.0	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	23.4	0.99	ng/L	23.7		99.1	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B373733 - Draft Method 1633										
LCS (B373733-BS1)				Prepared: 05/14/24 Analyzed: 05/15/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	23.3	0.99	ng/L	23.7		98.5	65-139			
N-MeFOSAA (NMeFOSAA)	22.2	0.99	ng/L	23.7		93.9	58-144			
N-EtFOSAA (NEtFOSAA)	23.6	0.99	ng/L	23.7		99.6	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	265	9.9	ng/L	237		112	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	268	9.9	ng/L	237		113	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	90.1	3.9	ng/L	94.6		95.2	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	83.4	3.9	ng/L	89.3		93.4	68-146			
9Cl-PF3ONS (F53B Minor)	86.4	3.9	ng/L	88.7		97.4	56-156			
11Cl-PF3OUdS (F53B Major)	86.2	3.9	ng/L	89.3		96.5	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	228	9.9	ng/L	237		96.3	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1200	49	ng/L	1180		101	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1160	49	ng/L	1180		98.0	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	43.8	2.0	ng/L	42.1		104	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	44.8	2.0	ng/L	47.3		94.7	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	45.4	2.0	ng/L	47.3		95.9	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	48.2	2.0	ng/L	47.3		102	48-161			
Surrogate: 13C4-PFBA	*92.5*		ng/L	98.6		93.9	10-130			
Surrogate: 13C5-PFPeA	*48.7*		ng/L	49.3		98.7	35-150			
Surrogate: 13C5-PFHxA	*23.2*		ng/L	24.6		94.1	55-150			
Surrogate: 13C4-PFHpA	*24.8*		ng/L	24.6		101	55-150			
Surrogate: 13C8-PFOA	*22.9*		ng/L	24.6		92.8	60-140			
Surrogate: 13C9-PFNA	*11.5*		ng/L	12.3		93.4	55-140			
Surrogate: 13C6-PFDA	*11.5*		ng/L	12.3		93.7	50-140			
Surrogate: 13C7-PFUnA	*11.4*		ng/L	12.3		92.8	30-140			
Surrogate: 13C2-PFDoA	*10.7*		ng/L	12.3		87.0	10-150			
Surrogate: 13C2-PFTeDA	*10.4*		ng/L	12.3		84.4	10-130			
Surrogate: 13C3-PFBS	*24.7*		ng/L	24.6		100	55-150			
Surrogate: 13C3-PFHxS	*23.0*		ng/L	24.6		93.5	55-150			
Surrogate: 13C8-PFOS	*23.5*		ng/L	24.6		95.5	45-140			
Surrogate: 13C2-4:2FTS	*53.7*		ng/L	49.3		109	60-200			
Surrogate: 13C2-6:2FTS	*44.3*		ng/L	49.3		90.0	60-200			
Surrogate: 13C2-8:2FTS	*41.9*		ng/L	49.3		84.9	50-200			
Surrogate: 13C8-PFOSA	*21.0*		ng/L	24.6		85.3	30-130			
Surrogate: D3-NMeFOSA	*19.4*		ng/L	24.6		78.7	15-130			
Surrogate: D5-NEtFOSA	*20.5*		ng/L	24.6		83.4	10-130			
Surrogate: D3-NMeFOSAA	*43.1*		ng/L	49.3		87.5	45-200			
Surrogate: D5-NEtFOSAA	*40.6*		ng/L	49.3		82.3	10-200			
Surrogate: D7-NMeFOSE	*209*		ng/L	246		84.7	10-150			
Surrogate: D9-NEtFOSE	*207*		ng/L	246		84.0	10-150			
Surrogate: 13C3-HFPO-DA	*97.9*		ng/L	98.6		99.3	25-160			
MRL Check (B373733-MRL1)				Prepared: 05/14/24 Analyzed: 05/15/24						
Perfluorobutanoic acid (PFBA)	9.51	3.9	ng/L	7.87		121	44-157			
Perfluoropentanoic acid (PFPeA)	3.57	2.0	ng/L	3.94		90.7	57-148			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B373733 - Draft Method 1633										
MRL Check (B373733-MRL1)				Prepared: 05/14/24 Analyzed: 05/15/24						
Perfluorohexanoic acid (PFHxA)	1.82	0.98	ng/L	1.97		92.7	62-149			
Perfluoroheptanoic acid (PFHpA)	1.75	0.98	ng/L	1.97		88.8	56-150			
Perfluorooctanoic acid (PFOA)	1.72	0.98	ng/L	1.97		87.4	57-161			
Perfluorononanoic acid (PFNA)	1.73	0.98	ng/L	1.97		87.7	53-157			
Perfluorodecanoic acid (PFDA)	1.86	0.98	ng/L	1.97		94.3	43-158			
Perfluoroundecanoic acid (PFUnA)	1.59	0.98	ng/L	1.97		80.8	50-155			
Perfluorododecanoic acid (PFDoA)	1.79	0.98	ng/L	1.97		91.0	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.61	0.98	ng/L	1.97		81.8	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.76	0.98	ng/L	1.97		89.5	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.46	0.98	ng/L	1.75		83.8	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.66	0.98	ng/L	1.85		89.6	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.62	0.98	ng/L	1.80		90.0	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.63	0.98	ng/L	1.87		87.2	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.53	0.98	ng/L	1.83		83.9	43-162			
Perfluorononanesulfonic acid (PFNS)	1.69	0.98	ng/L	1.89		89.0	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.69	0.98	ng/L	1.90		88.8	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.62	0.98	ng/L	1.91		85.0	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.22	3.9	ng/L	7.38		84.3	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.38	3.9	ng/L	7.48		85.3	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.33	3.9	ng/L	7.58		96.7	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.66	0.98	ng/L	1.97		84.3	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.93	0.98	ng/L	1.97		98.2	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.80	0.98	ng/L	1.97		91.7	49-156			
N-MeFOSAA (NMeFOSAA)	1.77	0.98	ng/L	1.97		89.7	32-160			
N-EtFOSAA (NEtFOSAA)	1.62	0.98	ng/L	1.97		82.2	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	19.5	9.8	ng/L	19.7		99.2	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	20.0	9.8	ng/L	19.7		102	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.24	3.9	ng/L	7.87		91.9	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.82	3.9	ng/L	7.43		91.8	61-148			
9Cl-PF3ONS (F53B Minor)	7.16	3.9	ng/L	7.38		97.0	44-167			
11Cl-PF3OUdS (F53B Major)	6.98	3.9	ng/L	7.43		93.9	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	16.4	9.8	ng/L	19.7		83.2	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	89.3	49	ng/L	98.4		90.7	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	84.7	49	ng/L	98.4		86.1	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.51	2.0	ng/L	3.50		100	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.60	2.0	ng/L	3.94		91.6	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.59	2.0	ng/L	3.94		91.1	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.68	2.0	ng/L	3.94		93.5	47-160			
Surrogate: 13C4-PFBA	*83.8*		ng/L	98.4		85.1	10-130			
Surrogate: 13C5-PFPeA	*44.6*		ng/L	49.2		90.7	35-150			
Surrogate: 13C5-PFHxA	*21.2*		ng/L	24.6		86.4	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B373733 - Draft Method 1633										
MRL Check (B373733-MRL1)				Prepared: 05/14/24 Analyzed: 05/15/24						
Surrogate: 13C4-PFHpA	*21.9*		ng/L	24.6		89.2	55-150			
Surrogate: 13C8-PFOA	*21.5*		ng/L	24.6		87.5	60-140			
Surrogate: 13C9-PFNA	*10.4*		ng/L	12.3		84.4	55-140			
Surrogate: 13C6-PFDA	*10.2*		ng/L	12.3		82.7	50-140			
Surrogate: 13C7-PFUnA	*10.7*		ng/L	12.3		86.8	30-140			
Surrogate: 13C2-PFDoA	*9.82*		ng/L	12.3		79.9	10-150			
Surrogate: 13C2-PFTeDA	*9.10*		ng/L	12.3		74.0	10-130			
Surrogate: 13C3-PFBS	*22.1*		ng/L	24.6		89.7	55-150			
Surrogate: 13C3-PFHxS	*20.5*		ng/L	24.6		83.1	55-150			
Surrogate: 13C8-PFOS	*21.1*		ng/L	24.6		85.6	45-140			
Surrogate: 13C2-4:2FTS	*49.0*		ng/L	49.2		99.5	60-200			
Surrogate: 13C2-6:2FTS	*39.9*		ng/L	49.2		81.2	60-200			
Surrogate: 13C2-8:2FTS	*35.4*		ng/L	49.2		72.0	50-200			
Surrogate: 13C8-PFOSA	*19.2*		ng/L	24.6		77.9	30-130			
Surrogate: D3-NMeFOSA	*17.8*		ng/L	24.6		72.3	15-130			
Surrogate: D5-NEtFOSA	*18.4*		ng/L	24.6		74.8	10-130			
Surrogate: D3-NMeFOSAA	*41.5*		ng/L	49.2		84.4	45-200			
Surrogate: D5-NEtFOSAA	*39.7*		ng/L	49.2		80.7	10-200			
Surrogate: D7-NMeFOSE	*190*		ng/L	246		77.4	10-150			
Surrogate: D9-NEtFOSE	*187*		ng/L	246		76.1	10-150			
Surrogate: 13C3-HFPO-DA	*87.9*		ng/L	98.4		89.4	25-160			
Batch B374293 - Draft Method 1633										
Blank (B374293-BLK1)				Prepared: 05/22/24 Analyzed: 05/28/24						
Perfluorobutanoic acid (PFBA)	ND	0.77	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	0.39	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	0.19	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	0.19	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	0.19	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	0.19	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	0.19	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	0.19	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	0.19	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	0.19	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.19	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	0.19	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.19	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.19	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.19	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	0.19	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	0.19	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	0.19	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.19	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	0.77	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	0.77	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	0.77	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	0.19	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.19	µg/kg wet							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633										
Blank (B374293-BLK1)				Prepared: 05/22/24 Analyzed: 05/28/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.19	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	0.19	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	0.19	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	1.9	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	1.9	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.77	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.77	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	0.77	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	0.77	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	1.9	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	9.6	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	9.6	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	0.39	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	0.39	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	0.39	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	0.39	µg/kg wet							
Surrogate: 13C4-PFBA	*8.22*		µg/kg wet	9.65		85.2	10-130			
Surrogate: 13C5-PFPeA	*4.19*		µg/kg wet	4.82		86.9	35-150			
Surrogate: 13C5-PFHxA	*2.07*		µg/kg wet	2.41		85.6	55-150			
Surrogate: 13C4-PFHpA	*2.09*		µg/kg wet	2.41		86.7	55-150			
Surrogate: 13C8-PFOA	*2.13*		µg/kg wet	2.41		88.1	60-140			
Surrogate: 13C9-PFNA	*0.994*		µg/kg wet	1.21		82.4	55-140			
Surrogate: 13C6-PFDA	*1.01*		µg/kg wet	1.21		83.4	50-140			
Surrogate: 13C7-PFUnA	*1.03*		µg/kg wet	1.21		85.4	30-140			
Surrogate: 13C2-PFDoA	*0.944*		µg/kg wet	1.21		78.3	10-150			
Surrogate: 13C2-PFTeDA	*0.893*		µg/kg wet	1.21		74.0	10-130			
Surrogate: 13C3-PFBS	*2.10*		µg/kg wet	2.41		87.2	55-150			
Surrogate: 13C3-PFHxS	*2.13*		µg/kg wet	2.41		88.4	55-150			
Surrogate: 13C8-PFOS	*2.03*		µg/kg wet	2.41		84.3	45-140			
Surrogate: 13C2-4:2FTS	*3.85*		µg/kg wet	4.82		79.8	60-200			
Surrogate: 13C2-6:2FTS	*3.99*		µg/kg wet	4.82		82.7	60-200			
Surrogate: 13C2-8:2FTS	*3.84*		µg/kg wet	4.82		79.5	50-200			
Surrogate: 13C8-PFOSA	*2.00*		µg/kg wet	2.41		82.7	30-130			
Surrogate: D3-NMeFOSA	*1.42*		µg/kg wet	2.41		58.9	15-130			
Surrogate: D5-NEtFOSA	*1.41*		µg/kg wet	2.41		58.6	10-130			
Surrogate: D3-NMeFOSAA	*4.03*		µg/kg wet	4.82		83.6	45-200			
Surrogate: D5-NEtFOSAA	*4.12*		µg/kg wet	4.82		85.5	10-200			
Surrogate: D7-NMeFOSE	*17.0*		µg/kg wet	24.1		70.4	10-150			
Surrogate: D9-NEtFOSE	*17.0*		µg/kg wet	24.1		70.4	10-150			
Surrogate: 13C3-HFPO-DA	*8.51*		µg/kg wet	9.65		88.2	25-160			
LCS (B374293-BS1)				Prepared: 05/22/24 Analyzed: 05/28/24						
Perfluorobutanoic acid (PFBA)	8.06	0.78	µg/kg wet	9.35		86.2	58-148			
Perfluoropentanoic acid (PFPeA)	3.90	0.39	µg/kg wet	4.67		83.5	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633										
LCS (B374293-BS1)				Prepared: 05/22/24 Analyzed: 05/28/24						
Perfluorohexanoic acid (PFHxA)	1.97	0.19	µg/kg wet	2.34		84.3	55-152			
Perfluoroheptanoic acid (PFHpA)	1.92	0.19	µg/kg wet	2.34		82.1	54-154			
Perfluorooctanoic acid (PFOA)	1.89	0.19	µg/kg wet	2.34		81.0	52-161			
Perfluorononanoic acid (PFNA)	2.01	0.19	µg/kg wet	2.34		86.2	59-149			
Perfluorodecanoic acid (PFDA)	1.93	0.19	µg/kg wet	2.34		82.5	52-147			
Perfluoroundecanoic acid (PFUnA)	1.93	0.19	µg/kg wet	2.34		82.7	48-159			
Perfluorododecanoic acid (PFDoA)	1.99	0.19	µg/kg wet	2.34		85.3	64-142			
Perfluorotridecanoic acid (PFTrDA)	1.90	0.19	µg/kg wet	2.34		81.5	49-148			
Perfluorotetradecanoic acid (PFTeDA)	1.95	0.19	µg/kg wet	2.34		83.3	47-161			
Perfluorobutanesulfonic acid (PFBS)	1.70	0.19	µg/kg wet	2.07		82.0	62-144			
Perfluoropentanesulfonic acid (PFPeS)	1.90	0.19	µg/kg wet	2.20		86.4	59-151			
Perfluorohexanesulfonic acid (PFHxS)	1.75	0.19	µg/kg wet	2.14		82.0	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	1.82	0.19	µg/kg wet	2.23		81.6	55-152			
Perfluorooctanesulfonic acid (PFOS)	1.77	0.19	µg/kg wet	2.17		81.7	58-149			
Perfluorononanesulfonic acid (PFNS)	1.89	0.19	µg/kg wet	2.25		84.0	52-148			
Perfluorodecanesulfonic acid (PFDS)	1.80	0.19	µg/kg wet	2.25		79.9	51-147			
Perfluorododecanesulfonic acid (PFDoS)	1.69	0.19	µg/kg wet	2.27		74.7	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.43	0.78	µg/kg wet	8.76		84.8	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.32	0.78	µg/kg wet	8.88		82.5	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.56	0.78	µg/kg wet	9.00		84.0	63-152			
Perfluorooctanesulfonamide (PFOSA)	1.94	0.19	µg/kg wet	2.34		83.0	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.93	0.19	µg/kg wet	2.34		82.4	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.92	0.19	µg/kg wet	2.34		82.0	65-139			
N-MeFOSAA (NMeFOSAA)	1.99	0.19	µg/kg wet	2.34		85.2	58-144			
N-EtFOSAA (NEtFOSAA)	1.87	0.19	µg/kg wet	2.34		79.9	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	20.3	1.9	µg/kg wet	23.4		86.9	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	20.2	1.9	µg/kg wet	23.4		86.4	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.68	0.78	µg/kg wet	9.35		82.2	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.18	0.78	µg/kg wet	8.82		81.4	68-146			
9Cl-PF3ONS (F53B Minor)	7.58	0.78	µg/kg wet	8.76		86.6	56-156			
11Cl-PF3OUdS (F53B Major)	7.51	0.78	µg/kg wet	8.82		85.2	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	16.9	1.9	µg/kg wet	23.4		72.3	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	87.9	9.7	µg/kg wet	117		75.3	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	83.8	9.7	µg/kg wet	117		71.8	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.71	0.39	µg/kg wet	4.16		89.2	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.97	0.39	µg/kg wet	4.67		85.0	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.69	0.39	µg/kg wet	4.67		78.9	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.08	0.39	µg/kg wet	4.67		87.2	48-161			
Surrogate: 13C4-PFBA	*8.91*		µg/kg wet	9.74		91.6	10-130			
Surrogate: 13C5-PFPeA	*4.56*		µg/kg wet	4.87		93.6	35-150			
Surrogate: 13C5-PFHxA	*2.24*		µg/kg wet	2.43		91.8	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633										
LCS (B374293-BS1)				Prepared: 05/22/24 Analyzed: 05/28/24						
Surrogate: 13C4-PFHpA	*2.28*		µg/kg wet	2.43		93.7	55-150			
Surrogate: 13C8-PFOA	*2.26*		µg/kg wet	2.43		92.8	60-140			
Surrogate: 13C9-PFNA	*1.07*		µg/kg wet	1.22		88.3	55-140			
Surrogate: 13C6-PFDA	*1.17*		µg/kg wet	1.22		96.3	50-140			
Surrogate: 13C7-PFUnA	*1.13*		µg/kg wet	1.22		93.1	30-140			
Surrogate: 13C2-PFDoA	*1.07*		µg/kg wet	1.22		87.6	10-150			
Surrogate: 13C2-PFTeDA	*0.990*		µg/kg wet	1.22		81.3	10-130			
Surrogate: 13C3-PFBS	*2.25*		µg/kg wet	2.43		92.3	55-150			
Surrogate: 13C3-PFHxS	*2.17*		µg/kg wet	2.43		89.2	55-150			
Surrogate: 13C8-PFOS	*2.31*		µg/kg wet	2.43		94.8	45-140			
Surrogate: 13C2-4:2FTS	*4.29*		µg/kg wet	4.87		88.2	60-200			
Surrogate: 13C2-6:2FTS	*4.37*		µg/kg wet	4.87		89.7	60-200			
Surrogate: 13C2-8:2FTS	*4.17*		µg/kg wet	4.87		85.7	50-200			
Surrogate: 13C8-PFOSA	*2.19*		µg/kg wet	2.43		90.1	30-130			
Surrogate: D3-NMeFOSA	*1.62*		µg/kg wet	2.43		66.5	15-130			
Surrogate: D5-NEtFOSA	*1.59*		µg/kg wet	2.43		65.3	10-130			
Surrogate: D3-NMeFOSAA	*4.54*		µg/kg wet	4.87		93.4	45-200			
Surrogate: D5-NEtFOSAA	*4.71*		µg/kg wet	4.87		96.8	10-200			
Surrogate: D7-NMeFOSE	*18.8*		µg/kg wet	24.3		77.3	10-150			
Surrogate: D9-NEtFOSE	*18.9*		µg/kg wet	24.3		77.8	10-150			
Surrogate: 13C3-HFPO-DA	*9.08*		µg/kg wet	9.74		93.3	25-160			
MRL Check (B374293-MRL1)				Prepared: 05/22/24 Analyzed: 05/28/24						
Perfluorobutanoic acid (PFBA)	0.614	0.78	µg/kg wet	0.777		79.1	44-157			J
Perfluoropentanoic acid (PFPeA)	0.274	0.39	µg/kg wet	0.388		70.5	57-148			J
Perfluorohexanoic acid (PFHxA)	0.140	0.19	µg/kg wet	0.194		72.3	62-149			J
Perfluoroheptanoic acid (PFHpA)	0.137	0.19	µg/kg wet	0.194		70.7	56-150			J
Perfluorooctanoic acid (PFOA)	0.173	0.19	µg/kg wet	0.194		89.3	57-161			J
Perfluorononanoic acid (PFNA)	0.141	0.19	µg/kg wet	0.194		72.6	53-157			J
Perfluorodecanoic acid (PFDA)	0.146	0.19	µg/kg wet	0.194		75.4	43-158			J
Perfluoroundecanoic acid (PFUnA)	0.129	0.19	µg/kg wet	0.194		66.2	50-155			J
Perfluorododecanoic acid (PFDoA)	0.138	0.19	µg/kg wet	0.194		71.3	60-141			J
Perfluorotridecanoic acid (PFTrDA)	0.130	0.19	µg/kg wet	0.194		66.9	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	0.136	0.19	µg/kg wet	0.194		69.9	52-156			J
Perfluorobutanesulfonic acid (PFBS)	0.121	0.19	µg/kg wet	0.172		70.5	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	0.138	0.19	µg/kg wet	0.182		75.4	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	0.144	0.19	µg/kg wet	0.178		81.2	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	0.132	0.19	µg/kg wet	0.185		71.2	51-150			J
Perfluorooctanesulfonic acid (PFOS)	0.135	0.19	µg/kg wet	0.180		75.0	43-162			J
Perfluorononanesulfonic acid (PFNS)	0.146	0.19	µg/kg wet	0.187		78.0	46-151			J
Perfluorodecanesulfonic acid (PFDS)	0.136	0.19	µg/kg wet	0.187		72.4	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	0.130	0.19	µg/kg wet	0.188		69.0	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	0.502	0.78	µg/kg wet	0.728		69.0	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	0.659	0.78	µg/kg wet	0.738		89.3	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	0.537	0.78	µg/kg wet	0.747		71.9	46-165			J
Perfluorooctanesulfonamide (PFOSA)	0.141	0.19	µg/kg wet	0.194		72.7	47-163			J
N-methyl perfluorooctanesulfonamide (NMeFOSA)	0.141	0.19	µg/kg wet	0.194		72.8	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	0.136	0.19	µg/kg wet	0.194		70.2	49-156			J
N-MeFOSAA (NMeFOSAA)	0.140	0.19	µg/kg wet	0.194		72.3	32-160			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633										
MRL Check (B374293-MRL1)				Prepared: 05/22/24 Analyzed: 05/28/24						
N-EtFOSAA (NEtFOSAA)	0.127	0.19	µg/kg wet	0.194		65.3	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	1.49	1.9	µg/kg wet	1.94		76.6	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	1.45	1.9	µg/kg wet	1.94		74.7	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	0.612	0.78	µg/kg wet	0.777		78.8	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	0.548	0.78	µg/kg wet	0.733		74.7	61-148			J
9Cl-PF3ONS (F53B Minor)	0.581	0.78	µg/kg wet	0.728		79.9	44-167			J
11Cl-PF3OUdS (F53B Major)	0.534	0.78	µg/kg wet	0.733		72.8	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	1.28	1.9	µg/kg wet	1.94		66.1	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	6.52	9.7	µg/kg wet	9.71		67.2	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	5.86	9.7	µg/kg wet	9.71		60.4	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	0.291	0.39	µg/kg wet	0.346		84.2	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	0.318	0.39	µg/kg wet	0.388		81.9	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	0.278	0.39	µg/kg wet	0.388		71.7	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.284	0.39	µg/kg wet	0.388		73.2	47-160			J
Surrogate: 13C4-PFBA	*8.86*		µg/kg wet	9.71		91.3	10-130			
Surrogate: 13C5-PFPeA	*4.50*		µg/kg wet	4.85		92.8	35-150			
Surrogate: 13C5-PFHxA	*2.22*		µg/kg wet	2.43		91.5	55-150			
Surrogate: 13C4-PFHpA	*2.22*		µg/kg wet	2.43		91.3	55-150			
Surrogate: 13C8-PFOA	*2.19*		µg/kg wet	2.43		90.4	60-140			
Surrogate: 13C9-PFNA	*1.07*		µg/kg wet	1.21		88.2	55-140			
Surrogate: 13C6-PFDA	*1.12*		µg/kg wet	1.21		92.1	50-140			
Surrogate: 13C7-PFUnA	*1.11*		µg/kg wet	1.21		91.4	30-140			
Surrogate: 13C2-PFDoA	*1.05*		µg/kg wet	1.21		86.9	10-150			
Surrogate: 13C2-PFTeDA	*0.969*		µg/kg wet	1.21		79.9	10-130			
Surrogate: 13C3-PFBS	*2.17*		µg/kg wet	2.43		89.6	55-150			
Surrogate: 13C3-PFHxS	*2.23*		µg/kg wet	2.43		91.8	55-150			
Surrogate: 13C8-PFOS	*2.18*		µg/kg wet	2.43		90.0	45-140			
Surrogate: 13C2-4:2FTS	*3.99*		µg/kg wet	4.85		82.1	60-200			
Surrogate: 13C2-6:2FTS	*4.06*		µg/kg wet	4.85		83.6	60-200			
Surrogate: 13C2-8:2FTS	*4.07*		µg/kg wet	4.85		83.8	50-200			
Surrogate: 13C8-PFOSA	*2.12*		µg/kg wet	2.43		87.5	30-130			
Surrogate: D3-NMeFOSA	*1.56*		µg/kg wet	2.43		64.4	15-130			
Surrogate: D5-NEtFOSA	*1.59*		µg/kg wet	2.43		65.4	10-130			
Surrogate: D3-NMeFOSAA	*4.21*		µg/kg wet	4.85		86.7	45-200			
Surrogate: D5-NEtFOSAA	*4.32*		µg/kg wet	4.85		89.0	10-200			
Surrogate: D7-NMeFOSE	*18.5*		µg/kg wet	24.3		76.1	10-150			
Surrogate: D9-NEtFOSE	*19.2*		µg/kg wet	24.3		79.0	10-150			
Surrogate: 13C3-HFPO-DA	*8.77*		µg/kg wet	9.71		90.4	25-160			
Matrix Spike (B374293-MS1)	**Source: 24E1056-01**			Prepared: 05/22/24 Analyzed: 05/28/24						
Perfluorobutanoic acid (PFBA)	9.66	0.78	µg/kg dry	9.30	ND	104	58-148			PF-18
Perfluoropentanoic acid (PFPeA)	4.73	0.39	µg/kg dry	4.65	2.60	**45.8**	* 54-152			MS-22, PF-18
Perfluorohexanoic acid (PFHxA)	3.49	0.19	µg/kg dry	2.33	1.11	102	55-152			PF-18
Perfluoroheptanoic acid (PFHpA)	2.27	0.19	µg/kg dry	2.33	ND	97.6	54-154			PF-18
Perfluorooctanoic acid (PFOA)	2.41	0.19	µg/kg dry	2.33	0.328	89.6	52-161			PF-18

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633											
Matrix Spike (B374293-MS1)	**Source: 24E1056-01**			Prepared: 05/22/24 Analyzed: 05/28/24							
Perfluorononanoic acid (PFNA)	2.60	0.19	µg/kg dry	2.33	0.249	101		59-149			
Perfluorodecanoic acid (PFDA)	3.31	0.19	µg/kg dry	2.33	1.02	98.6		52-147			
Perfluoroundecanoic acid (PFUnA)	2.90	0.19	µg/kg dry	2.33	0.523	102		48-159			
Perfluorododecanoic acid (PFDoA)	3.24	0.19	µg/kg dry	2.33	0.849	103		64-142			
Perfluorotridecanoic acid (PFTrDA)	1.03	0.19	µg/kg dry	2.33	0.0844	**40.5**	*	49-148			MS-07A
Perfluorotetradecanoic acid (PFTeDA)	2.44	0.19	µg/kg dry	2.33	0.260	93.9		47-161			
Perfluorobutanesulfonic acid (PFBS)	2.06	0.19	µg/kg dry	2.06	0.262	86.9		62-144			PF-18
Perfluoropentanesulfonic acid (PFPeS)	2.50	0.19	µg/kg dry	2.19	ND	114		59-151			
Perfluorohexanesulfonic acid (PFHxS)	8.20	0.19	µg/kg dry	2.13	5.41	131		57-146			
Perfluoroheptanesulfonic acid (PFHpS)	10.2	0.19	µg/kg dry	2.22	7.56	119		55-152			
Perfluorooctanesulfonic acid (PFOS)	6.27	0.19	µg/kg dry	2.16	4.85	65.9		58-149			
Perfluorononanesulfonic acid (PFNS)	1.36	0.19	µg/kg dry	2.24	0.270	**48.8**	*	52-148			MS-07A
Perfluorodecanesulfonic acid (PFDS)	1.72	0.19	µg/kg dry	2.24	0.688	**46.2**	*	51-147			MS-07A
Perfluorododecanesulfonic acid (PFDoS)	0.553	0.19	µg/kg dry	2.26	ND	**24.5**	*	36-145			MS-07A
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.26	0.78	µg/kg dry	8.72	ND	83.3		67-146			PF-18
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	9.14	0.78	µg/kg dry	8.84	ND	103		61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	8.88	0.78	µg/kg dry	8.95	0.405	94.7		63-152			
Perfluorooctanesulfonamide (PFOSA)	2.75	0.19	µg/kg dry	2.33	0.537	95.3		61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	2.13	0.19	µg/kg dry	2.33	ND	91.7		63-145			PF-18
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	2.50	0.19	µg/kg dry	2.33	ND	108		65-139			PF-18
N-MeFOSAA (NMeFOSAA)	4.27	0.19	µg/kg dry	2.33	1.85	104		58-144			PF-18
N-EtFOSAA (NEtFOSAA)	4.16	0.19	µg/kg dry	2.33	1.64	108		59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	32.1	1.9	µg/kg dry	23.3	ND	**138**	*	71-136			MS-12, PF-18
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	25.9	1.9	µg/kg dry	23.3	1.49	105		69-137			PF-18
Hexafluoropropylene oxide dimer acid (HFPO-DA)	8.96	0.78	µg/kg dry	9.30	ND	96.3		63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	11.2	0.78	µg/kg dry	8.78	ND	128		68-146			
9Cl-PF3ONS (F53B Minor)	13.8	0.78	µg/kg dry	8.72	ND	**158**	*	56-156			MS-12
11Cl-PF3OUdS (F53B Major)	18.2	0.78	µg/kg dry	8.78	ND	**207**	*	46-156			MS-12
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	4.59	1.9	µg/kg dry	23.3	ND	**19.8**	*	62-129			MS-07A, PF-18
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	85.8	9.7	µg/kg dry	116	4.30	70.1		63-134			PF-18
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	202	9.7	µg/kg dry	116	2.21	**172**	*	50-138			MS-12, PF-18
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.80	0.39	µg/kg dry	4.14	ND	140		56-151			PF-18
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.80	0.39	µg/kg dry	4.65	ND	60.1		51-145			PF-18
Perfluoro-4-methoxybutanoic acid (PFMBA)	5.40	0.39	µg/kg dry	4.65	ND	116		55-148			PF-18
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.71	0.39	µg/kg dry	4.65	ND	79.8		48-161			PF-18
Surrogate: 13C4-PFBA	*0.799*		µg/kg dry	9.69		**8.24**	*	10-130			PF-18
Surrogate: 13C5-PFPeA	*0.826*		µg/kg dry	4.85		**17.1**	*	35-150			PF-18
Surrogate: 13C5-PFHxA	*0.715*		µg/kg dry	2.42		**29.5**	*	55-150			PF-18
Surrogate: 13C4-PFHpA	*1.01*		µg/kg dry	2.42		**41.7**	*	55-150			PF-18
Surrogate: 13C8-PFOA	*1.30*		µg/kg dry	2.42		**53.7**	*	60-140			PF-18
Surrogate: 13C9-PFNA	*0.713*		µg/kg dry	1.21		58.9		55-140			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633											
Matrix Spike (B374293-MS1)	**Source: 24E1056-01**			Prepared: 05/22/24 Analyzed: 05/28/24							
Surrogate: 13C6-PFDA	*0.804*		µg/kg dry	1.21		66.4		50-140			
Surrogate: 13C7-PFUnA	*0.519*		µg/kg dry	1.21		42.8		30-140			
Surrogate: 13C2-PFDoA	*0.535*		µg/kg dry	1.21		44.2		10-150			
Surrogate: 13C2-PFTeDA	*0.270*		µg/kg dry	1.21		22.3		10-130			
Surrogate: 13C3-PFBS	*1.06*		µg/kg dry	2.42		**43.9**	*	55-150			PF-18
Surrogate: 13C3-PFHxS	*1.44*		µg/kg dry	2.42		59.3		55-150			
Surrogate: 13C8-PFOS	*2.56*		µg/kg dry	2.42		106		45-140			
Surrogate: 13C2-4:2FTS	*0.954*		µg/kg dry	4.85		**19.7**	*	60-200			PF-18
Surrogate: 13C2-6:2FTS	*4.35*		µg/kg dry	4.85		89.8		60-200			
Surrogate: 13C2-8:2FTS	*4.28*		µg/kg dry	4.85		88.2		50-200			
Surrogate: 13C8-PFOSA	*0.891*		µg/kg dry	2.42		36.8		30-130			
Surrogate: D3-NMeFOSA	*0.0876*		µg/kg dry	2.42		**3.61**	*	15-130			PF-18
Surrogate: D5-NEtFOSA	*0.200*		µg/kg dry	2.42		**8.27**	*	10-130			PF-18
Surrogate: D3-NMeFOSAA	*1.25*		µg/kg dry	4.85		**25.8**	*	45-200			PF-18
Surrogate: D5-NEtFOSAA	*0.745*		µg/kg dry	4.85		15.4		10-200			
Surrogate: D7-NMeFOSE	*0.357*		µg/kg dry	24.2		**1.47**	*	10-150			PF-18
Surrogate: D9-NEtFOSE	*0.630*		µg/kg dry	24.2		**2.60**	*	10-150			PF-18
Surrogate: 13C3-HFPO-DA	*2.77*		µg/kg dry	9.69		28.6		25-160			
Matrix Spike Dup (B374293-MSD1)	**Source: 24E1056-01**			Prepared: 05/22/24 Analyzed: 05/28/24							
Perfluorobutanoic acid (PFBA)	10.4	0.80	µg/kg dry	9.56	ND	108		58-148	7.16	20	PF-18
Perfluoropentanoic acid (PFPeA)	5.20	0.40	µg/kg dry	4.78	2.60	54.3		54-152	9.35	20	PF-18
Perfluorohexanoic acid (PFHxA)	3.69	0.20	µg/kg dry	2.39	1.11	108		55-152	5.53	25	PF-18
Perfluoroheptanoic acid (PFHpA)	2.26	0.20	µg/kg dry	2.39	ND	94.7		54-154	0.320	25	PF-18
Perfluorooctanoic acid (PFOA)	2.43	0.20	µg/kg dry	2.39	0.328	87.8		52-161	0.552	25	PF-18
Perfluorononanoic acid (PFNA)	2.59	0.20	µg/kg dry	2.39	0.249	98.1		59-149	0.345	25	S-29
Perfluorodecanoic acid (PFDA)	3.48	0.20	µg/kg dry	2.39	1.02	103		52-147	5.14	25	
Perfluoroundecanoic acid (PFUnA)	2.78	0.20	µg/kg dry	2.39	0.523	94.4		48-159	4.26	30	
Perfluorododecanoic acid (PFDoA)	3.31	0.20	µg/kg dry	2.39	0.849	103		64-142	2.00	25	
Perfluorotridecanoic acid (PFTrDA)	1.06	0.20	µg/kg dry	2.39	0.0844	**40.9**	*	49-148	3.38	25	MS-07A
Perfluorotetradecanoic acid (PFTeDA)	2.60	0.20	µg/kg dry	2.39	0.260	97.9		47-161	6.21	25	
Perfluorobutanesulfonic acid (PFBS)	2.22	0.20	µg/kg dry	2.12	0.262	92.2		62-144	7.66	20	PF-18
Perfluoropentanesulfonic acid (PFPeS)	2.53	0.20	µg/kg dry	2.25	ND	113		59-151	1.32	25	
Perfluorohexanesulfonic acid (PFHxS)	7.52	0.20	µg/kg dry	2.19	5.41	96.5		57-146	8.75	25	
Perfluoroheptanesulfonic acid (PFHpS)	9.81	0.20	µg/kg dry	2.28	7.56	98.7		55-152	3.91	25	
Perfluorooctanesulfonic acid (PFOS)	5.95	0.20	µg/kg dry	2.22	4.85	**49.9**	*	58-149	5.17	20	MS-22
Perfluorononanesulfonic acid (PFNS)	1.17	0.20	µg/kg dry	2.30	0.270	**39.1**	*	52-148	15.3	25	MS-07A
Perfluorodecanesulfonic acid (PFDS)	1.74	0.20	µg/kg dry	2.31	0.688	**45.6**	*	51-147	0.816	25	MS-07A
Perfluorododecanesulfonic acid (PFDoS)	0.620	0.20	µg/kg dry	2.32	ND	**26.8**	*	36-145	11.4	30	MS-07A
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.57	0.80	µg/kg dry	8.96	ND	84.5		67-146	4.20	25	PF-18
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	9.58	0.80	µg/kg dry	9.08	ND	106		61-151	4.76	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	9.44	0.80	µg/kg dry	9.20	0.405	98.2		63-152	6.04	30	
Perfluorooctanesulfonamide (PFOSA)	2.84	0.20	µg/kg dry	2.39	0.537	96.3		61-148	2.99	20	S-29
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.73	0.20	µg/kg dry	2.39	ND	72.3		63-145	21.0	25	PF-18
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	3.06	0.20	µg/kg dry	2.39	ND	128		65-139	20.1	25	PF-18
N-MeFOSAA (NMeFOSAA)	4.19	0.20	µg/kg dry	2.39	1.85	98.0		58-144	1.78	25	PF-18
N-EtFOSAA (NEtFOSAA)	4.03	0.20	µg/kg dry	2.39	1.64	100		59-146	2.97	25	
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	34.0	2.0	µg/kg dry	23.9	ND	**142**	*	71-136	5.72	20	MS-12, PF-18

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B374293 - Draft Method 1633											
Matrix Spike Dup (B374293-MSD1)	**Source: 24E1056-01**			Prepared: 05/22/24 Analyzed: 05/28/24							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	26.4	2.0	µg/kg dry	23.9	1.49	104		69-137	2.01	25	PF-18
Hexafluoropropylene oxide dimer acid (HFPO-DA)	9.43	0.80	µg/kg dry	9.56	ND	98.6		63-144	5.15	25	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	11.1	0.80	µg/kg dry	9.02	ND	123		68-146	1.23	20	
9Cl-PF3ONS (F53B Minor)	14.5	0.80	µg/kg dry	8.96	ND	**162**	*	56-156	4.92	30	MS-12
11Cl-PF3OUdS (F53B Major)	21.0	0.80	µg/kg dry	9.02	ND	**232**	*	46-156	14.0	35	MS-12
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	5.04	2.0	µg/kg dry	23.9	ND	**21.1**	*	62-129	9.17	20	MS-07A, PF-18
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	88.0	10	µg/kg dry	119	4.30	70.0		63-134	2.52	20	PF-18
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	212	10	µg/kg dry	119	2.21	**176**	*	50-138	4.62	25	MS-12, PF-18
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	5.97	0.40	µg/kg dry	4.25	ND	140		56-151	2.85	20	PF-18
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.41	0.40	µg/kg dry	4.78	ND	71.4		51-145	19.9	25	PF-18
Perfluoro-4-methoxybutanoic acid (PFMBA)	5.85	0.40	µg/kg dry	4.78	ND	122		55-148	8.04	20	PF-18
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.45	0.40	µg/kg dry	4.78	ND	72.1		48-161	7.36	35	PF-18
Surrogate: 13C4-PFBA	*0.793*		µg/kg dry	9.96		**7.97**	*	10-130			PF-18
Surrogate: 13C5-PFPeA	*0.736*		µg/kg dry	4.98		**14.8**	*	35-150			PF-18
Surrogate: 13C5-PFHxA	*0.679*		µg/kg dry	2.49		**27.3**	*	55-150			PF-18
Surrogate: 13C4-PFHpA	*1.02*		µg/kg dry	2.49		**40.8**	*	55-150			PF-18
Surrogate: 13C8-PFOA	*1.24*		µg/kg dry	2.49		**49.7**	*	60-140			PF-18
Surrogate: 13C9-PFNA	*0.657*		µg/kg dry	1.24		**52.8**	*	55-140			S-29
Surrogate: 13C6-PFDA	*0.749*		µg/kg dry	1.24		60.1		50-140			
Surrogate: 13C7-PFUnA	*0.543*		µg/kg dry	1.24		43.6		30-140			
Surrogate: 13C2-PFDoA	*0.576*		µg/kg dry	1.24		46.3		10-150			
Surrogate: 13C2-PFTeDA	*0.307*		µg/kg dry	1.24		24.7		10-130			
Surrogate: 13C3-PFBS	*0.939*		µg/kg dry	2.49		**37.7**	*	55-150			PF-18
Surrogate: 13C3-PFHxS	*1.42*		µg/kg dry	2.49		56.9		55-150			
Surrogate: 13C8-PFOS	*2.02*		µg/kg dry	2.49		81.0		45-140			
Surrogate: 13C2-4:2FTS	*0.855*		µg/kg dry	4.98		**17.2**	*	60-200			PF-18
Surrogate: 13C2-6:2FTS	*3.77*		µg/kg dry	4.98		75.8		60-200			
Surrogate: 13C2-8:2FTS	*3.77*		µg/kg dry	4.98		75.7		50-200			
Surrogate: 13C8-PFOSA	*0.670*		µg/kg dry	2.49		**26.9**	*	30-130			S-29
Surrogate: D3-NMeFOSA	*0.0812*		µg/kg dry	2.49		**3.26**	*	15-130			PF-18
Surrogate: D5-NEtFOSA	*0.129*		µg/kg dry	2.49		**5.20**	*	10-130			PF-18
Surrogate: D3-NMeFOSAA	*0.898*		µg/kg dry	4.98		**18.0**	*	45-200			PF-18
Surrogate: D5-NEtFOSAA	*0.567*		µg/kg dry	4.98		11.4		10-200			
Surrogate: D7-NMeFOSE	*0.315*		µg/kg dry	24.9		**1.26**	*	10-150			PF-18
Surrogate: D9-NEtFOSE	*0.553*		µg/kg dry	24.9		**2.22**	*	10-150			PF-18
Surrogate: 13C3-HFPO-DA	*2.77*		µg/kg dry	9.96		27.9		25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
ŕ	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
MS-07A	Matrix spike and spike duplicate recovery is outside of control limits. Analysis is in control based on laboratory fortified blank recovery. Possibility of matrix effects that lead to low bias or non-homogeneous sample aliquot cannot be eliminated.
MS-12	Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
PF-18	Re-analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-22	Qualifier ion ratio >150% of associated calibration. Detection is suspect.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
S-29	Extracted Internal Standard is outside of control limits.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Soil	
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV
Perfluorotetradecanoic acid (PFTeDA)	NH-P,PA,WV
Perfluorobutanesulfonic acid (PFBS)	NH-P,PA,WV
Perfluoropentanesulfonic acid (PFPeS)	NH-P,PA,WV
Perfluorohexanesulfonic acid (PFHxS)	NH-P,PA,WV
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,PA,WV
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,PA,WV
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV
N-EtFOSAA (NEtFOSAA)	NH-P,PA,WV
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,PA,WV
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,PA,WV
9Cl-PF3ONS (F53B Minor)	NH-P,PA,WV
11Cl-PF3OUdS (F53B Major)	NH-P,PA,WV
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,PA,WV
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,PA,WV
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2025
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

24E1086 MF

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 5/7/2024 Results Requested By: 6/6/2024

Workorder: 40277897 **Workorder Name:** PFAS/1633

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: 1633 PFAS	LAB USE ONLY
1	PCD 050724 CLASSIFIER 1	PS	5/7/2024 10:01	40277897001	Solid	1	X	
2	FIELD BLANK 050724	PS	5/7/2024 10:02	40277897002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	5/7/24 1800	FedEx	5/7/24
2			[signature]	5/8/24 1000
3				

Comments: BIOSOLID
Need Dry weight and wet reporting

Cooler Temperature on Receipt 1.7 °C | Custody Seal (Y) or N | Received on Ice (Y) or N | Samples Intact (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

FedEx

FedEx® Tracking

DELIVERED

Wednesday

5/8/24 at 10:00 AM

Your package was released as requested and safely delivered.

Signed for by: Signature release on file

Obtain proof of delivery

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

621806448537

FROM
Schaumburg, IL US

Label Created
5/7/24 6:22 PM

SCHAUMBURG, IL
5/7/24 6:36 PM

ON THE WAY
WINDSOR LOCKS, CT
5/8/24 8:05 AM

OUT FOR DELIVERY

DELIVERED
east longmeadow, MA US

Delivered
5/8/24 at 10:00 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL SUBMIT

MORE OPTIONS

Pace ANALYTICAL SERVICES	DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist
	Effective Date: 07/13/2023

Log In Back-Sheet

Client DUKE

Project PFAS/1633

MCP/RCP Required NA

Deliverable Package Requirement NA

Location PFAS/1633

PWSID# (When Applicable) NA

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time LA 5/8/24 1000

Back-Sheet By / Date / Time LA 5/8/24 1048

Temperature Method Gun #5

Temp ✓ < 6° C Actual Temperature 1-5

Rush Samples: Yes / No Notify

Short Hold: Yes / No Notify

Notes regarding Samples/COC outside of SOP:

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

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

COC Included: (Check all included)

Client	☑	Analysis	☑	Sampler Name	☐
Project	☑	IDs	☑	Collection Date/Time	☑

All Samples Proper pH: N/A ☐ ☐

Additional Container Notes

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

Qualtrax ID: 120836

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Sample			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16oz Amb/Clear	(Circle Amb/Clear)	Soils Jars																				
8oz Amb/Clear																						
4oz Amb/Clear																						
2oz Amb/Clear																						
Unpreserved	1 Liter	Ambers																				
HCL																						
Sulfuric																						
Sulfuric	250mL																					
Phosphoric																						
HCl																						
Unpreserved	100mL																					
Unpreserved	1 Liter	Plastics																				
Sulfuric																						
Unpreserved	500mL			2																		
Sulfuric																						
Unpreserved	250mL																					
Trizma																						
Sulfuric																						
Nitric																						
NaOH																						
Ammonium Acetate																						
NaOH/Zinc																						
Unpreserved		VOA Vials																				
HCl																						
MeOH																						
D.I. Water																						
BiSulfate																						
Col/Bact		Other / Fill in																				
Hold			1																			

6

CDPHE PFAS SAMPLING

June 4, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40279167

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

June 18, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40279167

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 04, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40279167

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40279167001	PCD CLASSIFIER 2 060424	Solid	06/04/24 09:42	06/04/24 11:30
40279167002	FIELD BLANK WATER 060424	Water	06/04/24 09:42	06/04/24 11:30

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

40279167

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus.ketter@veolia.com	**Purchase Order No: PO 1000361834**	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	**Project Name: PFAS/1633**	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER
__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N) N

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	Section D Required Client Information — SAMPLE ID (One Character per box (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives: Unpreserved	Analysis: 1633 PFAS	Residual Chlor	Pace Project Number / Lab I.D
1	PCD classifier 2 060424	SL	G	6-4-24	9:42AM			1	X	X		
2	Field Blank Water 060424	W	G	6-4-24	9:42AM			1	X			
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO# : 40279167

40279167

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	6-4-24	11:00AM		6/4/24	11:30

SAMPLE CONDITIONS

Temp in °C	Received on Ice Y/N	Custody Sealed Cooler Y/N	Samples Intact Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N
	Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Joseph Novak Jr MSCI

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 06/04/24

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June 18, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633
Client Job Number:
Project Number: 40279167
Laboratory Work Order Number: 24F0418

Enclosed are results of analyses for samples as received by the laboratory on June 5, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 6/18/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40279167

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24F0418

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

PROJECT LOCATION: PFAS/1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD CLASSIFIER 2 060424	24F0418-01	Biosolids		Draft Method 1633	
				SM 2540G	
FIELD BLANK WATER 060424	24F0418-02	Field Blank		Draft Method 1633	
PCD CLASSIFIER 2 060424 - WET WEIGHT	24F0418-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoroheptanoic acid (PFHpA)
24F0418-01[PCD CLASSIFIER 2 060424], 24F0418-03[PCD CLASSIFIER 2 060424 - WET WEIGHT]

Perfluoropentanoic acid (PFPeA)
24F0418-01[PCD CLASSIFIER 2 060424], 24F0418-03[PCD CLASSIFIER 2 060424 - WET WEIGHT]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
S106035-CCV3

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Meghan E. Kelley
Reporting Specialist

con-test®
A Pace Analytical® Laboratory

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

Project Location: PFAS/1633 Sample Description: Work Order: 24F0418

Date Received: 6/5/2024

Field Sample #: PCD CLASSIFIER 2 060424 Sampled: 6/4/2024 09:42

Sample ID: 24F0418-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	7.1	2.9	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoropentanoic acid (PFPeA)	4.3	3.6	0.40	µg/kg dry	1	PF-23	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorohexanoic acid (PFHxA)	0.86	1.8	0.29	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoroheptanoic acid (PFHpA)	0.44	1.8	0.13	µg/kg dry	1	J, PF-23	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorooctanoic acid (PFOA)	0.46	1.8	0.28	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorononanoic acid (PFNA)	0.35	1.8	0.12	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorodecanoic acid (PFDA)	1.2	1.8	0.16	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoroundecanoic acid (PFUnA)	0.70	1.8	0.21	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorododecanoic acid (PFDoA)	1.1	1.8	0.19	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorotridecanoic acid (PFTrDA)	0.21	1.8	0.20	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.37	1.8	0.18	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.8	0.19	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.8	0.23	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.8	0.70	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.8	0.19	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorooctanesulfonic acid (PFOS)	9.3	1.8	0.28	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.8	0.20	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.8	0.28	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.8	0.27	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.1	0.62	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.1	4.5	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.1	0.82	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorooctanesulfonamide (PFOSA)	0.51	1.8	0.28	µg/kg dry	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.8	0.22	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.8	0.21	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-MeFOSAA (NMeFOSAA)	2.3	1.8	0.32	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-EtFOSAA (NEtFOSAA)	2.0	1.8	0.26	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	18	1.9	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	18	1.9	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.1	0.45	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.1	0.53	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
9Cl-PF3ONS (F53B Minor)	ND	7.1	0.51	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
11Cl-PF3OUdS (F53B Major)	ND	7.1	0.79	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	18	1.7	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	89	12	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	89	13	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.6	0.28	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.6	0.29	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24F0418

Date Received: 6/5/2024

Field Sample #: PCD CLASSIFIER 2 060424 Sampled: 6/4/2024 09:42

Sample ID: 24F0418-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.6	0.29	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.6	0.54	µg/kg dry	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	92.1	10-130		6/14/24 20:43
13C5-PFPeA	113	35-150		6/14/24 20:43
13C5-PFHxA	110	55-150		6/14/24 20:43
13C4-PFHpA	111	55-150		6/14/24 20:43
13C8-PFOA	118	60-140		6/14/24 20:43
13C9-PFNA	117	55-140		6/14/24 20:43
13C6-PFDA	120	50-140		6/14/24 20:43
13C7-PFUnA	121	30-140		6/14/24 20:43
13C2-PFDoA	130	10-150		6/14/24 20:43
13C2-PFTeDA	122	10-130		6/14/24 20:43
13C3-PFBS	121	55-150		6/14/24 20:43
13C3-PFHxS	116	55-150		6/14/24 20:43
13C8-PFOS	114	45-150		6/14/24 20:43
13C2-4:2FTS	115	60-200		6/14/24 20:43
13C2-6:2FTS	173	60-200		6/14/24 20:43
13C2-8:2FTS	191	50-200		6/14/24 20:43
13C8-PFOSA	119	30-130		6/14/24 20:43
D3-NMeFOSA	63.4	15-130		6/14/24 20:43
D5-NEtFOSA	48.2	10-130		6/14/24 20:43
D3-NMeFOSAA	85.9	45-200		6/14/24 20:43
D5-NEtFOSAA	108	10-200		6/14/24 20:43
D7-NMeFOSE	17.6	10-150		6/14/24 20:43
D9-NEtFOSE	45.2	10-150		6/14/24 20:43
13C3-HFPO-DA	91.8	25-160		6/14/24 20:43

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Project Location: PFAS/1633
Sample Description:
Work Order: 24F0418

Date Received: 6/5/2024

Field Sample #: PCD CLASSIFIER 2 060424
Sampled: 6/4/2024 09:42

Sample ID: 24F0418-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	96.4		% Wt	1		SM 2540G	6/7/24	6/7/24 10:57	DML

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Project Location: PFAS/1633 Sample Description: Work Order: 24F0418

Date Received: 6/5/2024

Field Sample #: FIELD BLANK WATER 060424 Sampled: 6/4/2024 09:42

Sample ID: 24F0418-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.8	2.1	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	0.40	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.94	0.23	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.94	0.25	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorooctanoic acid (PFOA)	ND	0.94	0.25	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorononanoic acid (PFNA)	ND	0.94	0.18	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorodecanoic acid (PFDA)	ND	0.94	0.19	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.94	0.19	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.94	0.19	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.94	0.28	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.94	0.24	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.94	0.20	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.94	0.24	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.94	0.26	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.94	0.31	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.94	0.36	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.94	0.24	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.94	0.27	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.94	0.27	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.8	0.70	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.8	2.8	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.8	1.0	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.94	0.22	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.94	0.31	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.94	0.32	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.94	0.34	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.94	0.38	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.4	2.6	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.4	2.5	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	0.97	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	0.77	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.8	0.91	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.8	1.0	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.4	2.0	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	47	11	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	47	8.9	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.33	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	0.52	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24F0418

Date Received: 6/5/2024

Field Sample #: FIELD BLANK WATER 060424 Sampled: 6/4/2024 09:42

Sample ID: 24F0418-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	0.51	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.52	ng/L	1		Draft Method 1633	6/12/24	6/13/24 9:06	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	84.9	10-130		6/13/24 9:06
13C5-PFPeA	83.8	35-150		6/13/24 9:06
13C5-PFHxA	81.7	55-150		6/13/24 9:06
13C4-PFHpA	83.0	55-150		6/13/24 9:06
13C8-PFOA	80.0	60-140		6/13/24 9:06
13C9-PFNA	81.8	55-140		6/13/24 9:06
13C6-PFDA	76.0	50-140		6/13/24 9:06
13C7-PFUnA	76.5	30-140		6/13/24 9:06
13C2-PFDoA	69.8	10-150		6/13/24 9:06
13C2-PFTeDA	64.8	10-130		6/13/24 9:06
13C3-PFBS	86.8	55-150		6/13/24 9:06
13C3-PFHxS	79.4	55-150		6/13/24 9:06
13C8-PFOS	80.3	45-140		6/13/24 9:06
13C2-4:2FTS	77.9	60-200		6/13/24 9:06
13C2-6:2FTS	79.8	60-200		6/13/24 9:06
13C2-8:2FTS	78.0	50-200		6/13/24 9:06
13C8-PFOSA	75.3	30-130		6/13/24 9:06
D3-NMeFOSA	66.1	15-130		6/13/24 9:06
D5-NEtFOSA	71.5	10-130		6/13/24 9:06
D3-NMeFOSAA	73.5	45-200		6/13/24 9:06
D5-NEtFOSAA	76.9	10-200		6/13/24 9:06
D7-NMeFOSE	67.7	10-150		6/13/24 9:06
D9-NEtFOSE	68.9	10-150		6/13/24 9:06
13C3-HFPO-DA	83.0	25-160		6/13/24 9:06

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Project Location: PFAS/1633
Sample Description:
Work Order: 24F0418
Date Received: 6/5/2024
Field Sample #: PCD CLASSIFIER 2 060424 - WET WEIG
Sampled: 6/4/2024 09:42
Sample ID: 24F0418-03
Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.8	2.8	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoropentanoic acid (PFPeA)	4.1	3.4	0.39	µg/kg wet	1	PF-23	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorohexanoic acid (PFHxA)	0.83	1.7	0.28	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoroheptanoic acid (PFHpA)	0.42	1.7	0.12	µg/kg wet	1	PF-23, J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorooctanoic acid (PFOA)	0.44	1.7	0.27	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorononanoic acid (PFNA)	0.34	1.7	0.12	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorodecanoic acid (PFDA)	1.2	1.7	0.15	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoroundecanoic acid (PFUnA)	0.67	1.7	0.20	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorododecanoic acid (PFDoA)	1.1	1.7	0.18	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorotridecanoic acid (PFTrDA)	0.21	1.7	0.19	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.35	1.7	0.17	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.18	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	0.22	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.67	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.18	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorooctanesulfonic acid (PFOS)	9.0	1.7	0.27	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.19	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.27	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.7	0.26	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.8	0.60	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.8	4.3	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.8	0.80	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluorooctanesulfonamide (PFOSA)	0.49	1.7	0.27	µg/kg wet	1	J	Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.7	0.21	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.7	0.20	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-MeFOSAA (NMeFOSAA)	2.2	1.7	0.31	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-EtFOSAA (NEtFOSAA)	1.9	1.7	0.25	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	17	1.8	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	17	1.8	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.8	0.44	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.8	0.51	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.8	0.49	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.8	0.76	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	17	1.6	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	86	12	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	86	13	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.4	0.27	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.4	0.28	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24F0418

Date Received: 6/5/2024

Field Sample #: PCD CLASSIFIER 2 060424 - WET WEIG Sampled: 6/4/2024 09:42

Sample ID: 24F0418-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.4	0.28	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.4	0.52	µg/kg wet	1		Draft Method 1633	6/12/24	6/14/24 20:43	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	92.1	10-130		6/14/24 20:43
13C5-PFPeA	113	35-150		6/14/24 20:43
13C5-PFHxA	110	55-150		6/14/24 20:43
13C4-PFHpA	111	55-150		6/14/24 20:43
13C8-PFOA	118	60-140		6/14/24 20:43
13C9-PFNA	117	55-140		6/14/24 20:43
13C6-PFDA	120	50-140		6/14/24 20:43
13C7-PFUnA	121	30-140		6/14/24 20:43
13C2-PFDoA	130	10-150		6/14/24 20:43
13C2-PFTeDA	122	10-130		6/14/24 20:43
13C3-PFBS	121	55-150		6/14/24 20:43
13C3-PFHxS	116	55-150		6/14/24 20:43
13C8-PFOS	114	45-150		6/14/24 20:43
13C2-4:2FTS	115	60-200		6/14/24 20:43
13C2-6:2FTS	173	60-200		6/14/24 20:43
13C2-8:2FTS	191	50-200		6/14/24 20:43
13C8-PFOSA	119	30-130		6/14/24 20:43
D3-NMeFOSA	63.4	15-130		6/14/24 20:43
D5-NEtFOSA	48.2	10-130		6/14/24 20:43
D3-NMeFOSAA	85.9	45-200		6/14/24 20:43
D5-NEtFOSAA	108	10-200		6/14/24 20:43
D7-NMeFOSE	17.6	10-150		6/14/24 20:43
D9-NEtFOSE	45.2	10-150		6/14/24 20:43
13C3-HFPO-DA	91.8	25-160		6/14/24 20:43

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24F0418-01 [PCD CLASSIFIER 2 060424]	B376821	0.584	5.00	06/12/24
24F0418-03 [PCD CLASSIFIER 2 060424 - WET WEIGHT]	B376821	0.584	5.00	06/12/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24F0418-02 [FIELD BLANK WATER 060424]	B376589	532	5.00	06/12/24

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

Lab Number [Field ID]	Batch	Date
24F0418-01 [PCD CLASSIFIER 2 060424]	B376642	06/07/24

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376589 - Draft Method 1633										
Blank (B376589-BLK1)				Prepared: 06/12/24 Analyzed: 06/13/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*91.3*		ng/L	98.3		92.8	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376589 - Draft Method 1633										
Blank (B376589-BLK1)				Prepared: 06/12/24 Analyzed: 06/13/24						
Surrogate: 13C5-PFPeA	*46.3*		ng/L	49.2		94.2	35-150			
Surrogate: 13C5-PFHxA	*22.4*		ng/L	24.6		91.1	55-150			
Surrogate: 13C4-PFHpA	*22.2*		ng/L	24.6		90.2	55-150			
Surrogate: 13C8-PFOA	*20.9*		ng/L	24.6		85.2	60-140			
Surrogate: 13C9-PFNA	*11.1*		ng/L	12.3		90.4	55-140			
Surrogate: 13C6-PFDA	*11.0*		ng/L	12.3		89.3	50-140			
Surrogate: 13C7-PFUnA	*10.2*		ng/L	12.3		82.9	30-140			
Surrogate: 13C2-PFDoA	*9.39*		ng/L	12.3		76.4	10-150			
Surrogate: 13C2-PFTeDA	*9.03*		ng/L	12.3		73.5	10-130			
Surrogate: 13C3-PFBS	*23.9*		ng/L	24.6		97.2	55-150			
Surrogate: 13C3-PFHxS	*22.7*		ng/L	24.6		92.3	55-150			
Surrogate: 13C8-PFOS	*20.9*		ng/L	24.6		85.2	45-140			
Surrogate: 13C2-4:2FTS	*40.8*		ng/L	49.2		83.0	60-200			
Surrogate: 13C2-6:2FTS	*41.6*		ng/L	49.2		84.6	60-200			
Surrogate: 13C2-8:2FTS	*41.1*		ng/L	49.2		83.7	50-200			
Surrogate: 13C8-PFOSA	*20.0*		ng/L	24.6		81.3	30-130			
Surrogate: D3-NMeFOSA	*16.9*		ng/L	24.6		68.8	15-130			
Surrogate: D5-NEtFOSA	*17.6*		ng/L	24.6		71.6	10-130			
Surrogate: D3-NMeFOSAA	*39.7*		ng/L	49.2		80.9	45-200			
Surrogate: D5-NEtFOSAA	*38.1*		ng/L	49.2		77.6	10-200			
Surrogate: D7-NMeFOSE	*183*		ng/L	246		74.3	10-150			
Surrogate: D9-NEtFOSE	*183*		ng/L	246		74.3	10-150			
Surrogate: 13C3-HFPO-DA	*88.3*		ng/L	98.3		89.8	25-160			
LCS (B376589-BS1)				Prepared: 06/12/24 Analyzed: 06/13/24						
Perfluorobutanoic acid (PFBA)	94.0	3.9	ng/L	94.6		99.4	58-148			
Perfluoropentanoic acid (PFPeA)	47.6	2.0	ng/L	47.3		101	54-152			
Perfluorohexanoic acid (PFHxA)	23.6	0.99	ng/L	23.7		99.6	55-152			
Perfluoroheptanoic acid (PFHpA)	23.5	0.99	ng/L	23.7		99.3	54-154			
Perfluorooctanoic acid (PFOA)	23.2	0.99	ng/L	23.7		98.3	52-161			
Perfluorononanoic acid (PFNA)	23.5	0.99	ng/L	23.7		99.2	59-149			
Perfluorodecanoic acid (PFDA)	23.5	0.99	ng/L	23.7		99.6	52-147			
Perfluoroundecanoic acid (PFUnA)	23.6	0.99	ng/L	23.7		99.7	48-159			
Perfluorododecanoic acid (PFDoA)	24.5	0.99	ng/L	23.7		104	64-142			
Perfluorotridecanoic acid (PFTrDA)	23.1	0.99	ng/L	23.7		97.8	49-148			
Perfluorotetradecanoic acid (PFTeDA)	24.5	0.99	ng/L	23.7		103	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.1	0.99	ng/L	21.0		101	62-144			
Perfluoropentanesulfonic acid (PFPeS)	22.3	0.99	ng/L	22.2		100	59-151			
Perfluorohexanesulfonic acid (PFHxS)	21.1	0.99	ng/L	21.6		97.6	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.9	0.99	ng/L	22.5		102	55-152			
Perfluorooctanesulfonic acid (PFOS)	21.2	0.99	ng/L	21.9		96.8	58-149			
Perfluorononanesulfonic acid (PFNS)	22.4	0.99	ng/L	22.8		98.4	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.6	0.99	ng/L	22.8		90.1	51-147			
Perfluorododecanesulfonic acid (PFDoS)	21.1	0.99	ng/L	22.9		92.0	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	88.9	3.9	ng/L	88.7		100	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	89.2	3.9	ng/L	89.9		99.3	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	93.2	3.9	ng/L	91.1		102	63-152			
Perfluorooctanesulfonamide (PFOSA)	22.7	0.99	ng/L	23.7		95.8	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	24.1	0.99	ng/L	23.7		102	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376589 - Draft Method 1633										
LCS (B376589-BS1)				Prepared: 06/12/24 Analyzed: 06/13/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	24.4	0.99	ng/L	23.7		103	65-139			
N-MeFOSAA (NMeFOSAA)	23.5	0.99	ng/L	23.7		99.2	58-144			
N-EtFOSAA (NEtFOSAA)	23.8	0.99	ng/L	23.7		101	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	253	9.9	ng/L	237		107	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	247	9.9	ng/L	237		105	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	88.2	3.9	ng/L	94.6		93.2	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	85.3	3.9	ng/L	89.3		95.6	68-146			
9Cl-PF3ONS (F53B Minor)	85.2	3.9	ng/L	88.7		96.0	56-156			
11Cl-PF3OUdS (F53B Major)	78.2	3.9	ng/L	89.3		87.6	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	256	9.9	ng/L	237		108	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1210	49	ng/L	1180		102	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1110	49	ng/L	1180		93.9	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	41.6	2.0	ng/L	42.1		98.7	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	45.7	2.0	ng/L	47.3		96.7	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	47.1	2.0	ng/L	47.3		99.5	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	54.5	2.0	ng/L	47.3		115	48-161			
Surrogate: 13C4-PFBA	*83.6*		ng/L	98.5		84.8	10-130			
Surrogate: 13C5-PFPeA	*43.5*		ng/L	49.3		88.3	35-150			
Surrogate: 13C5-PFHxA	*21.4*		ng/L	24.6		86.8	55-150			
Surrogate: 13C4-PFHpA	*20.3*		ng/L	24.6		82.3	55-150			
Surrogate: 13C8-PFOA	*20.3*		ng/L	24.6		82.4	60-140			
Surrogate: 13C9-PFNA	*10.5*		ng/L	12.3		85.2	55-140			
Surrogate: 13C6-PFDA	*9.90*		ng/L	12.3		80.3	50-140			
Surrogate: 13C7-PFUnA	*9.47*		ng/L	12.3		76.9	30-140			
Surrogate: 13C2-PFDoA	*8.92*		ng/L	12.3		72.4	10-150			
Surrogate: 13C2-PFTeDA	*8.96*		ng/L	12.3		72.7	10-130			
Surrogate: 13C3-PFBS	*22.3*		ng/L	24.6		90.5	55-150			
Surrogate: 13C3-PFHxS	*20.8*		ng/L	24.6		84.5	55-150			
Surrogate: 13C8-PFOS	*20.8*		ng/L	24.6		84.6	45-140			
Surrogate: 13C2-4:2FTS	*41.0*		ng/L	49.3		83.2	60-200			
Surrogate: 13C2-6:2FTS	*42.1*		ng/L	49.3		85.4	60-200			
Surrogate: 13C2-8:2FTS	*41.2*		ng/L	49.3		83.6	50-200			
Surrogate: 13C8-PFOSA	*19.4*		ng/L	24.6		78.7	30-130			
Surrogate: D3-NMeFOSA	*16.7*		ng/L	24.6		67.9	15-130			
Surrogate: D5-NEtFOSA	*17.9*		ng/L	24.6		72.7	10-130			
Surrogate: D3-NMeFOSAA	*41.0*		ng/L	49.3		83.3	45-200			
Surrogate: D5-NEtFOSAA	*38.9*		ng/L	49.3		79.0	10-200			
Surrogate: D7-NMeFOSE	*174*		ng/L	246		70.8	10-150			
Surrogate: D9-NEtFOSE	*177*		ng/L	246		71.9	10-150			
Surrogate: 13C3-HFPO-DA	*85.6*		ng/L	98.5		86.9	25-160			
MRL Check (B376589-MRL1)				Prepared: 06/12/24 Analyzed: 06/13/24						
Perfluorobutanoic acid (PFBA)	8.02	3.9	ng/L	7.89		102	44-157			
Perfluoropentanoic acid (PFPeA)	3.82	2.0	ng/L	3.94		96.8	57-148			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376589 - Draft Method 1633										
MRL Check (B376589-MRL1)				Prepared: 06/12/24 Analyzed: 06/13/24						
Perfluorohexanoic acid (PFHxA)	1.86	0.99	ng/L	1.97		94.1	62-149			
Perfluoroheptanoic acid (PFHpA)	1.82	0.99	ng/L	1.97		92.2	56-150			
Perfluorooctanoic acid (PFOA)	2.00	0.99	ng/L	1.97		101	57-161			
Perfluorononanoic acid (PFNA)	1.74	0.99	ng/L	1.97		88.2	53-157			
Perfluorodecanoic acid (PFDA)	1.81	0.99	ng/L	1.97		91.8	43-158			
Perfluoroundecanoic acid (PFUnA)	1.58	0.99	ng/L	1.97		80.3	50-155			
Perfluorododecanoic acid (PFDoA)	1.89	0.99	ng/L	1.97		95.7	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.81	0.99	ng/L	1.97		91.7	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.90	0.99	ng/L	1.97		96.4	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.69	0.99	ng/L	1.75		96.5	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.72	0.99	ng/L	1.85		92.9	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.82	0.99	ng/L	1.80		101	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.91	0.99	ng/L	1.88		102	51-150			
Perfluorooctanesulfonic acid (PFOS)	2.04	0.99	ng/L	1.83		111	43-162			
Perfluorononanesulfonic acid (PFNS)	1.77	0.99	ng/L	1.90		93.3	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.74	0.99	ng/L	1.90		91.2	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.66	0.99	ng/L	1.91		87.0	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.08	3.9	ng/L	7.39		95.8	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.17	3.9	ng/L	7.49		95.8	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.80	3.9	ng/L	7.59		89.6	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.88	0.99	ng/L	1.97		95.5	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.92	0.99	ng/L	1.97		97.5	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.89	0.99	ng/L	1.97		95.7	49-156			
N-MeFOSAA (NMeFOSAA)	1.55	0.99	ng/L	1.97		78.6	32-160			
N-EtFOSAA (NEtFOSAA)	1.81	0.99	ng/L	1.97		91.7	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	18.6	9.9	ng/L	19.7		94.6	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	19.4	9.9	ng/L	19.7		98.6	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.59	3.9	ng/L	7.89		83.5	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.45	3.9	ng/L	7.44		86.7	61-148			
9Cl-PF3ONS (F53B Minor)	6.48	3.9	ng/L	7.39		87.6	44-167			
11Cl-PF3OUdS (F53B Major)	6.02	3.9	ng/L	7.44		80.9	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	17.6	9.9	ng/L	19.7		89.5	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	84.0	49	ng/L	98.6		85.2	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	77.9	49	ng/L	98.6		79.0	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.41	2.0	ng/L	3.51		97.1	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.61	2.0	ng/L	3.94		91.5	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.53	2.0	ng/L	3.94		89.5	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.33	2.0	ng/L	3.94		110	47-160			
Surrogate: 13C4-PFBA	*84.6*		ng/L	98.6		85.9	10-130			
Surrogate: 13C5-PFPeA	*44.7*		ng/L	49.3		90.7	35-150			
Surrogate: 13C5-PFHxA	*20.8*		ng/L	24.6		84.5	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376589 - Draft Method 1633										
MRL Check (B376589-MRL1)				Prepared: 06/12/24 Analyzed: 06/13/24						
Surrogate: 13C4-PFHpA	*21.0*		ng/L	24.6		85.1	55-150			
Surrogate: 13C8-PFOA	*20.0*		ng/L	24.6		81.2	60-140			
Surrogate: 13C9-PFNA	*10.8*		ng/L	12.3		87.7	55-140			
Surrogate: 13C6-PFDA	*10.3*		ng/L	12.3		83.2	50-140			
Surrogate: 13C7-PFUnA	*10.7*		ng/L	12.3		87.0	30-140			
Surrogate: 13C2-PFDoA	*9.45*		ng/L	12.3		76.7	10-150			
Surrogate: 13C2-PFTeDA	*9.71*		ng/L	12.3		78.8	10-130			
Surrogate: 13C3-PFBS	*22.5*		ng/L	24.6		91.4	55-150			
Surrogate: 13C3-PFHxS	*20.6*		ng/L	24.6		83.6	55-150			
Surrogate: 13C8-PFOS	*20.5*		ng/L	24.6		83.1	45-140			
Surrogate: 13C2-4:2FTS	*39.6*		ng/L	49.3		80.3	60-200			
Surrogate: 13C2-6:2FTS	*39.8*		ng/L	49.3		80.9	60-200			
Surrogate: 13C2-8:2FTS	*37.9*		ng/L	49.3		77.0	50-200			
Surrogate: 13C8-PFOSA	*18.8*		ng/L	24.6		76.3	30-130			
Surrogate: D3-NMeFOSA	*15.9*		ng/L	24.6		64.4	15-130			
Surrogate: D5-NEtFOSA	*16.8*		ng/L	24.6		68.3	10-130			
Surrogate: D3-NMeFOSAA	*40.1*		ng/L	49.3		81.4	45-200			
Surrogate: D5-NEtFOSAA	*39.2*		ng/L	49.3		79.6	10-200			
Surrogate: D7-NMeFOSE	*174*		ng/L	246		70.6	10-150			
Surrogate: D9-NEtFOSE	*173*		ng/L	246		70.2	10-150			
Surrogate: 13C3-HFPO-DA	*84.9*		ng/L	98.6		86.2	25-160			
Batch B376821 - Draft Method 1633										
Blank (B376821-BLK1)				Prepared: 06/12/24 Analyzed: 06/14/24						
Perfluorobutanoic acid (PFBA)	ND	8.0	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	4.0	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	2.0	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	2.0	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	2.0	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	2.0	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	2.0	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	2.0	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	2.0	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	2.0	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	2.0	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	2.0	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	2.0	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	8.0	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	8.0	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	8.0	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	2.0	µg/kg wet							
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	2.0	µg/kg wet							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376821 - Draft Method 1633										
Blank (B376821-BLK1)				Prepared: 06/12/24 Analyzed: 06/14/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	2.0	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	2.0	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	2.0	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	20	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	20	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	8.0	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	8.0	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	8.0	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	8.0	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	20	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	100	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	100	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	4.0	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	4.0	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	4.0	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.0	µg/kg wet							
Surrogate: 13C4-PFBA	*86.3*		µg/kg wet	99.8		86.5	10-130			
Surrogate: 13C5-PFPeA	*52.2*		µg/kg wet	49.9		105	35-150			
Surrogate: 13C5-PFHxA	*21.1*		µg/kg wet	25.0		84.5	55-150			
Surrogate: 13C4-PFHpA	*19.4*		µg/kg wet	25.0		77.9	55-150			
Surrogate: 13C8-PFOA	*20.2*		µg/kg wet	25.0		81.0	60-140			
Surrogate: 13C9-PFNA	*10.3*		µg/kg wet	12.5		82.9	55-140			
Surrogate: 13C6-PFDA	*10.6*		µg/kg wet	12.5		85.2	50-140			
Surrogate: 13C7-PFUnA	*9.89*		µg/kg wet	12.5		79.3	30-140			
Surrogate: 13C2-PFDoA	*10.4*		µg/kg wet	12.5		83.5	10-150			
Surrogate: 13C2-PFTeDA	*8.32*		µg/kg wet	12.5		66.7	10-130			
Surrogate: 13C3-PFBS	*22.4*		µg/kg wet	25.0		89.7	55-150			
Surrogate: 13C3-PFHxS	*21.4*		µg/kg wet	25.0		85.9	55-150			
Surrogate: 13C8-PFOS	*22.1*		µg/kg wet	25.0		88.7	45-150			
Surrogate: 13C2-4:2FTS	*42.2*		µg/kg wet	49.9		84.5	60-200			
Surrogate: 13C2-6:2FTS	*39.7*		µg/kg wet	49.9		79.6	60-200			
Surrogate: 13C2-8:2FTS	*36.3*		µg/kg wet	49.9		72.8	50-200			
Surrogate: 13C8-PFOSA	*21.9*		µg/kg wet	25.0		87.8	30-130			
Surrogate: D3-NMeFOSA	*16.7*		µg/kg wet	25.0		66.9	15-130			
Surrogate: D5-NEtFOSA	*17.2*		µg/kg wet	25.0		69.1	10-130			
Surrogate: D3-NMeFOSAA	*42.1*		µg/kg wet	49.9		84.5	45-200			
Surrogate: D5-NEtFOSAA	*44.5*		µg/kg wet	49.9		89.1	10-200			
Surrogate: D7-NMeFOSE	*203*		µg/kg wet	250		81.5	10-150			
Surrogate: D9-NEtFOSE	*205*		µg/kg wet	250		82.3	10-150			
Surrogate: 13C3-HFPO-DA	*77.0*		µg/kg wet	99.8		77.2	25-160			
LCS (B376821-BS1)				Prepared: 06/12/24 Analyzed: 06/14/24						
Perfluorobutanoic acid (PFBA)	85.9	7.6	µg/kg wet	91.8		93.6	58-148			
Perfluoropentanoic acid (PFPeA)	42.7	3.8	µg/kg wet	45.9		93.0	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376821 - Draft Method 1633										
LCS (B376821-BS1)				Prepared: 06/12/24 Analyzed: 06/14/24						
Perfluorohexanoic acid (PFHxA)	21.2	1.9	µg/kg wet	22.9		92.4	55-152			
Perfluoroheptanoic acid (PFHpA)	21.8	1.9	µg/kg wet	22.9		95.0	54-154			
Perfluorooctanoic acid (PFOA)	20.3	1.9	µg/kg wet	22.9		88.4	52-161			
Perfluorononanoic acid (PFNA)	21.2	1.9	µg/kg wet	22.9		92.3	59-149			
Perfluorodecanoic acid (PFDA)	22.2	1.9	µg/kg wet	22.9		96.7	52-147			
Perfluoroundecanoic acid (PFUnA)	21.4	1.9	µg/kg wet	22.9		93.2	48-159			
Perfluorododecanoic acid (PFDoA)	22.3	1.9	µg/kg wet	22.9		97.2	64-142			
Perfluorotridecanoic acid (PFTrDA)	17.8	1.9	µg/kg wet	22.9		77.6	49-148			
Perfluorotetradecanoic acid (PFTeDA)	22.0	1.9	µg/kg wet	22.9		95.9	47-161			
Perfluorobutanesulfonic acid (PFBS)	19.2	1.9	µg/kg wet	20.4		94.4	62-144			
Perfluoropentanesulfonic acid (PFPeS)	20.7	1.9	µg/kg wet	21.6		95.9	59-151			
Perfluorohexanesulfonic acid (PFHxS)	19.5	1.9	µg/kg wet	21.0		93.1	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	22.3	1.9	µg/kg wet	21.9		102	55-152			
Perfluorooctanesulfonic acid (PFOS)	20.6	1.9	µg/kg wet	21.3		97.0	58-149			
Perfluorononanesulfonic acid (PFNS)	22.2	1.9	µg/kg wet	22.1		100	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.3	1.9	µg/kg wet	22.1		91.8	51-147			
Perfluorododecanesulfonic acid (PFDoS)	20.7	1.9	µg/kg wet	22.3		93.0	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	79.5	7.6	µg/kg wet	86.0		92.4	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	80.8	7.6	µg/kg wet	87.2		92.6	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	78.4	7.6	µg/kg wet	88.3		88.8	63-152			
Perfluorooctanesulfonamide (PFOSA)	21.0	1.9	µg/kg wet	22.9		91.5	61-148			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	22.2	1.9	µg/kg wet	22.9		96.6	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	21.7	1.9	µg/kg wet	22.9		94.7	65-139			
N-MeFOSAA (NMeFOSAA)	20.7	1.9	µg/kg wet	22.9		90.0	58-144			
N-EtFOSAA (NEtFOSAA)	20.0	1.9	µg/kg wet	22.9		87.2	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	220	19	µg/kg wet	229		96.1	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	225	19	µg/kg wet	229		98.2	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	78.4	7.6	µg/kg wet	91.8		85.4	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	84.2	7.6	µg/kg wet	86.6		97.2	68-146			
9Cl-PF3ONS (F53B Minor)	84.4	7.6	µg/kg wet	86.0		98.1	56-156			
11Cl-PF3OUdS (F53B Major)	78.2	7.6	µg/kg wet	86.6		90.3	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	149	19	µg/kg wet	229		65.1	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	946	96	µg/kg wet	1150		82.4	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	955	96	µg/kg wet	1150		83.2	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	34.2	3.8	µg/kg wet	40.8		83.8	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	34.0	3.8	µg/kg wet	45.9		74.1	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	32.0	3.8	µg/kg wet	45.9		69.6	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	38.4	3.8	µg/kg wet	45.9		83.7	48-161			
Surrogate: 13C4-PFBA	*81.6*		µg/kg wet	95.6		85.3	10-130			
Surrogate: 13C5-PFPeA	*51.1*		µg/kg wet	47.8		107	35-150			
Surrogate: 13C5-PFHxA	*21.2*		µg/kg wet	23.9		88.8	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376821 - Draft Method 1633										
LCS (B376821-BS1)				Prepared: 06/12/24 Analyzed: 06/14/24						
Surrogate: 13C4-PFHpA	*19.1*		µg/kg wet	23.9		80.1	55-150			
Surrogate: 13C8-PFOA	*20.4*		µg/kg wet	23.9		85.2	60-140			
Surrogate: 13C9-PFNA	*10.4*		µg/kg wet	12.0		87.0	55-140			
Surrogate: 13C6-PFDA	*9.97*		µg/kg wet	12.0		83.4	50-140			
Surrogate: 13C7-PFUnA	*9.36*		µg/kg wet	12.0		78.3	30-140			
Surrogate: 13C2-PFDoA	*9.79*		µg/kg wet	12.0		82.0	10-150			
Surrogate: 13C2-PFTeDA	*8.05*		µg/kg wet	12.0		67.4	10-130			
Surrogate: 13C3-PFBS	*22.0*		µg/kg wet	23.9		92.2	55-150			
Surrogate: 13C3-PFHxS	*20.4*		µg/kg wet	23.9		85.4	55-150			
Surrogate: 13C8-PFOS	*18.7*		µg/kg wet	23.9		78.0	45-150			
Surrogate: 13C2-4:2FTS	*42.1*		µg/kg wet	47.8		88.2	60-200			
Surrogate: 13C2-6:2FTS	*41.8*		µg/kg wet	47.8		87.5	60-200			
Surrogate: 13C2-8:2FTS	*40.7*		µg/kg wet	47.8		85.2	50-200			
Surrogate: 13C8-PFOSA	*20.1*		µg/kg wet	23.9		83.9	30-130			
Surrogate: D3-NMeFOSA	*16.5*		µg/kg wet	23.9		69.2	15-130			
Surrogate: D5-NEtFOSA	*17.4*		µg/kg wet	23.9		72.9	10-130			
Surrogate: D3-NMeFOSAA	*39.5*		µg/kg wet	47.8		82.7	45-200			
Surrogate: D5-NEtFOSAA	*38.7*		µg/kg wet	47.8		81.0	10-200			
Surrogate: D7-NMeFOSE	*186*		µg/kg wet	239		77.8	10-150			
Surrogate: D9-NEtFOSE	*187*		µg/kg wet	239		78.1	10-150			
Surrogate: 13C3-HFPO-DA	*72.7*		µg/kg wet	95.6		76.1	25-160			
MRL Check (B376821-MRL1)				Prepared: 06/12/24 Analyzed: 06/14/24						
Perfluorobutanoic acid (PFBA)	5.99	6.7	µg/kg wet	6.75		88.8	44-157			J
Perfluoropentanoic acid (PFPeA)	2.70	3.4	µg/kg wet	3.37		80.2	57-148			J
Perfluorohexanoic acid (PFHxA)	1.45	1.7	µg/kg wet	1.69		85.8	62-149			J
Perfluoroheptanoic acid (PFHpA)	1.31	1.7	µg/kg wet	1.69		77.5	56-150			J
Perfluorooctanoic acid (PFOA)	1.66	1.7	µg/kg wet	1.69		98.6	57-161			J
Perfluorononanoic acid (PFNA)	1.26	1.7	µg/kg wet	1.69		74.5	53-157			J
Perfluorodecanoic acid (PFDA)	1.38	1.7	µg/kg wet	1.69		81.8	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.38	1.7	µg/kg wet	1.69		81.9	50-155			J
Perfluorododecanoic acid (PFDoA)	1.29	1.7	µg/kg wet	1.69		76.8	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.08	1.7	µg/kg wet	1.69		64.1	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.33	1.7	µg/kg wet	1.69		78.7	52-156			J
Perfluorobutanesulfonic acid (PFBS)	1.20	1.7	µg/kg wet	1.50		80.4	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.24	1.7	µg/kg wet	1.59		78.0	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.29	1.7	µg/kg wet	1.54		83.6	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.51	1.7	µg/kg wet	1.61		93.7	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.36	1.7	µg/kg wet	1.56		86.7	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.41	1.7	µg/kg wet	1.62		87.1	46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.25	1.7	µg/kg wet	1.63		76.9	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.29	1.7	µg/kg wet	1.64		78.8	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	4.99	6.7	µg/kg wet	6.32		78.9	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	5.06	6.7	µg/kg wet	6.41		78.9	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	5.68	6.7	µg/kg wet	6.49		87.4	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.35	1.7	µg/kg wet	1.69		79.9	47-163			J
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.45	1.7	µg/kg wet	1.69		86.3	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.31	1.7	µg/kg wet	1.69		77.9	49-156			J
N-MeFOSAA (NMeFOSAA)	1.48	1.7	µg/kg wet	1.69		87.6	32-160			J

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B376821 - Draft Method 1633										
MRL Check (B376821-MRL1)				Prepared: 06/12/24 Analyzed: 06/14/24						
N-EtFOSAA (NEtFOSAA)	1.35	1.7	µg/kg wet	1.69		79.8	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	13.6	17	µg/kg wet	16.9		80.7	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	13.4	17	µg/kg wet	16.9		79.2	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.42	6.7	µg/kg wet	6.75		80.3	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.78	6.7	µg/kg wet	6.37		90.8	61-148			J
9Cl-PF3ONS (F53B Minor)	5.83	6.7	µg/kg wet	6.32		92.2	44-167			J
11Cl-PF3OUdS (F53B Major)	5.10	6.7	µg/kg wet	6.37		80.1	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	11.1	17	µg/kg wet	16.9		65.9	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	66.0	84	µg/kg wet	84.3		78.3	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	66.3	84	µg/kg wet	84.3		78.6	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.40	3.4	µg/kg wet	3.00		80.1	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.44	3.4	µg/kg wet	3.37		72.3	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.33	3.4	µg/kg wet	3.37		69.0	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.03	3.4	µg/kg wet	3.37		89.9	47-160			J
Surrogate: 13C4-PFBA	*80.3*		µg/kg wet	84.3		95.2	10-130			
Surrogate: 13C5-PFPeA	*48.4*		µg/kg wet	42.2		115	35-150			
Surrogate: 13C5-PFHxA	*20.1*		µg/kg wet	21.1		95.4	55-150			
Surrogate: 13C4-PFHpA	*18.9*		µg/kg wet	21.1		89.6	55-150			
Surrogate: 13C8-PFOA	*18.8*		µg/kg wet	21.1		89.3	60-140			
Surrogate: 13C9-PFNA	*9.99*		µg/kg wet	10.5		94.8	55-140			
Surrogate: 13C6-PFDA	*10.0*		µg/kg wet	10.5		94.8	50-140			
Surrogate: 13C7-PFUnA	*9.23*		µg/kg wet	10.5		87.6	30-140			
Surrogate: 13C2-PFDoA	*9.94*		µg/kg wet	10.5		94.3	10-150			
Surrogate: 13C2-PFTeDA	*7.67*		µg/kg wet	10.5		72.8	10-130			
Surrogate: 13C3-PFBS	*21.9*		µg/kg wet	21.1		104	55-150			
Surrogate: 13C3-PFHxS	*20.8*		µg/kg wet	21.1		98.6	55-150			
Surrogate: 13C8-PFOS	*19.4*		µg/kg wet	21.1		92.2	45-150			
Surrogate: 13C2-4:2FTS	*41.1*		µg/kg wet	42.2		97.4	60-200			
Surrogate: 13C2-6:2FTS	*39.0*		µg/kg wet	42.2		92.6	60-200			
Surrogate: 13C2-8:2FTS	*37.3*		µg/kg wet	42.2		88.5	50-200			
Surrogate: 13C8-PFOSA	*19.8*		µg/kg wet	21.1		93.9	30-130			
Surrogate: D3-NMeFOSA	*15.7*		µg/kg wet	21.1		74.7	15-130			
Surrogate: D5-NEtFOSA	*16.2*		µg/kg wet	21.1		76.6	10-130			
Surrogate: D3-NMeFOSAA	*38.3*		µg/kg wet	42.2		90.9	45-200			
Surrogate: D5-NEtFOSAA	*40.0*		µg/kg wet	42.2		94.9	10-200			
Surrogate: D7-NMeFOSE	*189*		µg/kg wet	211		89.5	10-150			
Surrogate: D9-NEtFOSE	*184*		µg/kg wet	211		87.2	10-150			
Surrogate: 13C3-HFPO-DA	*70.8*		µg/kg wet	84.3		84.0	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

24F0418 MF

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☒ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☒ Yes ☐ No

Workorder: 40279167 **Workorder Name:** PFAS/1633 **Owner Received Date:** 6/4/2024 **Results Requested By:** 7/2/2024

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Other	1663 PFAS	LAB USE ONLY
1	PCD CLASSIFIER 2 060424	PS	6/4/2024 09:42	40279167001	Solid	1	X	
2	FIELD BLANK WATER 060424	PS	6/4/2024 09:42	40279167002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1			[signature]	6/5/24
2				
3				

Comments: Need dry weight and wet weight reporting

Cooler Temperature on Receipt 2.8 °C | **Custody Seal** (Y) or N | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

FedEx

FedEx® Tracking

DELIVERED

Wednesday

6/5/24 at 9:59 AM

Signed for by: A.MULINARE

Obtain proof of delivery

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

806121416733

FROM
SCHAUMBURG, IL US

Label Created
6/4/24 8:13 PM

SCHAUMBURG, IL
6/4/24 8:13 PM

ON THE WAY
WINDSOR LOCKS, CT
6/5/24 7:19 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
6/5/24 7:36 AM

DELIVERED
EAST LONGMEADOW, MA US

Delivered
6/5/24 at 9:59 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

YOUR EMAIL

SUBMIT

MORE OPTIONS

Pace ANALYTICAL SERVICES

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Log In Back-Sheet

Client Duke

Project PFAS/1633

MCP/RCP Required NP

Deliverable Package Requirement NA

Location PFAS/1633

PWSID# (When Applicable) NA

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time LA 6/5/24 959

Back-Sheet By / Date / Time LA 6/5/24 1644

Temperature Method GM # 6

Temp ☑ 6° C Actual Temperature 2-6

Rush Samples: Yes (No) Notify

Short Hold: Yes / (No) Notify

Notes regarding Samples/COC outside of SOP:

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

	True	False
Received on Ice	☑	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☑
COC Relinquished	☑	☐
COC/Samples Labels Agree	☑	☐
All Samples in Good Condition	☑	☐
Samples Received within Holding Time	☑	☐
Is there enough Volume	☑	☐
Proper Media/Container Used	☑	☐
Splitting Samples Required	☐	☑
MS, MSD	☐	☑
Trip Blanks	☐	☑
Lab to Filters	☐	☑
COC Legible	☑	☐
COC Included (Check all Applicable)		
Client ☑ Analysis ☑		Sampler Name ☐
Project ☑ IDs ☑		Collection Date/Time ☑
All Samples Proper pH (N/A)	☐	☐

Additional Container Notes

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

DC#_Title: ENV-FRM-ELON-0001 v07_Sample Receiving Checklist

Effective Date: 07/13/2023

Sample			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16oz Amb/Clear	Soils Jars (Circle Amb/Clear)																					
8oz Amb/Clear																						
4oz Amb/Clear																						
2oz Amb/Clear																						
Unpreserved	Ambers	1 Liter																				
HCL																						
Sulfuric																						
Sulfuric		250mL																				
Phosphoric																						
HCl																						
Unpreserved		100mL																				
Unpreserved	Plastics	1 Liter																				
Sulfuric																						
Unpreserved		500mL		2																		
Sulfuric																						
Unpreserved		250mL																				
Trizma																						
Sulfuric																						
Nitric																						
NaOH																						
Ammonium Acetate																						
NaOH/Zinc																						
Unpreserved	VOA Vials																					
HCl																						
MeOH																						
D.I. Water																						
BiSulfate																						
Col/Bact	Other / Fill in																					
- OTR			-																			

Qualtrax ID: 120836

CDPHE PFAS SAMPLING

JULY 02, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40280567

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

August 8, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS 1633 Monthly July
Pace Project No.: 40280567

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on July 02, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS 1633 Monthly July
Pace Project No.: 40280567

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40280567001	**PCD 070224 CLASSIFIER 3**	Solid	07/02/24 08:00	07/02/24 10:20
40280567002	**FIELD BLANK**	Water	07/02/24 08:00	07/02/24 10:20

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4028056 7

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

Page: 1 of 1

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information	REGULATORY AGENCY
Veolia North America	Report To Same	Attention Veolia Support Services North	_ NPDES _GROUND WATER _DRINKING WATER
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North	_UST _RCRA OTHER X
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214	
Email To cletus keiter@veolia com	Purchase Order No: PO 1000361834	Pace Quote Reference na	SITE LOCATION _GA X IL _IN _MI _NC _OH _SC _WI OTHER__
Phone 708 652 0575 Fax N/A	Project Name: PFAS/1633	Pace Project Manager Cindy Varga	
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083	Filtered (Y/N) N

Section D Required Client Information — SAMPLE ID, One Character per box (A-Z, 0-9 / ,-), Samples IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	# OF CONTAINERS	Unpreserved	Analysis: 1633 PFAS	Residual Chlorine	Pace Project Number Lab I D
1	PCD 070224 Classifier 3	SL	G	7-2-24	8:00Am			1		X		001
2	Field Blank BlANK WATER	W	G	7-2-24	8:00Am			1				
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

WO#: 40280567

40280567

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
[signature]	7-2-24	10:1	[signature]	7/2/24	1020		Y/N	Y/N	Y/N
[signature]	7/2/24	1700	CS Logistics	7/2/24	1900		Y/N	Y/N	Y/N
CS Logistics	7/3/24	0945	[signature] Pace	7/3/24	0945	2.0	Y	Y	Y
							Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jon Gibson

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 7/02/24

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July 25, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS 1633 Monthly
Client Job Number:
Project Number: 40280567
Laboratory Work Order Number: 24G0744

Enclosed are results of analyses for samples as received by the laboratory on July 3, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 7/25/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40280567

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24G0744

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

PROJECT LOCATION: PFAS 1633 Monthly

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD 070224 CLASSIFIER 3	24G0744-01	Biosolids		Draft Method 1633	
				SM 2540G	
FIELD BLANK	24G0744-02	Field Blank		Draft Method 1633	
PCD 070224 CLASSIFIER 3 - WET WEIGHT	24G0744-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

PF-17

Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.

Analyte & Samples(s) Qualified:

D7-NMeFOSE
S107997-CCB2

D9-NEtFOSE
S107997-CCB2

N-ethylperfluorooctanesulfonamidoethanol (NEtFO
S107997-CCB2

N-methylperfluorooctanesulfonamidoethanol(NMeF
S107997-CCB2

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoropentanoic acid (PFPeA)
24G0744-01RE1[PCD 070224 CLASSIFIER 3], 24G0744-03[PCD 070224 CLASSIFIER 3 - WET WEIGHT]

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

D7-NMeFOSE
S107997-CCV2, S107997-CCV3

D9-NEtFOSE
S107997-CCV2, S107997-CCV3

N-ethylperfluorooctanesulfonamidoethanol (NEtFO
S107997-CCV2, S107997-CCV3

N-methylperfluorooctanesulfonamidoethanol(NMeF
S107997-CCV2, S107997-CCV3

V-20

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

Analyte & Samples(s) Qualified:

11Cl-PF3OUdS (F53B Major)
S107997-CCV2, S107997-CCV3

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

con-test®
A Pace Analytical® Laboratory

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

Project Location: PFAS 1633 Monthly
Sample Description:
Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: PCD 070224 CLASSIFIER 3
Sampled: 7/2/2024 08:00

Sample ID: 24G0744-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.9	2.8	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoropentanoic acid (PFPeA)	3.2	3.4	0.39	µg/kg dry	1	PF-23, J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorohexanoic acid (PFHxA)	1.1	1.7	0.28	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.12	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorooctanoic acid (PFOA)	0.58	1.7	0.27	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorononanoic acid (PFNA)	ND	1.7	0.12	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorodecanoic acid (PFDA)	1.1	1.7	0.15	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoroundecanoic acid (PFUnA)	0.65	1.7	0.20	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorododecanoic acid (PFDoA)	1.3	1.7	0.19	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorotridecanoic acid (PFTrDA)	0.35	1.7	0.19	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.42	1.7	0.17	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.18	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	0.22	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.67	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.18	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorooctanesulfonic acid (PFOS)	6.5	1.7	0.27	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.19	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorodecanesulfonic acid (PFDS)	0.99	1.7	0.27	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.7	0.26	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.9	0.60	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.9	4.3	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.9	0.80	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluorooctanesulfonamide (PFOSA)	0.43	1.7	0.27	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.7	0.21	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.7	0.20	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
N-MeFOSAA (NMeFOSAA)	2.0	1.7	0.31	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
N-EtFOSAA (NEtFOSAA)	1.6	1.7	0.25	µg/kg dry	1	J	Draft Method 1633	7/23/24	7/25/24 5:31	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	17	1.9	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	17	1.8	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.9	0.44	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.9	0.51	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.9	0.50	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.9	0.76	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	17	1.6	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	86	12	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	86	13	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.4	0.27	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.4	0.28	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS

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Project Location: PFAS 1633 Monthly | Sample Description: | Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: PCD 070224 CLASSIFIER 3 | Sampled: 7/2/2024 08:00

Sample ID: 24G0744-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.4	0.28	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.4	0.52	µg/kg dry	1		Draft Method 1633	7/23/24	7/25/24 5:31	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	48.2	10-130		7/25/24 5:31
13C5-PFPeA	72.7	35-150		7/25/24 5:31
13C5-PFHxA	74.6	55-150		7/25/24 5:31
13C4-PFHpA	81.0	55-150		7/25/24 5:31
13C8-PFOA	74.1	60-140		7/25/24 5:31
13C9-PFNA	74.5	55-140		7/25/24 5:31
13C6-PFDA	80.3	50-140		7/25/24 5:31
13C7-PFUnA	65.7	30-140		7/25/24 5:31
13C2-PFDoA	76.5	10-150		7/25/24 5:31
13C2-PFTeDA	75.0	10-130		7/25/24 5:31
13C3-PFBS	80.9	55-150		7/25/24 5:31
13C3-PFHxS	78.8	55-150		7/25/24 5:31
13C8-PFOS	75.5	45-150		7/25/24 5:31
13C2-4:2FTS	120	60-200		7/25/24 5:31
13C2-6:2FTS	134	60-200		7/25/24 5:31
13C2-8:2FTS	144	50-200		7/25/24 5:31
13C8-PFOSA	81.2	30-130		7/25/24 5:31
D3-NMeFOSA	19.2	15-130		7/25/24 5:31
D5-NEtFOSA	14.2	10-130		7/25/24 5:31
D3-NMeFOSAA	69.3	45-200		7/25/24 5:31
D5-NEtFOSAA	71.0	10-200		7/25/24 5:31
D7-NMeFOSE	13.9	10-150		7/25/24 5:31
D9-NEtFOSE	31.9	10-150		7/25/24 5:31
13C3-HFPO-DA	62.3	25-160		7/25/24 5:31

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Project Location: PFAS 1633 Monthly
Sample Description:
Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: PCD 070224 CLASSIFIER 3
Sampled: 7/2/2024 08:00

Sample ID: 24G0744-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	97.6		% Wt	1		SM 2540G	7/9/24	7/9/24 16:42	ZGS

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Project Location: PFAS 1633 Monthly
Sample Description:
Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: FIELD BLANK
Sampled: 7/2/2024 08:00

Sample ID: 24G0744-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.8	2.1	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.9	0.40	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.94	0.23	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.94	0.25	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorooctanoic acid (PFOA)	ND	0.94	0.25	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorononanoic acid (PFNA)	ND	0.94	0.18	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorodecanoic acid (PFDA)	ND	0.94	0.20	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.94	0.19	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.94	0.19	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.94	0.28	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.94	0.24	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.94	0.20	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.94	0.24	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.94	0.26	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.94	0.31	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.94	0.36	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.94	0.24	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.94	0.27	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.94	0.27	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.8	0.70	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.8	2.9	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.8	1.1	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.94	0.22	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.94	0.31	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.94	0.32	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.94	0.34	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.94	0.38	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.4	2.6	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.4	2.5	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	0.97	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	0.77	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.8	0.91	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.8	1.0	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.4	2.1	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	47	11	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	47	9.0	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.33	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	0.52	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS

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Project Location: PFAS 1633 Monthly | Sample Description: | Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: FIELD BLANK | Sampled: 7/2/2024 08:00

Sample ID: 24G0744-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	0.51	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.52	ng/L	1		Draft Method 1633	7/19/24	7/20/24 12:47	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	88.8	10-130		7/20/24 12:47
13C5-PFPeA	104	35-150		7/20/24 12:47
13C5-PFHxA	89.2	55-150		7/20/24 12:47
13C4-PFHpA	91.6	55-150		7/20/24 12:47
13C8-PFOA	88.4	60-140		7/20/24 12:47
13C9-PFNA	82.7	55-140		7/20/24 12:47
13C6-PFDA	80.3	50-140		7/20/24 12:47
13C7-PFUnA	81.8	30-140		7/20/24 12:47
13C2-PFDoA	79.8	10-150		7/20/24 12:47
13C2-PFTeDA	78.1	10-130		7/20/24 12:47
13C3-PFBS	94.0	55-150		7/20/24 12:47
13C3-PFHxS	88.7	55-150		7/20/24 12:47
13C8-PFOS	80.9	45-140		7/20/24 12:47
13C2-4:2FTS	83.6	60-200		7/20/24 12:47
13C2-6:2FTS	83.7	60-200		7/20/24 12:47
13C2-8:2FTS	78.5	50-200		7/20/24 12:47
13C8-PFOSA	78.0	30-130		7/20/24 12:47
D3-NMeFOSA	66.6	15-130		7/20/24 12:47
D5-NEtFOSA	69.7	10-130		7/20/24 12:47
D3-NMeFOSAA	78.4	45-200		7/20/24 12:47
D5-NEtFOSAA	79.5	10-200		7/20/24 12:47
D7-NMeFOSE	77.5	10-150		7/20/24 12:47
D9-NEtFOSE	78.9	10-150		7/20/24 12:47
13C3-HFPO-DA	81.1	25-160		7/20/24 12:47

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Project Location: PFAS 1633 Monthly | Sample Description: | Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: FIELD BLANK | Sampled: 7/2/2024 08:00

Sample ID: 24G0744-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	7/8/24	7/8/24 6:17	LL

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Project Location: PFAS 1633 Monthly Sample Description: Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: PCD 070224 CLASSIFIER 3 - WET WEIG Sampled: 7/2/2024 08:00

Sample ID: 24G0744-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.7	2.7	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoropentanoic acid (PFPeA)	3.2	3.4	0.38	µg/kg wet	1	PF-23, J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorohexanoic acid (PFHxA)	1.0	1.7	0.28	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.12	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorooctanoic acid (PFOA)	0.56	1.7	0.26	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorononanoic acid (PFNA)	ND	1.7	0.12	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorodecanoic acid (PFDA)	1.1	1.7	0.15	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoroundecanoic acid (PFUnA)	0.63	1.7	0.20	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorododecanoic acid (PFDoA)	1.3	1.7	0.18	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorotridecanoic acid (PFTrDA)	0.34	1.7	0.19	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.41	1.7	0.17	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.18	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	0.21	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.66	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.18	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorooctanesulfonic acid (PFOS)	6.4	1.7	0.27	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.19	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorodecanesulfonic acid (PFDS)	0.96	1.7	0.27	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.7	0.26	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.7	0.59	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.7	4.2	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.7	0.78	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluorooctanesulfonamide (PFOSA)	0.42	1.7	0.26	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.7	0.21	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.7	0.20	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
N-MeFOSAA (NMeFOSAA)	2.0	1.7	0.30	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
N-EtFOSAA (NEtFOSAA)	1.5	1.7	0.25	µg/kg wet	1	J	Draft Method 1633	7/16/24	7/25/24 5:31	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	17	1.8	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	17	1.8	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.7	0.43	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.7	0.50	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.7	0.48	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.7	0.74	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	17	1.6	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	84	11	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	84	13	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.4	0.26	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.4	0.27	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS

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Project Location: PFAS 1633 Monthly
Sample Description:
Work Order: 24G0744

Date Received: 7/3/2024

Field Sample #: PCD 070224 CLASSIFIER 3 - WET WEIG
Sampled: 7/2/2024 08:00

Sample ID: 24G0744-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.4	0.28	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.4	0.51	µg/kg wet	1		Draft Method 1633	7/16/24	7/25/24 5:31	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	48.2	10-130		7/25/24 5:31
13C5-PFPeA	72.7	35-150		7/25/24 5:31
13C5-PFHxA	74.6	55-150		7/25/24 5:31
13C4-PFHpA	81.0	55-150		7/25/24 5:31
13C8-PFOA	74.1	60-140		7/25/24 5:31
13C9-PFNA	74.5	55-140		7/25/24 5:31
13C6-PFDA	80.3	50-140		7/25/24 5:31
13C7-PFUnA	65.7	30-140		7/25/24 5:31
13C2-PFDoA	76.5	10-150		7/25/24 5:31
13C2-PFTeDA	75.0	10-130		7/25/24 5:31
13C3-PFBS	80.9	55-150		7/25/24 5:31
13C3-PFHxS	78.8	55-150		7/25/24 5:31
13C8-PFOS	75.5	45-150		7/25/24 5:31
13C2-4:2FTS	120	60-200		7/25/24 5:31
13C2-6:2FTS	134	60-200		7/25/24 5:31
13C2-8:2FTS	144	50-200		7/25/24 5:31
13C8-PFOSA	81.2	30-130		7/25/24 5:31
D3-NMeFOSA	19.2	15-130		7/25/24 5:31
D5-NEtFOSA	14.2	10-130		7/25/24 5:31
D3-NMeFOSAA	69.3	45-200		7/25/24 5:31
D5-NEtFOSAA	71.0	10-200		7/25/24 5:31
D7-NMeFOSE	13.9	10-150		7/25/24 5:31
D9-NEtFOSE	31.9	10-150		7/25/24 5:31
13C3-HFPO-DA	62.3	25-160		7/25/24 5:31

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24G0744-01RE1 [PCD 070224 CLASSIFIER 3]	B380245	0.597	5.00	07/23/24
24G0744-03 [PCD 070224 CLASSIFIER 3 - WET WEIGHT]	B380245	0.597	5.00	07/16/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24G0744-02 [FIELD BLANK]	B379356	50.0	07/08/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 7/8/2024 per NO PREP in Batch B379356**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24G0744-02 [FIELD BLANK]	B379524	530	5.00	07/19/24

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

Lab Number [Field ID]	Batch	Date
24G0744-01 [PCD 070224 CLASSIFIER 3]	B379139	07/09/24

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B379524 - Draft Method 1633										
Blank (B379524-BLK1)				Prepared: 07/19/24 Analyzed: 07/20/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	1.9	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.97	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.97	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.97	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.97	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.97	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.97	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.97	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.97	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.97	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.97	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.97	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.97	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.97	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.97	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.97	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.97	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.97	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.97	ng/L							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.97	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.97	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.97	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.97	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.7	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.7	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.7	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L							
Surrogate: 13C4-PFBA	*91.8*		ng/L	97.3		94.3	10-130			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B379524 - Draft Method 1633										
Blank (B379524-BLK1)				Prepared: 07/19/24 Analyzed: 07/20/24						
Surrogate: 13C5-PFPeA	*53.9*		ng/L	48.7		111	35-150			
Surrogate: 13C5-PFHxA	*22.9*		ng/L	24.3		93.9	55-150			
Surrogate: 13C4-PFHpA	*23.6*		ng/L	24.3		97.1	55-150			
Surrogate: 13C8-PFOA	*21.4*		ng/L	24.3		88.1	60-140			
Surrogate: 13C9-PFNA	*11.5*		ng/L	12.2		94.7	55-140			
Surrogate: 13C6-PFDA	*11.0*		ng/L	12.2		90.2	50-140			
Surrogate: 13C7-PFUnA	*10.1*		ng/L	12.2		82.9	30-140			
Surrogate: 13C2-PFDoA	*10.3*		ng/L	12.2		84.2	10-150			
Surrogate: 13C2-PFTeDA	*9.97*		ng/L	12.2		81.9	10-130			
Surrogate: 13C3-PFBS	*24.4*		ng/L	24.3		100	55-150			
Surrogate: 13C3-PFHxS	*23.3*		ng/L	24.3		95.9	55-150			
Surrogate: 13C8-PFOS	*21.7*		ng/L	24.3		89.3	45-140			
Surrogate: 13C2-4:2FTS	*44.0*		ng/L	48.7		90.5	60-200			
Surrogate: 13C2-6:2FTS	*44.2*		ng/L	48.7		90.9	60-200			
Surrogate: 13C2-8:2FTS	*39.0*		ng/L	48.7		80.2	50-200			
Surrogate: 13C8-PFOSA	*20.5*		ng/L	24.3		84.3	30-130			
Surrogate: D3-NMeFOSA	*13.2*		ng/L	24.3		54.0	15-130			
Surrogate: D5-NEtFOSA	*15.1*		ng/L	24.3		62.2	10-130			
Surrogate: D3-NMeFOSAA	*42.1*		ng/L	48.7		86.6	45-200			
Surrogate: D5-NEtFOSAA	*40.7*		ng/L	48.7		83.6	10-200			
Surrogate: D7-NMeFOSE	*186*		ng/L	243		76.3	10-150			
Surrogate: D9-NEtFOSE	*199*		ng/L	243		81.6	10-150			
Surrogate: 13C3-HFPO-DA	*89.4*		ng/L	97.3		91.8	25-160			
LCS (B379524-BS1)				Prepared: 07/19/24 Analyzed: 07/20/24						
Perfluorobutanoic acid (PFBA)	102	3.9	ng/L	93.6		109	58-148			
Perfluoropentanoic acid (PFPeA)	51.6	2.0	ng/L	46.8		110	54-152			
Perfluorohexanoic acid (PFHxA)	24.9	0.98	ng/L	23.4		106	55-152			
Perfluoroheptanoic acid (PFHpA)	23.6	0.98	ng/L	23.4		101	54-154			
Perfluorooctanoic acid (PFOA)	25.0	0.98	ng/L	23.4		107	52-161			
Perfluorononanoic acid (PFNA)	25.7	0.98	ng/L	23.4		110	59-149			
Perfluorodecanoic acid (PFDA)	24.8	0.98	ng/L	23.4		106	52-147			
Perfluoroundecanoic acid (PFUnA)	24.5	0.98	ng/L	23.4		105	48-159			
Perfluorododecanoic acid (PFDoA)	24.8	0.98	ng/L	23.4		106	64-142			
Perfluorotridecanoic acid (PFTrDA)	24.4	0.98	ng/L	23.4		104	49-148			
Perfluorotetradecanoic acid (PFTeDA)	25.4	0.98	ng/L	23.4		108	47-161			
Perfluorobutanesulfonic acid (PFBS)	21.7	0.98	ng/L	20.8		105	62-144			
Perfluoropentanesulfonic acid (PFPeS)	22.6	0.98	ng/L	22.0		103	59-151			
Perfluorohexanesulfonic acid (PFHxS)	22.3	0.98	ng/L	21.4		104	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	23.5	0.98	ng/L	22.3		105	55-152			
Perfluorooctanesulfonic acid (PFOS)	22.6	0.98	ng/L	21.7		104	58-149			
Perfluorononanesulfonic acid (PFNS)	23.8	0.98	ng/L	22.5		106	52-148			
Perfluorodecanesulfonic acid (PFDS)	23.7	0.98	ng/L	22.6		105	51-147			
Perfluorododecanesulfonic acid (PFDoS)	23.0	0.98	ng/L	22.7		101	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	95.2	3.9	ng/L	87.8		108	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	96.1	3.9	ng/L	88.9		108	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	90.4	3.9	ng/L	90.1		100	63-152			
Perfluorooctanesulfonamide (PFOSA)	23.9	0.98	ng/L	23.4		102	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	26.1	0.98	ng/L	23.4		112	63-145			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B379524 - Draft Method 1633										
LCS (B379524-BS1)				Prepared: 07/19/24 Analyzed: 07/20/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	25.1	0.98	ng/L	23.4		107	65-139			
N-MeFOSAA (NMeFOSAA)	22.5	0.98	ng/L	23.4		96.3	58-144			
N-EtFOSAA (NEtFOSAA)	23.4	0.98	ng/L	23.4		99.9	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	251	9.8	ng/L	234		107	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	249	9.8	ng/L	234		106	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	114	3.9	ng/L	93.6		121	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	118	3.9	ng/L	88.3		133	68-146			
9Cl-PF3ONS (F53B Minor)	115	3.9	ng/L	87.8		131	56-156			
11Cl-PF3OUdS (F53B Major)	111	3.9	ng/L	88.3		125	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	204	9.8	ng/L	234		87.3	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1170	49	ng/L	1170		100	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1160	49	ng/L	1170		99.0	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	53.3	2.0	ng/L	41.7		128	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	45.5	2.0	ng/L	46.8		97.1	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	43.5	2.0	ng/L	46.8		92.9	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.9	2.0	ng/L	46.8		139	48-161			
Surrogate: 13C4-PFBA	*83.0*		ng/L	97.5		85.1	10-130			
Surrogate: 13C5-PFPeA	*49.4*		ng/L	48.8		101	35-150			
Surrogate: 13C5-PFHxA	*20.7*		ng/L	24.4		84.9	55-150			
Surrogate: 13C4-PFHpA	*22.0*		ng/L	24.4		90.1	55-150			
Surrogate: 13C8-PFOA	*21.2*		ng/L	24.4		86.9	60-140			
Surrogate: 13C9-PFNA	*10.3*		ng/L	12.2		84.6	55-140			
Surrogate: 13C6-PFDA	*10.5*		ng/L	12.2		86.1	50-140			
Surrogate: 13C7-PFUnA	*9.99*		ng/L	12.2		82.0	30-140			
Surrogate: 13C2-PFDoA	*9.84*		ng/L	12.2		80.7	10-150			
Surrogate: 13C2-PFTeDA	*9.07*		ng/L	12.2		74.4	10-130			
Surrogate: 13C3-PFBS	*21.5*		ng/L	24.4		88.1	55-150			
Surrogate: 13C3-PFHxS	*21.2*		ng/L	24.4		87.1	55-150			
Surrogate: 13C8-PFOS	*20.6*		ng/L	24.4		84.5	45-140			
Surrogate: 13C2-4:2FTS	*40.3*		ng/L	48.8		82.7	60-200			
Surrogate: 13C2-6:2FTS	*40.1*		ng/L	48.8		82.2	60-200			
Surrogate: 13C2-8:2FTS	*38.2*		ng/L	48.8		78.3	50-200			
Surrogate: 13C8-PFOSA	*19.2*		ng/L	24.4		78.6	30-130			
Surrogate: D3-NMeFOSA	*15.9*		ng/L	24.4		65.1	15-130			
Surrogate: D5-NEtFOSA	*17.8*		ng/L	24.4		72.9	10-130			
Surrogate: D3-NMeFOSAA	*41.6*		ng/L	48.8		85.2	45-200			
Surrogate: D5-NEtFOSAA	*39.0*		ng/L	48.8		80.1	10-200			
Surrogate: D7-NMeFOSE	*185*		ng/L	244		75.8	10-150			
Surrogate: D9-NEtFOSE	*192*		ng/L	244		78.8	10-150			
Surrogate: 13C3-HFPO-DA	*77.8*		ng/L	97.5		79.8	25-160			
MRL Check (B379524-MRL1)				Prepared: 07/19/24 Analyzed: 07/20/24						
Perfluorobutanoic acid (PFBA)	8.45	3.9	ng/L	7.78		109	44-157			
Perfluoropentanoic acid (PFPeA)	4.10	1.9	ng/L	3.89		105	57-148			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B379524 - Draft Method 1633										
MRL Check (B379524-MRL1)				Prepared: 07/19/24 Analyzed: 07/20/24						
Perfluorohexanoic acid (PFHxA)	2.01	0.97	ng/L	1.94		103	62-149			
Perfluoroheptanoic acid (PFHpA)	1.98	0.97	ng/L	1.94		102	56-150			
Perfluorooctanoic acid (PFOA)	1.93	0.97	ng/L	1.94		99.3	57-161			
Perfluorononanoic acid (PFNA)	2.06	0.97	ng/L	1.94		106	53-157			
Perfluorodecanoic acid (PFDA)	2.13	0.97	ng/L	1.94		110	43-158			
Perfluoroundecanoic acid (PFUnA)	1.95	0.97	ng/L	1.94		100	50-155			
Perfluorododecanoic acid (PFDoA)	1.92	0.97	ng/L	1.94		98.9	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.78	0.97	ng/L	1.94		91.7	52-140			
Perfluorotetradecanoic acid (PFTeDA)	2.02	0.97	ng/L	1.94		104	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.72	0.97	ng/L	1.73		99.5	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.94	0.97	ng/L	1.83		106	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.78	0.97	ng/L	1.78		100	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.85	0.97	ng/L	1.85		100	51-150			
Perfluorooctanesulfonic acid (PFOS)	2.05	0.97	ng/L	1.80		114	43-162			
Perfluorononanesulfonic acid (PFNS)	1.75	0.97	ng/L	1.87		93.4	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.85	0.97	ng/L	1.88		98.8	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.74	0.97	ng/L	1.89		92.4	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.08	3.9	ng/L	7.29		97.0	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	8.05	3.9	ng/L	7.39		109	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.92	3.9	ng/L	7.49		106	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.94	0.97	ng/L	1.94		99.9	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.86	0.97	ng/L	1.94		95.8	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.89	0.97	ng/L	1.94		97.4	49-156			
N-MeFOSAA (NMeFOSAA)	1.90	0.97	ng/L	1.94		97.8	32-160			
N-EtFOSAA (NEtFOSAA)	1.64	0.97	ng/L	1.94		84.4	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	19.1	9.7	ng/L	19.4		98.0	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	19.4	9.7	ng/L	19.4		99.5	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.84	3.9	ng/L	7.78		87.9	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.24	3.9	ng/L	7.34		98.6	61-148			
9Cl-PF3ONS (F53B Minor)	7.13	3.9	ng/L	7.29		97.8	44-167			
11Cl-PF3OUdS (F53B Major)	6.86	3.9	ng/L	7.34		93.4	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.2	9.7	ng/L	19.4		68.0	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	73.8	49	ng/L	97.2		75.9	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.8	49	ng/L	97.2		75.9	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.77	1.9	ng/L	3.46		109	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.26	1.9	ng/L	3.89		83.8	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.09	1.9	ng/L	3.89		79.5	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.68	1.9	ng/L	3.89		120	47-160			
Surrogate: 13C4-PFBA	*82.8*		ng/L	97.2		85.1	10-130			
Surrogate: 13C5-PFPeA	*48.8*		ng/L	48.6		100	35-150			
Surrogate: 13C5-PFHxA	*21.1*		ng/L	24.3		86.7	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B379524 - Draft Method 1633										
MRL Check (B379524-MRL1)				Prepared: 07/19/24 Analyzed: 07/20/24						
Surrogate: 13C4-PFHpA	*20.7*		ng/L	24.3		85.1	55-150			
Surrogate: 13C8-PFOA	*20.8*		ng/L	24.3		85.6	60-140			
Surrogate: 13C9-PFNA	*10.0*		ng/L	12.2		82.3	55-140			
Surrogate: 13C6-PFDA	*10.2*		ng/L	12.2		84.0	50-140			
Surrogate: 13C7-PFUnA	*9.47*		ng/L	12.2		77.9	30-140			
Surrogate: 13C2-PFDoA	*9.23*		ng/L	12.2		76.0	10-150			
Surrogate: 13C2-PFTeDA	*8.81*		ng/L	12.2		72.5	10-130			
Surrogate: 13C3-PFBS	*22.4*		ng/L	24.3		92.2	55-150			
Surrogate: 13C3-PFHxS	*21.6*		ng/L	24.3		89.0	55-150			
Surrogate: 13C8-PFOS	*19.5*		ng/L	24.3		80.0	45-140			
Surrogate: 13C2-4:2FTS	*40.6*		ng/L	48.6		83.6	60-200			
Surrogate: 13C2-6:2FTS	*39.2*		ng/L	48.6		80.6	60-200			
Surrogate: 13C2-8:2FTS	*36.8*		ng/L	48.6		75.8	50-200			
Surrogate: 13C8-PFOSA	*18.0*		ng/L	24.3		74.0	30-130			
Surrogate: D3-NMeFOSA	*16.2*		ng/L	24.3		66.8	15-130			
Surrogate: D5-NEtFOSA	*17.1*		ng/L	24.3		70.3	10-130			
Surrogate: D3-NMeFOSAA	*38.1*		ng/L	48.6		78.3	45-200			
Surrogate: D5-NEtFOSAA	*36.9*		ng/L	48.6		75.8	10-200			
Surrogate: D7-NMeFOSE	*173*		ng/L	243		71.2	10-150			
Surrogate: D9-NEtFOSE	*178*		ng/L	243		73.0	10-150			
Surrogate: 13C3-HFPO-DA	*79.3*		ng/L	97.2		81.5	25-160			
Batch B380245 - Draft Method 1633										
Blank (B380245-BLK1)				Prepared: 07/23/24 Analyzed: 07/25/24						
Perfluorobutanoic acid (PFBA)	ND	5.9	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	2.9	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.5	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.5	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.5	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.5	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.5	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.5	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.5	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.5	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.5	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.5	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.5	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.5	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.5	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.5	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.5	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.5	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.5	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	5.9	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	5.9	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	5.9	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.5	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.5	µg/kg wet							

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B380245 - Draft Method 1633										
Blank (B380245-BLK1)				Prepared: 07/23/24 Analyzed: 07/25/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.5	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.5	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.5	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	15	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	15	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	5.9	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	5.9	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	5.9	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	5.9	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	15	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	74	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	74	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.9	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.9	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.9	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.9	µg/kg wet							
Surrogate: 13C4-PFBA	*62.3*		µg/kg wet	73.6		84.6	10-130			
Surrogate: 13C5-PFPeA	*33.2*		µg/kg wet	36.8		90.1	35-150			
Surrogate: 13C5-PFHxA	*16.0*		µg/kg wet	18.4		86.7	55-150			
Surrogate: 13C4-PFHpA	*16.1*		µg/kg wet	18.4		87.6	55-150			
Surrogate: 13C8-PFOA	*16.2*		µg/kg wet	18.4		87.9	60-140			
Surrogate: 13C9-PFNA	*7.58*		µg/kg wet	9.20		82.4	55-140			
Surrogate: 13C6-PFDA	*7.88*		µg/kg wet	9.20		85.6	50-140			
Surrogate: 13C7-PFUnA	*7.53*		µg/kg wet	9.20		81.8	30-140			
Surrogate: 13C2-PFDoA	*8.03*		µg/kg wet	9.20		87.3	10-150			
Surrogate: 13C2-PFTeDA	*7.38*		µg/kg wet	9.20		80.2	10-130			
Surrogate: 13C3-PFBS	*16.3*		µg/kg wet	18.4		88.8	55-150			
Surrogate: 13C3-PFHxS	*16.1*		µg/kg wet	18.4		87.5	55-150			
Surrogate: 13C8-PFOS	*15.9*		µg/kg wet	18.4		86.2	45-150			
Surrogate: 13C2-4:2FTS	*28.5*		µg/kg wet	36.8		77.3	60-200			
Surrogate: 13C2-6:2FTS	*27.9*		µg/kg wet	36.8		75.8	60-200			
Surrogate: 13C2-8:2FTS	*28.0*		µg/kg wet	36.8		76.1	50-200			
Surrogate: 13C8-PFOSA	*15.8*		µg/kg wet	18.4		85.9	30-130			
Surrogate: D3-NMeFOSA	*11.7*		µg/kg wet	18.4		63.7	15-130			
Surrogate: D5-NEtFOSA	*11.2*		µg/kg wet	18.4		60.7	10-130			
Surrogate: D3-NMeFOSAA	*33.1*		µg/kg wet	36.8		89.9	45-200			
Surrogate: D5-NEtFOSAA	*30.6*		µg/kg wet	36.8		83.1	10-200			
Surrogate: D7-NMeFOSE	*185*		µg/kg wet	184		101	10-150			
Surrogate: D9-NEtFOSE	*206*		µg/kg wet	184		112	10-150			
Surrogate: 13C3-HFPO-DA	*55.8*		µg/kg wet	73.6		75.8	25-160			
LCS (B380245-BS1)				Prepared: 07/23/24 Analyzed: 07/25/24						
Perfluorobutanoic acid (PFBA)	99.3	7.7	µg/kg wet	92.3		108	58-148			
Perfluoropentanoic acid (PFPeA)	51.2	3.8	µg/kg wet	46.2		111	54-152			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B380245 - Draft Method 1633										
LCS (B380245-BS1)				Prepared: 07/23/24 Analyzed: 07/25/24						
Perfluorohexanoic acid (PFHxA)	25.2	1.9	µg/kg wet	23.1		109	55-152			
Perfluoroheptanoic acid (PFHpA)	23.9	1.9	µg/kg wet	23.1		104	54-154			
Perfluorooctanoic acid (PFOA)	23.9	1.9	µg/kg wet	23.1		104	52-161			
Perfluorononanoic acid (PFNA)	25.7	1.9	µg/kg wet	23.1		111	59-149			
Perfluorodecanoic acid (PFDA)	26.4	1.9	µg/kg wet	23.1		114	52-147			
Perfluoroundecanoic acid (PFUnA)	24.6	1.9	µg/kg wet	23.1		106	48-159			
Perfluorododecanoic acid (PFDoA)	24.6	1.9	µg/kg wet	23.1		106	64-142			
Perfluorotridecanoic acid (PFTrDA)	22.0	1.9	µg/kg wet	23.1		95.4	49-148			
Perfluorotetradecanoic acid (PFTeDA)	25.5	1.9	µg/kg wet	23.1		111	47-161			
Perfluorobutanesulfonic acid (PFBS)	22.0	1.9	µg/kg wet	20.5		107	62-144			
Perfluoropentanesulfonic acid (PFPeS)	24.1	1.9	µg/kg wet	21.7		111	59-151			
Perfluorohexanesulfonic acid (PFHxS)	22.4	1.9	µg/kg wet	21.1		106	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	23.6	1.9	µg/kg wet	22.0		107	55-152			
Perfluorooctanesulfonic acid (PFOS)	23.4	1.9	µg/kg wet	21.4		109	58-149			
Perfluorononanesulfonic acid (PFNS)	25.0	1.9	µg/kg wet	22.2		113	52-148			
Perfluorodecanesulfonic acid (PFDS)	25.2	1.9	µg/kg wet	22.3		113	51-147			
Perfluorododecanesulfonic acid (PFDoS)	24.3	1.9	µg/kg wet	22.4		109	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	95.4	7.7	µg/kg wet	86.5		110	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	95.3	7.7	µg/kg wet	87.7		109	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	92.5	7.7	µg/kg wet	88.8		104	63-152			
Perfluorooctanesulfonamide (PFOSA)	24.2	1.9	µg/kg wet	23.1		105	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	23.7	1.9	µg/kg wet	23.1		103	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	25.5	1.9	µg/kg wet	23.1		110	65-139			
N-MeFOSAA (NMeFOSAA)	24.3	1.9	µg/kg wet	23.1		105	58-144			
N-EtFOSAA (NEtFOSAA)	22.6	1.9	µg/kg wet	23.1		98.1	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	247	19	µg/kg wet	231		107	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	253	19	µg/kg wet	231		110	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	97.9	7.7	µg/kg wet	92.3		106	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	105	7.7	µg/kg wet	87.1		121	68-146			
9Cl-PF3ONS (F53B Minor)	107	7.7	µg/kg wet	86.5		123	56-156			
11Cl-PF3OUdS (F53B Major)	105	7.7	µg/kg wet	87.1		121	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	237	19	µg/kg wet	231		103	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1250	96	µg/kg wet	1150		108	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1230	96	µg/kg wet	1150		106	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	47.5	3.8	µg/kg wet	41.1		116	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	44.5	3.8	µg/kg wet	46.2		96.5	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	45.8	3.8	µg/kg wet	46.2		99.2	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	51.9	3.8	µg/kg wet	46.2		112	48-161			
Surrogate: 13C4-PFBA	*76.6*		µg/kg wet	96.2		79.7	10-130			
Surrogate: 13C5-PFPeA	*40.8*		µg/kg wet	48.1		84.9	35-150			
Surrogate: 13C5-PFHxA	*19.2*		µg/kg wet	24.0		79.8	55-150			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B380245 - Draft Method 1633										
LCS (B380245-BS1)				Prepared: 07/23/24 Analyzed: 07/25/24						
Surrogate: 13C4-PFHpA	*20.0*		µg/kg wet	24.0		83.3	55-150			
Surrogate: 13C8-PFOA	*20.3*		µg/kg wet	24.0		84.6	60-140			
Surrogate: 13C9-PFNA	*9.82*		µg/kg wet	12.0		81.7	55-140			
Surrogate: 13C6-PFDA	*9.15*		µg/kg wet	12.0		76.1	50-140			
Surrogate: 13C7-PFUnA	*9.37*		µg/kg wet	12.0		78.0	30-140			
Surrogate: 13C2-PFDoA	*9.64*		µg/kg wet	12.0		80.2	10-150			
Surrogate: 13C2-PFTeDA	*8.50*		µg/kg wet	12.0		70.7	10-130			
Surrogate: 13C3-PFBS	*19.3*		µg/kg wet	24.0		80.3	55-150			
Surrogate: 13C3-PFHxS	*18.9*		µg/kg wet	24.0		78.6	55-150			
Surrogate: 13C8-PFOS	*18.5*		µg/kg wet	24.0		76.9	45-150			
Surrogate: 13C2-4:2FTS	*35.3*		µg/kg wet	48.1		73.5	60-200			
Surrogate: 13C2-6:2FTS	*35.4*		µg/kg wet	48.1		73.7	60-200			
Surrogate: 13C2-8:2FTS	*34.5*		µg/kg wet	48.1		71.8	50-200			
Surrogate: 13C8-PFOSA	*19.2*		µg/kg wet	24.0		80.1	30-130			
Surrogate: D3-NMeFOSA	*14.2*		µg/kg wet	24.0		59.2	15-130			
Surrogate: D5-NEtFOSA	*13.6*		µg/kg wet	24.0		56.6	10-130			
Surrogate: D3-NMeFOSAA	*39.4*		µg/kg wet	48.1		82.0	45-200			
Surrogate: D5-NEtFOSAA	*38.7*		µg/kg wet	48.1		80.4	10-200			
Surrogate: D7-NMeFOSE	*190*		µg/kg wet	240		79.1	10-150			
Surrogate: D9-NEtFOSE	*215*		µg/kg wet	240		89.4	10-150			
Surrogate: 13C3-HFPO-DA	*69.5*		µg/kg wet	96.2		72.2	25-160			
MRL Check (B380245-MRL1)				Prepared: 07/23/24 Analyzed: 07/25/24						
Perfluorobutanoic acid (PFBA)	7.05	6.0	µg/kg wet	5.98		118	44-157			
Perfluoropentanoic acid (PFPeA)	3.60	3.0	µg/kg wet	2.99		121	57-148			
Perfluorohexanoic acid (PFHxA)	1.75	1.5	µg/kg wet	1.49		117	62-149			
Perfluoroheptanoic acid (PFHpA)	1.69	1.5	µg/kg wet	1.49		113	56-150			
Perfluorooctanoic acid (PFOA)	1.80	1.5	µg/kg wet	1.49		120	57-161			
Perfluorononanoic acid (PFNA)	1.57	1.5	µg/kg wet	1.49		105	53-157			
Perfluorodecanoic acid (PFDA)	1.65	1.5	µg/kg wet	1.49		110	43-158			
Perfluoroundecanoic acid (PFUnA)	1.68	1.5	µg/kg wet	1.49		112	50-155			
Perfluorododecanoic acid (PFDoA)	1.65	1.5	µg/kg wet	1.49		110	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.58	1.5	µg/kg wet	1.49		106	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.76	1.5	µg/kg wet	1.49		118	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.47	1.5	µg/kg wet	1.33		111	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.71	1.5	µg/kg wet	1.41		122	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.60	1.5	µg/kg wet	1.37		117	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	1.55	1.5	µg/kg wet	1.42		109	51-150			
Perfluorooctanesulfonic acid (PFOS)	1.51	1.5	µg/kg wet	1.39		109	43-162			
Perfluorononanesulfonic acid (PFNS)	1.67	1.5	µg/kg wet	1.44		116	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.82	1.5	µg/kg wet	1.44		126	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.74	1.5	µg/kg wet	1.45		120	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.68	6.0	µg/kg wet	5.61		119	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.87	6.0	µg/kg wet	5.68		121	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.38	6.0	µg/kg wet	5.75		128	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.77	1.5	µg/kg wet	1.49		118	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.66	1.5	µg/kg wet	1.49		111	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.78	1.5	µg/kg wet	1.49		119	49-156			
N-MeFOSAA (NMeFOSAA)	1.94	1.5	µg/kg wet	1.49		130	32-160			

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B380245 - Draft Method 1633										
MRL Check (B380245-MRL1)				Prepared: 07/23/24 Analyzed: 07/25/24						
N-EtFOSAA (NEtFOSAA)	1.66	1.5	µg/kg wet	1.49		111	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	17.3	15	µg/kg wet	14.9		116	56-151			
N-ethylperfluorooctancsulfonamidocthanol (NEtFOSE)	17.3	15	µg/kg wet	14.9		116	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.18	6.0	µg/kg wet	5.98		103	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.89	6.0	µg/kg wet	5.64		122	61-148			
9Cl-PF3ONS (F53B Minor)	6.85	6.0	µg/kg wet	5.61		122	44-167			
11Cl-PF3OUdS (F53B Major)	6.90	6.0	µg/kg wet	5.64		122	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	14.2	15	µg/kg wet	14.9		94.7	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	70.9	75	µg/kg wet	74.7		94.9	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	70.2	75	µg/kg wet	74.7		93.9	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.24	3.0	µg/kg wet	2.66		122	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.12	3.0	µg/kg wet	2.99		105	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.02	3.0	µg/kg wet	2.99		101	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.43	3.0	µg/kg wet	2.99		115	47-160			
Surrogate: 13C4-PFBA	*54.6*		µg/kg wet	74.7		73.0	10-130			
Surrogate: 13C5-PFPeA	*29.9*		µg/kg wet	37.4		79.9	35-150			
Surrogate: 13C5-PFHxA	*14.0*		µg/kg wet	18.7		75.1	55-150			
Surrogate: 13C4-PFHpA	*14.4*		µg/kg wet	18.7		77.0	55-150			
Surrogate: 13C8-PFOA	*14.6*		µg/kg wet	18.7		78.1	60-140			
Surrogate: 13C9-PFNA	*6.85*		µg/kg wet	9.34		73.4	55-140			
Surrogate: 13C6-PFDA	*6.96*		µg/kg wet	9.34		74.6	50-140			
Surrogate: 13C7-PFUnA	*6.87*		µg/kg wet	9.34		73.6	30-140			
Surrogate: 13C2-PFDoA	*7.26*		µg/kg wet	9.34		77.7	10-150			
Surrogate: 13C2-PFTeDA	*6.48*		µg/kg wet	9.34		69.4	10-130			
Surrogate: 13C3-PFBS	*14.3*		µg/kg wet	18.7		76.4	55-150			
Surrogate: 13C3-PFHxS	*13.5*		µg/kg wet	18.7		72.1	55-150			
Surrogate: 13C8-PFOS	*14.1*		µg/kg wet	18.7		75.3	45-150			
Surrogate: 13C2-4:2FTS	*24.3*		µg/kg wet	37.4		65.1	60-200			
Surrogate: 13C2-6:2FTS	*24.2*		µg/kg wet	37.4		64.8	60-200			
Surrogate: 13C2-8:2FTS	*21.8*		µg/kg wet	37.4		58.4	50-200			
Surrogate: 13C8-PFOSA	*13.7*		µg/kg wet	18.7		73.4	30-130			
Surrogate: D3-NMeFOSA	*9.97*		µg/kg wet	18.7		53.4	15-130			
Surrogate: D5-NEtFOSA	*9.93*		µg/kg wet	18.7		53.1	10-130			
Surrogate: D3-NMeFOSAA	*29.4*		µg/kg wet	37.4		78.6	45-200			
Surrogate: D5-NEtFOSAA	*27.6*		µg/kg wet	37.4		73.9	10-200			
Surrogate: D7-NMeFOSE	*149*		µg/kg wet	187		79.5	10-150			
Surrogate: D9-NEtFOSE	*170*		µg/kg wet	187		91.2	10-150			
Surrogate: 13C3-HFPO-DA	*50.3*		µg/kg wet	74.7		67.3	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-17	Extracted Internal Standard recovery is outside of control limits. Data is not significantly affected since associated analyte is not detected and bias is on the high side.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
S-29	Extracted Internal Standard is outside of control limits.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2025
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2024
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2024

Internal Transfer Chain of Custody

24/60744 KAF

Pace

☐ Rush Multiplier____X
☒ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 7/2/2024 Results Requested By: 8/1/2024

Workorder: 40280567 **Workorder Name:** PFAS 1633 Monthly

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: 1633 PFAS	LAB USE ONLY
1	PCD 070224 CLASSIFIER 3	PS	7/2/2024 08:00	40280567001	Solid	1	X	
2	FIELD BLANK	PS	7/2/2024 08:00	40280567002	Water	2	X	
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	7/2/24 1700	FedEx	7/2/24 1700
2			[signature] 2.6	7-3-24 0:57
3				

Comments

Need wet and dry weight reporting

Cooler Temperature on Receipt 2.6 °C | **Custody Seal** (Y) or N | **Received on Ice** (Y) or N | **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

DC#_Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist

Effective Date: 06/11/2024

Log In Back-Sheet

Client: Pace WI

Project: PFAS 1633 Monthly

MCP/RCP Required: N/A

Deliverable Package Requirement: N/A

Location: WI

PWSID# (When Applicable): N/A

Arrival Method:

Courier ☐ Fed Ex ☒ Walk In ☐ Other ☐

Received By / Date / Time: 07/3/24 0957

Back-Sheet By / Date / Time: STM 7/3/24 1703

Temperature Method: Gun #6

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

Temp ☒ < 6° C Actual Temperature: 2.6

Rush Samples: Yes / (No) Notify:

Short Hold: Yes / (No) Notify:

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

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

COC Included: (Check all included)

Client ☒ Analysis ☒ Sampler Name ☐

Project ☒ IDs ☒ Collection Date/Time ☒

All Samples Proper pH: (N/A) ☐ ☐

Notes regarding Samples/COC outside of SOP:

Additional Container Notes

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

Qualtrax ID: 120836

Sample	Soils/Jars (Circle Amb/Clear)				Ambers						Plastics													VOA Vials					Other / Fill in			
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	Unpreserved	1 Liter	HCL	Sulfuric	250mL	Sulfuric	Phosphoric	HCl	100mL	Unpreserved	1 Liter	Unpreserved	Sulfuric	500mL	Unpreserved	Sulfuric	250mL	Unpreserved	Trizma	Sulfuric	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc	Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact	Other				
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Page	DC#_Title: ENV-FRM-ELON-0001 v08_Sample Receiving Checklist
	Effective Date: 06/11/2024

Quaitrax ID: 120836

Page 2 of 2

FedEx

FedEx® Tracking

DELIVERED

Wednesday

7/3/24 at 9:57 AM

Signed for by: C.HENRIQUEZ

Obtain proof of delivery

How was your delivery?

☆ ☆ ☆ ☆ ☆

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

400513070571

FROM
Schaumburg, IL US

Label Created
7/2/24 3:22 PM

SCHAUMBURG, IL
7/2/24 3:46 PM

ON THE WAY
WINDSOR LOCKS, CT
7/3/24 8:21 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
7/3/24 8:35 AM

DELIVERED
EAST LONGMEADOW, MA US

Delivered
7/3/24 at 9:57 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

8

CDPHE PFAS SAMPLING

AUGUST 6, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40282150

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

September 03, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: BIOSOLIDS PFAS 1633
Pace Project No.: 40282150

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on August 07, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

This report is a revision of 40282150 final report dated September 3, 2024. The report revision is to correct the project name. CKV 9/3/24..

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc
Sarah Troyer, OT&T Inc

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: BIOSOLIDS PFAS 1633
Pace Project No.: 40282150

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40282150001	PCD Classifier 1 080624	Solid	08/06/24 09:00	08/07/24 10:10
40282150002	Field Blank 080624	Water	08/06/09 09:00	08/07/24 13:32

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

42028250

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W. Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus.ketter@veolia.com	Purchase Order No: PO 1000361834	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	Project Name: PFAS/1633	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

__NPDES __GROUND WATER __DRINKING WATER

__UST __RCRA OTHER X

SITE LOCATION __GA X IL __IN __MI __NC __OH __SC __WI OTHER__

Filtered (Y/N): N

Section D Required Client Information

Valid Matrix Codes: DRINKING WATER DW; WATER WT; WASTE WATER WW; PRODUCT P; SOIL/SOLID SL; OIL OL; WIPE WP; AIR AR; OTHER OT; TISSUE TS

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE)	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	#OF CONTAINERS	Preservatives: Unpreserved	Analysis: 1633 PFAS	Residual Chlor	Pace Project Number / Lab I.D
1	JCD CLASSIFIER 1 080624	SL	G	8-6-24	9:00AM			1		X		001
2	Field Blank Field Blank 080624	W	W	8-6-24	9:00AM			1				002
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	8/6/24			8/6/24	1030		Y/N	Y/N	Y/N
	8/6/24	1700	CS FedEX	8/6/24	1900		Y/N	Y/N	Y/N
CS Logistics	8/7/24	1010	E Fed pdle	8/7/24	1010	3.8	Y/N	Y/N	Y/N
							Y/N	Y/N	Y/N

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: JOSE MOVALDASH

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 8/6/2024

Temp in °C | Received on Ice | Custody Sealed Cooler | Samples Intact

Sample Preservation Receipt Form

Client Name: Veolia

Project # 40282100

All containers needing preservation have been checked and noted below ☐Yes ☐No ☐N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

	Glass							Plastic						Vials						Jars				General									
Pace Lab #	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001																										1								2.5 / 5
002																											2							2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
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015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

Initial when completed:

Date/ Time:

Exceptions to preservation check VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other

Headspace in VOA Vials (>6mm): ☐Yes ☐No ☐N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	8oz plastic jar unpres
						GN 2	500 mL plastic unpres

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

WO# : 40282150

40282150

Client Name: Veolia

Courier: ☑ CS Logistics ☐ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco
☐ Client ☐ Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____

Thermometer Used SR - 110 **Type of Ice:** (Wet) Blue Dry None ☐ Meltwater Only

Cooler Temperature Uncorr: 3.0 /Corr: 3.0

Temp Blank Present: ☑ yes ☐ no **Biological Tissue is Frozen:** ☐ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 8/7/24 /Initials: GL

Labeled By Initials: MH

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: Pace Green Bay (Pace IR) Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: SW	☑Yes ☐No ☐N/A	12.
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2

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

September 3, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: BIOSOLIDS PFAS 1633
Client Job Number:
Project Number: 40282150
Laboratory Work Order Number: 24H1317

Enclosed are results of analyses for samples as received by the laboratory on August 8, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kaitlyn A. Feliciano
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 9/3/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40282150

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24H1317

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

PROJECT LOCATION: BIOSOLIDS PFAS 1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD Classifier 1 080624	24H1317-01	Biosolids		Draft Method 1633	
				SM 2540G	
Field Blank 080624	24H1317-02	Water		Draft Method 1633	
PCD Classifier 1 080624 - WET WEIGHT	24H1317-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

MS-12

Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.

Analyte & Samples(s) Qualified:

N-methylperfluorooctanesulfonamidoethanol(NMeF
24H1317-01[PCD Classifier 1 080624], 24H1317-03[PCD Classifier 1 080624 - WET WEIGHT], B383894-MS1, B383894-MSD1

Perfluorohexanesulfonic acid (PFHxS)
B383894-MS1, B383894-MSD1

MS-22

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

Analyte & Samples(s) Qualified:

Perfluorododecanesulfonic acid (PFDoS)
B383894-MS1

Perfluoroheptanesulfonic acid (PFHpS)
B383894-MS1

MS-23

Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.

Analyte & Samples(s) Qualified:

2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FT
B383894-MS1

3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTC
B383894-MS1

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
B383894-MSD1

PF-18

Re-analysis confirmed Extracted Internal Standard failure due to matrix effects.

Analyte & Samples(s) Qualified:

D7-NMeFOSE
24H1317-01[PCD Classifier 1 080624], 24H1317-03[PCD Classifier 1 080624 - WET WEIGHT], B383894-MSD1

N-methylperfluorooctanesulfonamidoethanol(NMeF
24H1317-01[PCD Classifier 1 080624], 24H1317-03[PCD Classifier 1 080624 - WET WEIGHT], B383894-MSD1

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoropentanoic acid (PFPeA)
24H1317-01[PCD Classifier 1 080624], 24H1317-03[PCD Classifier 1 080624 - WET WEIGHT]

R-06

Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.

Analyte & Samples(s) Qualified:

2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FT
B383894-MSD1

3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTC
B383894-MSD1

4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
B383894-MSD1

Perfluoro-3-methoxypropanoic acid (PFMPA)
B383894-MSD1

S-29

Extracted Internal Standard is outside of control limits.

Analyte & Samples(s) Qualified:

13C8-PFOSA
B383894-MSD1

D3-NMeFOSA
B383894-MSD1

D5-NEtFOSA
B383894-MSD1

D9-NEtFOSE
B383894-MSD1

N-ethyl perfluorooctanesulfonamide (NEtFOSA)
B383894-MSD1

N-ethylperfluorooctanesulfonamidoethanol (NEtFO!
B383894-MSD1

N-methyl perfluoroocatnesulfonamide (NMeFOSA)
B383894-MSD1

Perfluorooctanesulfonamide (PFOSA)
B383894-MSD1

V-20

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

Analyte & Samples(s) Qualified:

Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
S109831-CCV1

SM 2540G

Qualifications:

H-06

Sample was extracted past the recommended holding time.

Analyte & Samples(s) Qualified:

% Solids
24H1317-01[PCD Classifier 1 080624]

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Meghan E. Kelley
Reporting Specialist

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

Project Location: BIOSOLIDS PFAS 1633 Sample Description: Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: PCD Classifier 1 080624 Sampled: 8/6/2024 09:00

Sample ID: 24H1317-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.6	2.7	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoropentanoic acid (PFPeA)	3.6	3.3	0.38	µg/kg dry	1	PF-23	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorohexanoic acid (PFHxA)	1.2	1.7	0.27	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.7	0.12	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorooctanoic acid (PFOA)	0.53	1.7	0.26	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorononanoic acid (PFNA)	0.42	1.7	0.11	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorodecanoic acid (PFDA)	1.4	1.7	0.15	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoroundecanoic acid (PFUnA)	1.0	1.7	0.19	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorododecanoic acid (PFDoA)	1.8	1.7	0.18	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorotridecanoic acid (PFTrDA)	0.38	1.7	0.18	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.51	1.7	0.17	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.7	0.17	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.7	0.21	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.7	0.65	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.7	0.18	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorooctanesulfonic acid (PFOS)	11	1.7	0.26	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.7	0.18	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.7	0.26	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.7	0.25	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.6	0.58	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.6	4.2	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.6	0.77	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorooctanesulfonamide (PFOSA)	0.37	1.7	0.26	µg/kg dry	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.7	0.21	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.7	0.19	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-MeFOSAA (NMeFOSAA)	1.8	1.7	0.29	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-EtFOSAA (NEtFOSAA)	2.5	1.7	0.25	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	2.2	17	1.8	µg/kg dry	1	MS-12, PF-18, J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	17	1.8	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.6	0.42	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.6	0.49	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.6	0.48	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.6	0.73	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	17	1.6	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	83	11	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	83	12	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.3	0.26	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.3	0.27	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS

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

Project Location: BIOSOLIDS PFAS 1633
Sample Description:
Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: PCD Classifier 1 080624
Sampled: 8/6/2024 09:00

Sample ID: 24H1317-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.3	0.27	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.3	0.50	µg/kg dry	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	38.1		10-130		8/30/24 14:27
13C5-PFPeA	54.7		35-150		8/30/24 14:27
13C5-PFHxA	67.1		55-150		8/30/24 14:27
13C4-PFHpA	73.8		55-150		8/30/24 14:27
13C8-PFOA	67.3		60-140		8/30/24 14:27
13C9-PFNA	71.7		55-140		8/30/24 14:27
13C6-PFDA	74.8		50-140		8/30/24 14:27
13C7-PFUnA	63.8		30-140		8/30/24 14:27
13C2-PFDoA	66.2		10-150		8/30/24 14:27
13C2-PFTeDA	49.5		10-130		8/30/24 14:27
13C3-PFBS	73.0		55-150		8/30/24 14:27
13C3-PFHxS	74.0		55-150		8/30/24 14:27
13C8-PFOS	73.3		45-150		8/30/24 14:27
13C2-4:2FTS	86.1		60-200		8/30/24 14:27
13C2-6:2FTS	126		60-200		8/30/24 14:27
13C2-8:2FTS	151		50-200		8/30/24 14:27
13C8-PFOSA	63.5		30-130		8/30/24 14:27
D3-NMeFOSA	26.8		15-130		8/30/24 14:27
D5-NEtFOSA	18.5		10-130		8/30/24 14:27
D3-NMeFOSAA	65.8		45-200		8/30/24 14:27
D5-NEtFOSAA	77.9		10-200		8/30/24 14:27
D7-NMeFOSE	**8.99**	*	10-150	PF-18	8/30/24 14:27
D9-NEtFOSE	20.7		10-150		8/30/24 14:27
13C3-HFPO-DA	72.7		25-160		8/30/24 14:27

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Project Location: BIOSOLIDS PFAS 1633 | Sample Description: | Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: PCD Classifier 1 080624 | Sampled: 8/6/2024 09:00

Sample ID: 24H1317-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	96.8		% Wt	1	H-06	SM 2540G	8/27/24	8/27/24 20:20	AGR

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Project Location: BIOSOLIDS PFAS 1633 Sample Description: Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: Field Blank 080624 Sampled: 8/6/2024 09:00

Sample ID: 24H1317-02

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.8	2.1	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoropentanoic acid (PFPeA)	ND	1.9	0.41	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorohexanoic acid (PFHxA)	ND	0.95	0.23	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoroheptanoic acid (PFHpA)	ND	0.95	0.25	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorooctanoic acid (PFOA)	ND	0.95	0.25	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorononanoic acid (PFNA)	ND	0.95	0.18	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorodecanoic acid (PFDA)	ND	0.95	0.20	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoroundecanoic acid (PFUnA)	ND	0.95	0.19	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorododecanoic acid (PFDoA)	ND	0.95	0.19	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorotridecanoic acid (PFTrDA)	ND	0.95	0.28	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorotetradecanoic acid (PFTeDA)	ND	0.95	0.25	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorobutanesulfonic acid (PFBS)	ND	0.95	0.20	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	0.95	0.24	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	0.95	0.27	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.95	0.31	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorooctanesulfonic acid (PFOS)	ND	0.95	0.37	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorononanesulfonic acid (PFNS)	ND	0.95	0.24	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorodecanesulfonic acid (PFDS)	ND	0.95	0.27	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorododecanesulfonic acid (PFDoS)	ND	0.95	0.27	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.8	0.71	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.8	2.9	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.8	1.1	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluorooctanesulfonamide (PFOSA)	ND	0.95	0.22	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.95	0.31	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.95	0.32	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
N-MeFOSAA (NMeFOSAA)	ND	0.95	0.34	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
N-EtFOSAA (NEtFOSAA)	ND	0.95	0.38	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.5	2.6	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.5	2.5	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	0.98	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.8	0.78	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
9Cl-PF3ONS (F53B Minor)	ND	3.8	0.92	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
11Cl-PF3OUdS (F53B Major)	ND	3.8	1.0	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.5	2.1	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	48	11	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	48	9.0	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	0.33	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	0.53	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB

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Project Location: BIOSOLIDS PFAS 1633 Sample Description: Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: Field Blank 080624 Sampled: 8/6/2024 09:00

Sample ID: 24H1317-02

Sample Matrix: Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	0.51	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	0.52	ng/L	1		Draft Method 1633	8/13/24	8/14/24 16:02	AB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	79.9	10-130		8/14/24 16:02
13C5-PFPeA	79.7	35-150		8/14/24 16:02
13C5-PFHxA	80.6	55-150		8/14/24 16:02
13C4-PFHpA	79.4	55-150		8/14/24 16:02
13C8-PFOA	73.3	60-140		8/14/24 16:02
13C9-PFNA	74.7	55-140		8/14/24 16:02
13C6-PFDA	77.3	50-140		8/14/24 16:02
13C7-PFUnA	76.2	30-140		8/14/24 16:02
13C2-PFDoA	74.7	10-150		8/14/24 16:02
13C2-PFTeDA	69.2	10-130		8/14/24 16:02
13C3-PFBS	81.2	55-150		8/14/24 16:02
13C3-PFHxS	76.9	55-150		8/14/24 16:02
13C8-PFOS	75.0	45-140		8/14/24 16:02
13C2-4:2FTS	71.3	60-200		8/14/24 16:02
13C2-6:2FTS	73.7	60-200		8/14/24 16:02
13C2-8:2FTS	72.0	50-200		8/14/24 16:02
13C8-PFOSA	69.4	30-130		8/14/24 16:02
D3-NMeFOSA	58.3	15-130		8/14/24 16:02
D5-NEtFOSA	59.7	10-130		8/14/24 16:02
D3-NMeFOSAA	72.0	45-200		8/14/24 16:02
D5-NEtFOSAA	72.5	10-200		8/14/24 16:02
D7-NMeFOSE	61.1	10-150		8/14/24 16:02
D9-NEtFOSE	57.8	10-150		8/14/24 16:02
13C3-HFPO-DA	83.0	25-160		8/14/24 16:02

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Project Location: BIOSOLIDS PFAS 1633 Sample Description: Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: PCD Classifier 1 080624 - WET WEIGHT Sampled: 8/6/2024 09:00

Sample ID: 24H1317-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	6.4	2.6	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoropentanoic acid (PFPeA)	3.5	3.2	0.36	µg/kg wet	1	PF-23	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorohexanoic acid (PFHxA)	1.2	1.6	0.27	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoroheptanoic acid (PFHpA)	ND	1.6	0.12	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorooctanoic acid (PFOA)	0.51	1.6	0.25	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorononanoic acid (PFNA)	0.41	1.6	0.11	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorodecanoic acid (PFDA)	1.4	1.6	0.14	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoroundecanoic acid (PFUnA)	1.0	1.6	0.19	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorododecanoic acid (PFDoA)	1.7	1.6	0.17	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorotridecanoic acid (PFTrDA)	0.37	1.6	0.18	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorotetradecanoic acid (PFTeDA)	0.49	1.6	0.16	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	1.6	0.17	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	1.6	0.20	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	1.6	0.63	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.6	0.17	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorooctanesulfonic acid (PFOS)	11	1.6	0.25	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorononanesulfonic acid (PFNS)	ND	1.6	0.18	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	1.6	0.25	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	1.6	0.24	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	6.4	0.56	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	6.4	4.0	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	6.4	0.74	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluorooctanesulfonamide (PFOSA)	0.36	1.6	0.25	µg/kg wet	1	J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	1.6	0.20	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.6	0.19	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-MeFOSAA (NMeFOSAA)	1.7	1.6	0.29	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-EtFOSAA (NEtFOSAA)	2.4	1.6	0.24	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	2.2	16	1.7	µg/kg wet	1	MS-12, PF-18, J	Draft Method 1633	8/29/24	8/30/24 14:27	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	16	1.7	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	6.4	0.41	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	6.4	0.48	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
9Cl-PF3ONS (F53B Minor)	ND	6.4	0.46	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
11Cl-PF3OUdS (F53B Major)	ND	6.4	0.71	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	16	1.5	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	80	11	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	80	12	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.2	0.25	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.2	0.26	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS

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Project Location: BIOSOLIDS PFAS 1633 Sample Description: Work Order: 24H1317

Date Received: 8/8/2024

Field Sample #: PCD Classifier 1 080624 - WET WEIGHT Sampled: 8/6/2024 09:00

Sample ID: 24H1317-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.2	0.26	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.2	0.48	µg/kg wet	1		Draft Method 1633	8/29/24	8/30/24 14:27	AMS

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C4-PFBA	38.1		10-130		8/30/24 14:27
13C5-PFPeA	54.7		35-150		8/30/24 14:27
13C5-PFHxA	67.1		55-150		8/30/24 14:27
13C4-PFHpA	73.8		55-150		8/30/24 14:27
13C8-PFOA	67.3		60-140		8/30/24 14:27
13C9-PFNA	71.7		55-140		8/30/24 14:27
13C6-PFDA	74.8		50-140		8/30/24 14:27
13C7-PFUnA	63.8		30-140		8/30/24 14:27
13C2-PFDoA	66.2		10-150		8/30/24 14:27
13C2-PFTeDA	49.5		10-130		8/30/24 14:27
13C3-PFBS	73.0		55-150		8/30/24 14:27
13C3-PFHxS	74.0		55-150		8/30/24 14:27
13C8-PFOS	73.3		45-150		8/30/24 14:27
13C2-4:2FTS	86.1		60-200		8/30/24 14:27
13C2-6:2FTS	126		60-200		8/30/24 14:27
13C2-8:2FTS	151		50-200		8/30/24 14:27
13C8-PFOSA	63.5		30-130		8/30/24 14:27
D3-NMeFOSA	26.8		15-130		8/30/24 14:27
D5-NEtFOSA	18.5		10-130		8/30/24 14:27
D3-NMeFOSAA	65.8		45-200		8/30/24 14:27
D5-NEtFOSAA	77.9		10-200		8/30/24 14:27
D7-NMeFOSE	**8.99**	*	10-150	PF-18	8/30/24 14:27
D9-NEtFOSE	20.7		10-150		8/30/24 14:27
13C3-HFPO-DA	72.7		25-160		8/30/24 14:27

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24H1317-01 [PCD Classifier 1 080624]	B383894	0.626	5.00	08/29/24
24H1317-03 [PCD Classifier 1 080624 - WET WEIGHT]	B383894	0.626	5.00	08/29/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24H1317-02 [Field Blank 080624]	B382512	526	5.00	08/13/24

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

Lab Number [Field ID]	Batch	Date
24H1317-01 [PCD Classifier 1 080624]	B384310	08/27/24

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B382512 - Draft Method 1633										
Blank (B382512-BLK1)				Prepared: 08/13/24 Analyzed: 08/14/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*85.6*		ng/L	97.6		87.7	10-130			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B382512 - Draft Method 1633										
Blank (B382512-BLK1)				Prepared: 08/13/24 Analyzed: 08/14/24						
Surrogate: 13C5-PFPeA	*45.0*		ng/L	48.8		92.3	35-150			
Surrogate: 13C5-PFHxA	*21.9*		ng/L	24.4		89.5	55-150			
Surrogate: 13C4-PFHpA	*21.6*		ng/L	24.4		88.7	55-150			
Surrogate: 13C8-PFOA	*20.5*		ng/L	24.4		84.1	60-140			
Surrogate: 13C9-PFNA	*10.8*		ng/L	12.2		88.3	55-140			
Surrogate: 13C6-PFDA	*10.9*		ng/L	12.2		89.6	50-140			
Surrogate: 13C7-PFUnA	*10.2*		ng/L	12.2		83.2	30-140			
Surrogate: 13C2-PFDoA	*9.41*		ng/L	12.2		77.1	10-150			
Surrogate: 13C2-PFTeDA	*8.44*		ng/L	12.2		69.2	10-130			
Surrogate: 13C3-PFBS	*22.3*		ng/L	24.4		91.3	55-150			
Surrogate: 13C3-PFHxS	*21.4*		ng/L	24.4		87.6	55-150			
Surrogate: 13C8-PFOS	*20.2*		ng/L	24.4		82.6	45-140			
Surrogate: 13C2-4:2FTS	*38.3*		ng/L	48.8		78.4	60-200			
Surrogate: 13C2-6:2FTS	*38.3*		ng/L	48.8		78.4	60-200			
Surrogate: 13C2-8:2FTS	*37.9*		ng/L	48.8		77.7	50-200			
Surrogate: 13C8-PFOSA	*19.1*		ng/L	24.4		78.1	30-130			
Surrogate: D3-NMeFOSA	*15.0*		ng/L	24.4		61.4	15-130			
Surrogate: D5-NEtFOSA	*15.8*		ng/L	24.4		64.5	10-130			
Surrogate: D3-NMeFOSAA	*40.1*		ng/L	48.8		82.1	45-200			
Surrogate: D5-NEtFOSAA	*37.8*		ng/L	48.8		77.5	10-200			
Surrogate: D7-NMeFOSE	*164*		ng/L	244		67.3	10-150			
Surrogate: D9-NEtFOSE	*151*		ng/L	244		61.7	10-150			
Surrogate: 13C3-HFPO-DA	*88.9*		ng/L	97.6		91.1	25-160			
LCS (B382512-BS1)				Prepared: 08/13/24 Analyzed: 08/14/24						
Perfluorobutanoic acid (PFBA)	102	3.9	ng/L	93.7		109	58-148			
Perfluoropentanoic acid (PFPeA)	51.7	2.0	ng/L	46.9		110	54-152			
Perfluorohexanoic acid (PFHxA)	25.2	0.98	ng/L	23.4		107	55-152			
Perfluoroheptanoic acid (PFHpA)	26.4	0.98	ng/L	23.4		113	54-154			
Perfluorooctanoic acid (PFOA)	26.8	0.98	ng/L	23.4		115	52-161			
Perfluorononanoic acid (PFNA)	25.4	0.98	ng/L	23.4		109	59-149			
Perfluorodecanoic acid (PFDA)	26.3	0.98	ng/L	23.4		112	52-147			
Perfluoroundecanoic acid (PFUnA)	24.6	0.98	ng/L	23.4		105	48-159			
Perfluorododecanoic acid (PFDoA)	25.9	0.98	ng/L	23.4		110	64-142			
Perfluorotridecanoic acid (PFTrDA)	24.5	0.98	ng/L	23.4		104	49-148			
Perfluorotetradecanoic acid (PFTeDA)	26.2	0.98	ng/L	23.4		112	47-161			
Perfluorobutanesulfonic acid (PFBS)	22.1	0.98	ng/L	20.8		106	62-144			
Perfluoropentanesulfonic acid (PFPeS)	24.4	0.98	ng/L	22.0		111	59-151			
Perfluorohexanesulfonic acid (PFHxS)	23.0	0.98	ng/L	21.4		107	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	25.1	0.98	ng/L	22.3		113	55-152			
Perfluorooctanesulfonic acid (PFOS)	24.2	0.98	ng/L	21.7		111	58-149			
Perfluorononanesulfonic acid (PFNS)	25.1	0.98	ng/L	22.6		111	52-148			
Perfluorodecanesulfonic acid (PFDS)	26.2	0.98	ng/L	22.6		116	51-147			
Perfluorododecanesulfonic acid (PFDoS)	25.0	0.98	ng/L	22.7		110	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	98.8	3.9	ng/L	87.9		112	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	99.9	3.9	ng/L	89.0		112	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	93.8	3.9	ng/L	90.2		104	63-152			
Perfluorooctanesulfonamide (PFOSA)	25.3	0.98	ng/L	23.4		108	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	25.5	0.98	ng/L	23.4		109	63-145			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B382512 - Draft Method 1633										
LCS (B382512-BS1)				Prepared: 08/13/24 Analyzed: 08/14/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	24.0	0.98	ng/L	23.4		103	65-139			
N-MeFOSAA (NMeFOSAA)	24.2	0.98	ng/L	23.4		103	58-144			
N-EtFOSAA (NEtFOSAA)	27.7	0.98	ng/L	23.4		118	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	259	9.8	ng/L	234		111	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	260	9.8	ng/L	234		111	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	92.2	3.9	ng/L	93.7		98.4	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	82.3	3.9	ng/L	88.5		93.1	68-146			
9Cl-PF3ONS (F53B Minor)	82.1	3.9	ng/L	87.9		93.4	56-156			
11Cl-PF3OUdS (F53B Major)	80.8	3.9	ng/L	88.5		91.3	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	243	9.8	ng/L	234		104	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1190	49	ng/L	1170		101	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1180	49	ng/L	1170		100	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	48.0	2.0	ng/L	41.7		115	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	51.5	2.0	ng/L	46.9		110	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	56.1	2.0	ng/L	46.9		120	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	62.8	2.0	ng/L	46.9		134	48-161			
Surrogate: 13C4-PFBA	*80.6*		ng/L	97.6		82.6	10-130			
Surrogate: 13C5-PFPeA	*41.8*		ng/L	48.8		85.6	35-150			
Surrogate: 13C5-PFHxA	*20.6*		ng/L	24.4		84.2	55-150			
Surrogate: 13C4-PFHpA	*20.5*		ng/L	24.4		84.0	55-150			
Surrogate: 13C8-PFOA	*19.3*		ng/L	24.4		79.2	60-140			
Surrogate: 13C9-PFNA	*10.2*		ng/L	12.2		83.7	55-140			
Surrogate: 13C6-PFDA	*9.58*		ng/L	12.2		78.5	50-140			
Surrogate: 13C7-PFUnA	*9.54*		ng/L	12.2		78.2	30-140			
Surrogate: 13C2-PFDoA	*9.16*		ng/L	12.2		75.0	10-150			
Surrogate: 13C2-PFTeDA	*8.28*		ng/L	12.2		67.9	10-130			
Surrogate: 13C3-PFBS	*21.8*		ng/L	24.4		89.2	55-150			
Surrogate: 13C3-PFHxS	*20.5*		ng/L	24.4		84.2	55-150			
Surrogate: 13C8-PFOS	*19.6*		ng/L	24.4		80.3	45-140			
Surrogate: 13C2-4:2FTS	*38.7*		ng/L	48.8		79.3	60-200			
Surrogate: 13C2-6:2FTS	*41.3*		ng/L	48.8		84.7	60-200			
Surrogate: 13C2-8:2FTS	*38.2*		ng/L	48.8		78.3	50-200			
Surrogate: 13C8-PFOSA	*18.9*		ng/L	24.4		77.5	30-130			
Surrogate: D3-NMeFOSA	*16.2*		ng/L	24.4		66.3	15-130			
Surrogate: D5-NEtFOSA	*16.5*		ng/L	24.4		67.6	10-130			
Surrogate: D3-NMeFOSAA	*39.3*		ng/L	48.8		80.5	45-200			
Surrogate: D5-NEtFOSAA	*37.7*		ng/L	48.8		77.2	10-200			
Surrogate: D7-NMeFOSE	*163*		ng/L	244		66.7	10-150			
Surrogate: D9-NEtFOSE	*152*		ng/L	244		62.2	10-150			
Surrogate: 13C3-HFPO-DA	*91.1*		ng/L	97.6		93.3	25-160			
MRL Check (B382512-MRL1)				Prepared: 08/13/24 Analyzed: 08/14/24						
Perfluorobutanoic acid (PFBA)	9.11	3.9	ng/L	7.81		117	44-157			
Perfluoropentanoic acid (PFPeA)	4.57	2.0	ng/L	3.91		117	57-148			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B382512 - Draft Method 1633										
MRL Check (B382512-MRL1)				Prepared: 08/13/24 Analyzed: 08/14/24						
Perfluorohexanoic acid (PFHxA)	2.16	0.98	ng/L	1.95		111	62-149			
Perfluoroheptanoic acid (PFHpA)	2.19	0.98	ng/L	1.95		112	56-150			
Perfluorooctanoic acid (PFOA)	2.22	0.98	ng/L	1.95		114	57-161			
Perfluorononanoic acid (PFNA)	2.32	0.98	ng/L	1.95		119	53-157			
Perfluorodecanoic acid (PFDA)	2.11	0.98	ng/L	1.95		108	43-158			
Perfluoroundecanoic acid (PFUnA)	2.22	0.98	ng/L	1.95		114	50-155			
Perfluorododecanoic acid (PFDoA)	2.23	0.98	ng/L	1.95		114	60-141			
Perfluorotridecanoic acid (PFTrDA)	2.21	0.98	ng/L	1.95		113	52-140			
Perfluorotetradecanoic acid (PFTeDA)	2.23	0.98	ng/L	1.95		114	52-156			
Perfluorobutanesulfonic acid (PFBS)	2.08	0.98	ng/L	1.73		120	63-145			
Perfluoropentanesulfonic acid (PFPeS)	2.25	0.98	ng/L	1.84		123	58-144			
Perfluorohexanesulfonic acid (PFHxS)	2.45	0.98	ng/L	1.79		137	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	2.22	0.98	ng/L	1.86		119	51-150			
Perfluorooctanesulfonic acid (PFOS)	2.16	0.98	ng/L	1.81		119	43-162			
Perfluorononanesulfonic acid (PFNS)	2.11	0.98	ng/L	1.88		112	46-151			
Perfluorodecanesulfonic acid (PFDS)	2.18	0.98	ng/L	1.89		116	50-144			
Perfluorododecanesulfonic acid (PFDoS)	2.16	0.98	ng/L	1.90		114	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	8.68	3.9	ng/L	7.33		119	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	9.10	3.9	ng/L	7.42		123	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.91	3.9	ng/L	7.52		105	46-165			
Perfluorooctanesulfonamide (PFOSA)	2.41	0.98	ng/L	1.95		123	47-163			
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	2.37	0.98	ng/L	1.95		122	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	2.28	0.98	ng/L	1.95		117	49-156			
N-MeFOSAA (NMeFOSAA)	2.12	0.98	ng/L	1.95		109	32-160			
N-EtFOSAA (NEtFOSAA)	2.66	0.98	ng/L	1.95		136	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	23.1	9.8	ng/L	19.5		118	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	22.1	9.8	ng/L	19.5		113	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.63	3.9	ng/L	7.81		97.6	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.74	3.9	ng/L	7.38		91.4	61-148			
9Cl-PF3ONS (F53B Minor)	6.80	3.9	ng/L	7.33		92.9	44-167			
11Cl-PF3OUdS (F53B Major)	6.49	3.9	ng/L	7.38		88.0	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	19.9	9.8	ng/L	19.5		102	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	95.6	49	ng/L	97.7		97.9	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	91.5	49	ng/L	97.7		93.7	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.52	2.0	ng/L	3.48		101	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.97	2.0	ng/L	3.91		102	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	4.11	2.0	ng/L	3.91		105	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.85	2.0	ng/L	3.91		124	47-160			
Surrogate: 13C4-PFBA	*81.1*		ng/L	97.7		83.1	10-130			
Surrogate: 13C5-PFPeA	*41.4*		ng/L	48.8		84.8	35-150			
Surrogate: 13C5-PFHxA	*20.5*		ng/L	24.4		84.1	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B382512 - Draft Method 1633										
MRL Check (B382512-MRL1)				Prepared: 08/13/24 Analyzed: 08/14/24						
Surrogate: 13C4-PFHpA	*20.9*		ng/L	24.4		85.4	55-150			
Surrogate: 13C8-PFOA	*20.1*		ng/L	24.4		82.2	60-140			
Surrogate: 13C9-PFNA	*10.3*		ng/L	12.2		84.2	55-140			
Surrogate: 13C6-PFDA	*9.61*		ng/L	12.2		78.7	50-140			
Surrogate: 13C7-PFUnA	*9.37*		ng/L	12.2		76.7	30-140			
Surrogate: 13C2-PFDoA	*8.78*		ng/L	12.2		71.9	10-150			
Surrogate: 13C2-PFTeDA	*8.05*		ng/L	12.2		65.9	10-130			
Surrogate: 13C3-PFBS	*21.5*		ng/L	24.4		87.9	55-150			
Surrogate: 13C3-PFHxS	*19.5*		ng/L	24.4		79.7	55-150			
Surrogate: 13C8-PFOS	*19.7*		ng/L	24.4		80.7	45-140			
Surrogate: 13C2-4:2FTS	*36.2*		ng/L	48.8		74.2	60-200			
Surrogate: 13C2-6:2FTS	*37.5*		ng/L	48.8		76.7	60-200			
Surrogate: 13C2-8:2FTS	*34.2*		ng/L	48.8		70.0	50-200			
Surrogate: 13C8-PFOSA	*17.4*		ng/L	24.4		71.4	30-130			
Surrogate: D3-NMeFOSA	*14.7*		ng/L	24.4		60.3	15-130			
Surrogate: D5-NEtFOSA	*15.2*		ng/L	24.4		62.4	10-130			
Surrogate: D3-NMeFOSAA	*37.9*		ng/L	48.8		77.7	45-200			
Surrogate: D5-NEtFOSAA	*37.6*		ng/L	48.8		77.0	10-200			
Surrogate: D7-NMeFOSE	*150*		ng/L	244		61.5	10-150			
Surrogate: D9-NEtFOSE	*141*		ng/L	244		57.7	10-150			
Surrogate: 13C3-HFPO-DA	*86.2*		ng/L	97.7		88.3	25-160			
Batch B383894 - Draft Method 1633										
Blank (B383894-BLK1)				Prepared: 08/29/24 Analyzed: 08/30/24						
Perfluorobutanoic acid (PFBA)	ND	7.6	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	3.8	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	1.9	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	1.9	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	1.9	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	1.9	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	1.9	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	1.9	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	1.9	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	1.9	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	1.9	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	1.9	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	1.9	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	1.9	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	1.9	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	1.9	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	1.9	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	1.9	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	1.9	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	7.6	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	7.6	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	7.6	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	1.9	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	1.9	µg/kg wet							

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B383894 - Draft Method 1633										
Blank (B383894-BLK1)				Prepared: 08/29/24 Analyzed: 08/30/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	1.9	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	1.9	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	1.9	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	19	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	19	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	7.6	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	7.6	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	7.6	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	7.6	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	19	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	95	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	95	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	3.8	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	3.8	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	3.8	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	3.8	µg/kg wet							
Surrogate: 13C4-PFBA	*73.3*		µg/kg wet	95.4		76.9	10-130			
Surrogate: 13C5-PFPeA	*38.0*		µg/kg wet	47.7		79.7	35-150			
Surrogate: 13C5-PFHxA	*18.3*		µg/kg wet	23.9		76.6	55-150			
Surrogate: 13C4-PFHpA	*18.6*		µg/kg wet	23.9		78.1	55-150			
Surrogate: 13C8-PFOA	*17.7*		µg/kg wet	23.9		74.3	60-140			
Surrogate: 13C9-PFNA	*9.52*		µg/kg wet	11.9		79.8	55-140			
Surrogate: 13C6-PFDA	*9.50*		µg/kg wet	11.9		79.6	50-140			
Surrogate: 13C7-PFUnA	*8.97*		µg/kg wet	11.9		75.2	30-140			
Surrogate: 13C2-PFDoA	*8.98*		µg/kg wet	11.9		75.3	10-150			
Surrogate: 13C2-PFTeDA	*8.72*		µg/kg wet	11.9		73.1	10-130			
Surrogate: 13C3-PFBS	*18.9*		µg/kg wet	23.9		79.1	55-150			
Surrogate: 13C3-PFHxS	*18.7*		µg/kg wet	23.9		78.3	55-150			
Surrogate: 13C8-PFOS	*18.1*		µg/kg wet	23.9		75.8	45-150			
Surrogate: 13C2-4:2FTS	*37.8*		µg/kg wet	47.7		79.2	60-200			
Surrogate: 13C2-6:2FTS	*47.7*		µg/kg wet	47.7		99.9	60-200			
Surrogate: 13C2-8:2FTS	*56.1*		µg/kg wet	47.7		118	50-200			
Surrogate: 13C8-PFOSA	*16.8*		µg/kg wet	23.9		70.6	30-130			
Surrogate: D3-NMeFOSA	*11.2*		µg/kg wet	23.9		47.0	15-130			
Surrogate: D5-NEtFOSA	*9.94*		µg/kg wet	23.9		41.7	10-130			
Surrogate: D3-NMeFOSAA	*37.9*		µg/kg wet	47.7		79.4	45-200			
Surrogate: D5-NEtFOSAA	*38.6*		µg/kg wet	47.7		80.8	10-200			
Surrogate: D7-NMeFOSE	*123*		µg/kg wet	239		51.4	10-150			
Surrogate: D9-NEtFOSE	*108*		µg/kg wet	239		45.4	10-150			
Surrogate: 13C3-HFPO-DA	*81.9*		µg/kg wet	95.4		85.8	25-160			
LCS (B383894-BS1)				Prepared: 08/29/24 Analyzed: 08/30/24						
Perfluorobutanoic acid (PFBA)	76.2	6.2	µg/kg wet	74.2		103	58-148			
Perfluoropentanoic acid (PFPeA)	38.2	3.1	µg/kg wet	37.1		103	54-152			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B383894 - Draft Method 1633										
LCS (B383894-BS1)				Prepared: 08/29/24 Analyzed: 08/30/24						
Perfluorohexanoic acid (PFHxA)	18.8	1.5	µg/kg wet	18.5		101	55-152			
Perfluoroheptanoic acid (PFHpA)	19.0	1.5	µg/kg wet	18.5		102	54-154			
Perfluorooctanoic acid (PFOA)	18.5	1.5	µg/kg wet	18.5		99.5	52-161			
Perfluorononanoic acid (PFNA)	18.8	1.5	µg/kg wet	18.5		101	59-149			
Perfluorodecanoic acid (PFDA)	19.4	1.5	µg/kg wet	18.5		105	52-147			
Perfluoroundecanoic acid (PFUnA)	18.5	1.5	µg/kg wet	18.5		99.9	48-159			
Perfluorododecanoic acid (PFDoA)	19.2	1.5	µg/kg wet	18.5		104	64-142			
Perfluorotridecanoic acid (PFTrDA)	18.3	1.5	µg/kg wet	18.5		98.7	49-148			
Perfluorotetradecanoic acid (PFTeDA)	19.3	1.5	µg/kg wet	18.5		104	47-161			
Perfluorobutanesulfonic acid (PFBS)	16.8	1.5	µg/kg wet	16.5		102	62-144			
Perfluoropentanesulfonic acid (PFPeS)	17.4	1.5	µg/kg wet	17.4		99.6	59-151			
Perfluorohexanesulfonic acid (PFHxS)	17.4	1.5	µg/kg wet	17.0		103	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	16.9	1.5	µg/kg wet	17.7		95.5	55-152			
Perfluorooctanesulfonic acid (PFOS)	16.9	1.5	µg/kg wet	17.2		98.3	58-149			
Perfluorononanesulfonic acid (PFNS)	17.7	1.5	µg/kg wet	17.9		99.2	52-148			
Perfluorodecanesulfonic acid (PFDS)	17.3	1.5	µg/kg wet	17.9		96.7	51-147			
Perfluorododecanesulfonic acid (PFDoS)	17.8	1.5	µg/kg wet	18.0		99.0	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	73.4	6.2	µg/kg wet	69.6		105	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	75.3	6.2	µg/kg wet	70.5		107	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	76.8	6.2	µg/kg wet	71.4		108	63-152			
Perfluorooctanesulfonamide (PFOSA)	19.2	1.5	µg/kg wet	18.5		104	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	16.3	1.5	µg/kg wet	18.5		87.7	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	16.5	1.5	µg/kg wet	18.5		88.7	65-139			
N-MeFOSAA (NMeFOSAA)	19.5	1.5	µg/kg wet	18.5		105	58-144			
N-EtFOSAA (NEtFOSAA)	20.4	1.5	µg/kg wet	18.5		110	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	190	15	µg/kg wet	185		102	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	191	15	µg/kg wet	185		103	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	74.4	6.2	µg/kg wet	74.2		100	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	67.7	6.2	µg/kg wet	70.0		96.7	68-146			
9Cl-PF3ONS (F53B Minor)	74.7	6.2	µg/kg wet	69.6		107	56-156			
11Cl-PF3OUdS (F53B Major)	77.3	6.2	µg/kg wet	70.0		110	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	189	15	µg/kg wet	185		102	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	977	77	µg/kg wet	927		105	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	997	77	µg/kg wet	927		107	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	41.0	3.1	µg/kg wet	33.0		124	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	42.1	3.1	µg/kg wet	37.1		114	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	43.2	3.1	µg/kg wet	37.1		116	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	51.9	3.1	µg/kg wet	37.1		140	48-161			
Surrogate: 13C4-PFBA	*61.6*		µg/kg wet	77.3		79.7	10-130			
Surrogate: 13C5-PFPeA	*31.7*		µg/kg wet	38.6		82.1	35-150			
Surrogate: 13C5-PFHxA	*15.4*		µg/kg wet	19.3		79.7	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B383894 - Draft Method 1633										
LCS (B383894-BS1)				Prepared: 08/29/24 Analyzed: 08/30/24						
Surrogate: 13C4-PFHpA	*15.7*		µg/kg wet	19.3		81.2	55-150			
Surrogate: 13C8-PFOA	*15.0*		µg/kg wet	19.3		77.9	60-140			
Surrogate: 13C9-PFNA	*8.06*		µg/kg wet	9.66		83.4	55-140			
Surrogate: 13C6-PFDA	*7.61*		µg/kg wet	9.66		78.7	50-140			
Surrogate: 13C7-PFUnA	*7.90*		µg/kg wet	9.66		81.8	30-140			
Surrogate: 13C2-PFDoA	*7.10*		µg/kg wet	9.66		73.5	10-150			
Surrogate: 13C2-PFTeDA	*7.18*		µg/kg wet	9.66		74.4	10-130			
Surrogate: 13C3-PFBS	*15.6*		µg/kg wet	19.3		81.0	55-150			
Surrogate: 13C3-PFHxS	*15.9*		µg/kg wet	19.3		82.3	55-150			
Surrogate: 13C8-PFOS	*15.5*		µg/kg wet	19.3		80.4	45-150			
Surrogate: 13C2-4:2FTS	*32.8*		µg/kg wet	38.6		85.0	60-200			
Surrogate: 13C2-6:2FTS	*39.8*		µg/kg wet	38.6		103	60-200			
Surrogate: 13C2-8:2FTS	*45.3*		µg/kg wet	38.6		117	50-200			
Surrogate: 13C8-PFOSA	*13.8*		µg/kg wet	19.3		71.2	30-130			
Surrogate: D3-NMeFOSA	*10.8*		µg/kg wet	19.3		55.9	15-130			
Surrogate: D5-NEtFOSA	*9.70*		µg/kg wet	19.3		50.2	10-130			
Surrogate: D3-NMeFOSAA	*31.4*		µg/kg wet	38.6		81.3	45-200			
Surrogate: D5-NEtFOSAA	*32.6*		µg/kg wet	38.6		84.4	10-200			
Surrogate: D7-NMeFOSE	*101*		µg/kg wet	193		52.3	10-150			
Surrogate: D9-NEtFOSE	*89.3*		µg/kg wet	193		46.2	10-150			
Surrogate: 13C3-HFPO-DA	*66.0*		µg/kg wet	77.3		85.4	25-160			
MRL Check (B383894-MRL1)				Prepared: 08/29/24 Analyzed: 08/30/24						
Perfluorobutanoic acid (PFBA)	6.42	6.1	µg/kg wet	6.13		105	44-157			
Perfluoropentanoic acid (PFPeA)	3.23	3.1	µg/kg wet	3.06		105	57-148			
Perfluorohexanoic acid (PFHxA)	1.61	1.5	µg/kg wet	1.53		105	62-149			
Perfluoroheptanoic acid (PFHpA)	1.57	1.5	µg/kg wet	1.53		103	56-150			
Perfluorooctanoic acid (PFOA)	1.61	1.5	µg/kg wet	1.53		105	57-161			
Perfluorononanoic acid (PFNA)	1.59	1.5	µg/kg wet	1.53		104	53-157			
Perfluorodecanoic acid (PFDA)	1.53	1.5	µg/kg wet	1.53		100	43-158			
Perfluoroundecanoic acid (PFUnA)	1.50	1.5	µg/kg wet	1.53		97.8	50-155			J
Perfluorododecanoic acid (PFDoA)	1.54	1.5	µg/kg wet	1.53		101	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.54	1.5	µg/kg wet	1.53		101	52-140			
Perfluorotetradecanoic acid (PFTeDA)	1.59	1.5	µg/kg wet	1.53		104	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.38	1.5	µg/kg wet	1.36		101	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.53	1.5	µg/kg wet	1.44		106	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.50	1.5	µg/kg wet	1.40		107	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.47	1.5	µg/kg wet	1.46		101	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.55	1.5	µg/kg wet	1.42		109	43-162			
Perfluorononanesulfonic acid (PFNS)	1.56	1.5	µg/kg wet	1.47		106	46-151			
Perfluorodecanesulfonic acid (PFDS)	1.48	1.5	µg/kg wet	1.48		100	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.43	1.5	µg/kg wet	1.49		96.1	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.05	6.1	µg/kg wet	5.74		105	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	6.11	6.1	µg/kg wet	5.82		105	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	6.31	6.1	µg/kg wet	5.90		107	46-165			
Perfluorooctanesulfonamide (PFOSA)	1.54	1.5	µg/kg wet	1.53		101	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.26	1.5	µg/kg wet	1.53		82.5	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.41	1.5	µg/kg wet	1.53		92.2	49-156			J
N-MeFOSAA (NMeFOSAA)	1.58	1.5	µg/kg wet	1.53		103	32-160			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B383894 - Draft Method 1633										
MRL Check (B383894-MRL1)				Prepared: 08/29/24 Analyzed: 08/30/24						
N-EtFOSAA (NEtFOSAA)	1.88	1.5	µg/kg wet	1.53		123	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	15.6	15	µg/kg wet	15.3		102	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	15.3	15	µg/kg wet	15.3		100	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	5.70	6.1	µg/kg wet	6.13		93.0	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.21	6.1	µg/kg wet	5.78		90.2	61-148			J
9Cl-PF3ONS (F53B Minor)	5.79	6.1	µg/kg wet	5.74		101	44-167			J
11Cl-PF3OUdS (F53B Major)	5.79	6.1	µg/kg wet	5.78		100	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	14.1	15	µg/kg wet	15.3		92.3	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	73.6	77	µg/kg wet	76.6		96.2	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	76.3	77	µg/kg wet	76.6		99.7	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	2.80	3.1	µg/kg wet	2.73		103	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.24	3.1	µg/kg wet	3.06		106	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.11	3.1	µg/kg wet	3.06		102	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.02	3.1	µg/kg wet	3.06		131	47-160			
Surrogate: 13C4-PFBA	*54.8*		µg/kg wet	76.6		71.6	10-130			
Surrogate: 13C5-PFPeA	*27.9*		µg/kg wet	38.3		72.8	35-150			
Surrogate: 13C5-PFHxA	*13.5*		µg/kg wet	19.1		70.5	55-150			
Surrogate: 13C4-PFHpA	*13.8*		µg/kg wet	19.1		71.9	55-150			
Surrogate: 13C8-PFOA	*13.2*		µg/kg wet	19.1		69.0	60-140			
Surrogate: 13C9-PFNA	*7.02*		µg/kg wet	9.57		73.3	55-140			
Surrogate: 13C6-PFDA	*7.12*		µg/kg wet	9.57		74.4	50-140			
Surrogate: 13C7-PFUnA	*7.00*		µg/kg wet	9.57		73.1	30-140			
Surrogate: 13C2-PFDoA	*6.49*		µg/kg wet	9.57		67.8	10-150			
Surrogate: 13C2-PFTeDA	*6.57*		µg/kg wet	9.57		68.7	10-130			
Surrogate: 13C3-PFBS	*13.9*		µg/kg wet	19.1		72.8	55-150			
Surrogate: 13C3-PFHxS	*13.8*		µg/kg wet	19.1		71.9	55-150			
Surrogate: 13C8-PFOS	*13.8*		µg/kg wet	19.1		72.3	45-150			
Surrogate: 13C2-4:2FTS	*28.8*		µg/kg wet	38.3		75.2	60-200			
Surrogate: 13C2-6:2FTS	*36.7*		µg/kg wet	38.3		95.8	60-200			
Surrogate: 13C2-8:2FTS	*42.6*		µg/kg wet	38.3		111	50-200			
Surrogate: 13C8-PFOSA	*12.7*		µg/kg wet	19.1		66.4	30-130			
Surrogate: D3-NMeFOSA	*10.3*		µg/kg wet	19.1		53.6	15-130			
Surrogate: D5-NEtFOSA	*9.30*		µg/kg wet	19.1		48.6	10-130			
Surrogate: D3-NMeFOSAA	*29.4*		µg/kg wet	38.3		76.8	45-200			
Surrogate: D5-NEtFOSAA	*30.6*		µg/kg wet	38.3		79.8	10-200			
Surrogate: D7-NMeFOSE	*92.0*		µg/kg wet	191		48.1	10-150			
Surrogate: D9-NEtFOSE	*82.7*		µg/kg wet	191		43.2	10-150			
Surrogate: 13C3-HFPO-DA	*57.7*		µg/kg wet	76.6		75.3	25-160			
Matrix Spike (B383894-MS1)		**Source: 24H1317-01**		Prepared: 08/29/24 Analyzed: 08/30/24						
Perfluorobutanoic acid (PFBA)	91.0	7.3	µg/kg dry	87.9	ND	103	58-148			
Perfluoropentanoic acid (PFPeA)	55.5	3.7	µg/kg dry	44.0	3.60	118	54-152			
Perfluorohexanoic acid (PFHxA)	24.9	1.8	µg/kg dry	22.0	1.20	108	55-152			
Perfluoroheptanoic acid (PFHpA)	22.4	1.8	µg/kg dry	22.0	ND	102	54-154			
Perfluorooctanoic acid (PFOA)	23.5	1.8	µg/kg dry	22.0	0.525	104	52-161			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B383894 - Draft Method 1633											
Matrix Spike (B383894-MS1)	**Source: 24H1317-01**			Prepared: 08/29/24 Analyzed: 08/30/24							
Perfluorononanoic acid (PFNA)	24.3	1.8	µg/kg dry	22.0	0.422	109		59-149			
Perfluorodecanoic acid (PFDA)	24.8	1.8	µg/kg dry	22.0	1.44	106		52-147			
Perfluoroundecanoic acid (PFUnA)	24.3	1.8	µg/kg dry	22.0	1.04	106		48-159			
Perfluorododecanoic acid (PFDoA)	25.8	1.8	µg/kg dry	22.0	1.77	109		64-142			
Perfluorotridecanoic acid (PFTrDA)	14.8	1.8	µg/kg dry	22.0	0.381	65.6		49-148			
Perfluorotetradecanoic acid (PFTeDA)	24.5	1.8	µg/kg dry	22.0	0.509	109		47-161			
Perfluorobutanesulfonic acid (PFBS)	19.7	1.8	µg/kg dry	19.5	ND	101		62-144			
Perfluoropentanesulfonic acid (PFPeS)	22.0	1.8	µg/kg dry	20.7	ND	106		59-151			
Perfluorohexanesulfonic acid (PFHxS)	34.5	1.8	µg/kg dry	20.1	ND	**171**	*	57-146			MS-12
Perfluoroheptanesulfonic acid (PFHpS)	34.1	1.8	µg/kg dry	20.9	ND	**163**	*	55-152			MS-22
Perfluorooctanesulfonic acid (PFOS)	33.6	1.8	µg/kg dry	20.4	11.2	110		58-149			
Perfluorononanesulfonic acid (PFNS)	14.6	1.8	µg/kg dry	21.2	ND	69.2		52-148			
Perfluorodecanesulfonic acid (PFDS)	16.2	1.8	µg/kg dry	21.2	ND	76.3		51-147			
Perfluorododecanesulfonic acid (PFDoS)	7.19	1.8	µg/kg dry	21.3	ND	**33.7**	*	36-145			MS-22
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	86.0	7.3	µg/kg dry	82.4	ND	104		67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	90.9	7.3	µg/kg dry	83.5	ND	109		61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	89.3	7.3	µg/kg dry	84.6	ND	105		63-152			
Perfluorooctanesulfonamide (PFOSA)	22.5	1.8	µg/kg dry	22.0	0.371	100		61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	22.4	1.8	µg/kg dry	22.0	ND	102		63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	22.7	1.8	µg/kg dry	22.0	ND	103		65-139			
N-MeFOSAA (NMeFOSAA)	24.3	1.8	µg/kg dry	22.0	1.78	102		58-144			
N-EtFOSAA (NEtFOSAA)	27.4	1.8	µg/kg dry	22.0	2.50	113		59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	363	18	µg/kg dry	220	2.23	**164**	*	71-136			MS-12
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	205	18	µg/kg dry	220	ND	93.2		69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	96.3	7.3	µg/kg dry	87.9	ND	109		63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	103	7.3	µg/kg dry	83.0	ND	124		68-146			
9Cl-PF3ONS (F53B Minor)	94.2	7.3	µg/kg dry	82.4	ND	114		56-156			
11Cl-PF3OUdS (F53B Major)	99.0	7.3	µg/kg dry	83.0	ND	119		46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	214	18	µg/kg dry	220	ND	97.1		62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1760	92	µg/kg dry	1100	ND	**160**	*	63-134			MS-23
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	1930	92	µg/kg dry	1100	ND	**175**	*	50-138			MS-23
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	46.4	3.7	µg/kg dry	39.1	ND	119		56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	42.2	3.7	µg/kg dry	44.0	ND	95.9		51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	53.3	3.7	µg/kg dry	44.0	ND	121		55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	35.2	3.7	µg/kg dry	44.0	ND	80.0		48-161			
Surrogate: 13C4-PFBA	*69.0*		µg/kg dry	91.6		75.3		10-130			
Surrogate: 13C5-PFPeA	*32.6*		µg/kg dry	45.8		71.3		35-150			
Surrogate: 13C5-PFHxA	*17.7*		µg/kg dry	22.9		77.1		55-150			
Surrogate: 13C4-PFHpA	*19.1*		µg/kg dry	22.9		83.4		55-150			
Surrogate: 13C8-PFOA	*17.9*		µg/kg dry	22.9		78.1		60-140			
Surrogate: 13C9-PFNA	*8.80*		µg/kg dry	11.5		76.8		55-140			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B383894 - Draft Method 1633											
Matrix Spike (B383894-MS1)	**Source: 24H1317-01**			Prepared: 08/29/24 Analyzed: 08/30/24							
Surrogate: 13C6-PFDA	*8.60*		µg/kg dry	11.5		75.1		50-140			
Surrogate: 13C7-PFUnA	*6.91*		µg/kg dry	11.5		60.3		30-140			
Surrogate: 13C2-PFDoA	*6.68*		µg/kg dry	11.5		58.3		10-150			
Surrogate: 13C2-PFTeDA	*2.47*		µg/kg dry	11.5		21.6		10-130			
Surrogate: 13C3-PFBS	*18.9*		µg/kg dry	22.9		82.7		55-150			
Surrogate: 13C3-PFHxS	*18.7*		µg/kg dry	22.9		81.7		55-150			
Surrogate: 13C8-PFOS	*19.3*		µg/kg dry	22.9		84.3		45-150			
Surrogate: 13C2-4:2FTS	*59.2*		µg/kg dry	45.8		129		60-200			
Surrogate: 13C2-6:2FTS	*87.1*		µg/kg dry	45.8		190		60-200			
Surrogate: 13C2-8:2FTS	*84.0*		µg/kg dry	45.8		183		50-200			
Surrogate: 13C8-PFOSA	*18.7*		µg/kg dry	22.9		81.6		30-130			
Surrogate: D3-NMeFOSA	*4.03*		µg/kg dry	22.9		17.6		15-130			
Surrogate: D5-NEtFOSA	*2.54*		µg/kg dry	22.9		11.1		10-130			
Surrogate: D3-NMeFOSAA	*30.8*		µg/kg dry	45.8		67.2		45-200			
Surrogate: D5-NEtFOSAA	*28.8*		µg/kg dry	45.8		62.8		10-200			
Surrogate: D7-NMeFOSE	*23.2*		µg/kg dry	229		10.1		10-150			
Surrogate: D9-NEtFOSE	*50.0*		µg/kg dry	229		21.8		10-150			
Surrogate: 13C3-HFPO-DA	*63.4*		µg/kg dry	91.6		69.2		25-160			
Matrix Spike Dup (B383894-MSD1)	**Source: 24H1317-01**			Prepared: 08/29/24 Analyzed: 08/30/24							
Perfluorobutanoic acid (PFBA)	85.4	6.8	µg/kg dry	81.6	ND	105		58-148	6.32	20	
Perfluoropentanoic acid (PFPeA)	49.6	3.4	µg/kg dry	40.8	3.60	113		54-152	11.4	20	
Perfluorohexanoic acid (PFHxA)	23.1	1.7	µg/kg dry	20.4	1.20	108		55-152	7.43	25	
Perfluoroheptanoic acid (PFHpA)	21.1	1.7	µg/kg dry	20.4	ND	104		54-154	5.85	25	
Perfluorooctanoic acid (PFOA)	22.6	1.7	µg/kg dry	20.4	0.525	108		52-161	3.75	25	
Perfluorononanoic acid (PFNA)	21.1	1.7	µg/kg dry	20.4	0.422	102		59-149	14.1	25	
Perfluorodecanoic acid (PFDA)	22.7	1.7	µg/kg dry	20.4	1.44	104		52-147	8.98	25	
Perfluoroundecanoic acid (PFUnA)	21.4	1.7	µg/kg dry	20.4	1.04	99.8		48-159	12.7	30	
Perfluorododecanoic acid (PFDoA)	24.3	1.7	µg/kg dry	20.4	1.77	110		64-142	6.03	25	
Perfluorotridecanoic acid (PFTrDA)	14.5	1.7	µg/kg dry	20.4	0.381	69.1		49-148	2.15	25	
Perfluorotetradecanoic acid (PFTeDA)	22.2	1.7	µg/kg dry	20.4	0.509	107		47-161	9.71	25	
Perfluorobutanesulfonic acid (PFBS)	18.4	1.7	µg/kg dry	18.1	ND	102		62-144	6.65	20	
Perfluoropentanesulfonic acid (PFPeS)	20.3	1.7	µg/kg dry	19.2	ND	106		59-151	7.67	25	
Perfluorohexanesulfonic acid (PFHxS)	32.6	1.7	µg/kg dry	18.7	ND	**175**	*	57-146	5.56	25	MS-12
Perfluoroheptanesulfonic acid (PFHpS)	28.6	1.7	µg/kg dry	19.4	ND	147		55-152	17.4	25	
Perfluorooctanesulfonic acid (PFOS)	37.6	1.7	µg/kg dry	18.9	11.2	140		58-149	11.4	20	
Perfluorononanesulfonic acid (PFNS)	15.1	1.7	µg/kg dry	19.6	ND	76.9		52-148	3.05	25	
Perfluorodecanesulfonic acid (PFDS)	16.7	1.7	µg/kg dry	19.7	ND	85.1		51-147	3.38	25	
Perfluorododecanesulfonic acid (PFDoS)	7.24	1.7	µg/kg dry	19.8	ND	36.6		36-145	0.756	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	80.1	6.8	µg/kg dry	76.5	ND	105		67-146	7.08	25	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	83.7	6.8	µg/kg dry	77.5	ND	108		61-151	8.26	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	81.8	6.8	µg/kg dry	78.5	ND	104		63-152	8.72	30	
Perfluorooctanesulfonamide (PFOSA)	21.4	1.7	µg/kg dry	20.4	0.371	103		61-148	4.59	20	S-29
N-methyl perfluorooctanesulfonamide (NMeFOSA)	22.5	1.7	µg/kg dry	20.4	ND	110		63-145	0.365	25	S-29
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	18.8	1.7	µg/kg dry	20.4	ND	92.0		65-139	18.8	25	S-29
N-MeFOSAA (NMeFOSAA)	23.7	1.7	µg/kg dry	20.4	1.78	108		58-144	2.27	25	
N-EtFOSAA (NEtFOSAA)	25.3	1.7	µg/kg dry	20.4	2.50	112		59-146	8.27	25	
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	366	17	µg/kg dry	204	2.23	**178**	*	71-136	0.753	20	MS-12, PF-18

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD		RPD Limit	Notes
Batch B383894 - Draft Method 1633												
Matrix Spike Dup (B383894-MSD1)	**Source: 24H1317-01**			Prepared: 08/29/24 Analyzed: 08/30/24								
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	191	17	µg/kg dry	204	ND	93.6		69-137	7.14		25	S-29
Hexafluoropropylene oxide dimer acid (HFPO-DA)	82.3	6.8	µg/kg dry	81.6	ND	101		63-144	15.7		25	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	84.2	6.8	µg/kg dry	77.0	ND	109		68-146	**20.3**	*	20	R-06
9Cl-PF3ONS (F53B Minor)	80.2	6.8	µg/kg dry	76.5	ND	105		56-156	16.0		30	
11Cl-PF3OUdS (F53B Major)	87.2	6.8	µg/kg dry	77.0	ND	113		46-156	12.7		35	
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	28.5	17	µg/kg dry	204	ND	**14.0**	*	62-129	**153**	*	20	MS-23
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	824	85	µg/kg dry	1020	ND	80.8		63-134	**72.2**	*	20	R-06
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1310	85	µg/kg dry	1020	ND	128		50-138	**38.2**	*	25	R-06
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	46.0	3.4	µg/kg dry	36.3	ND	127		56-151	1.06		20	
Perfluoro-3-methoxypropanoic acid (PFMPA)	31.9	3.4	µg/kg dry	40.8	ND	78.3		51-145	**27.6**	*	25	R-06
Perfluoro-4-methoxybutanoic acid (PFMBA)	50.3	3.4	µg/kg dry	40.8	ND	123		55-148	5.64		20	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	47.5	3.4	µg/kg dry	40.8	ND	117		48-161	29.9		35	
Surrogate: 13C4-PFBA	*29.9*		µg/kg dry	85.0		35.2		10-130				
Surrogate: 13C5-PFPeA	*23.8*		µg/kg dry	42.5		56.1		35-150				
Surrogate: 13C5-PFHxA	*14.2*		µg/kg dry	21.2		66.9		55-150				
Surrogate: 13C4-PFHpA	*15.6*		µg/kg dry	21.2		73.6		55-150				
Surrogate: 13C8-PFOA	*14.5*		µg/kg dry	21.2		68.5		60-140				
Surrogate: 13C9-PFNA	*7.90*		µg/kg dry	10.6		74.4		55-140				
Surrogate: 13C6-PFDA	*7.62*		µg/kg dry	10.6		71.7		50-140				
Surrogate: 13C7-PFUnA	*6.08*		µg/kg dry	10.6		57.2		30-140				
Surrogate: 13C2-PFDoA	*6.19*		µg/kg dry	10.6		58.3		10-150				
Surrogate: 13C2-PFTeDA	*2.44*		µg/kg dry	10.6		23.0		10-130				
Surrogate: 13C3-PFBS	*15.7*		µg/kg dry	21.2		74.1		55-150				
Surrogate: 13C3-PFHxS	*15.3*		µg/kg dry	21.2		72.0		55-150				
Surrogate: 13C8-PFOS	*16.3*		µg/kg dry	21.2		76.8		45-150				
Surrogate: 13C2-4:2FTS	*34.8*		µg/kg dry	42.5		81.9		60-200				
Surrogate: 13C2-6:2FTS	*55.5*		µg/kg dry	42.5		131		60-200				
Surrogate: 13C2-8:2FTS	*65.8*		µg/kg dry	42.5		155		50-200				
Surrogate: 13C8-PFOSA	*5.54*		µg/kg dry	21.2		**26.1**	*	30-130				S-29
Surrogate: D3-NMeFOSA	*2.53*		µg/kg dry	21.2		**11.9**	*	15-130				S-29
Surrogate: D5-NEtFOSA	*2.02*		µg/kg dry	21.2		**9.50**	*	10-130				S-29
Surrogate: D3-NMeFOSAA	*26.8*		µg/kg dry	42.5		63.0		45-200				
Surrogate: D5-NEtFOSAA	*26.3*		µg/kg dry	42.5		61.8		10-200				
Surrogate: D7-NMeFOSE	*4.58*		µg/kg dry	212		**2.16**	*	10-150				PF-18
Surrogate: D9-NEtFOSE	*16.7*		µg/kg dry	212		**7.87**	*	10-150				S-29
Surrogate: 13C3-HFPO-DA	*56.7*		µg/kg dry	85.0		66.8		25-160				

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QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B384310 - % Solids										
Duplicate (B384310-DUP1)		**Source: 24H1317-01**		Prepared & Analyzed: 08/27/24						
% Solids	96.6		% Wt		96.8			0.162	10	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-06	Sample was extracted past the recommended holding time.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
MS-12	Matrix spike recovery and matrix spike duplicate recovery outside of control limits. Possibility of sample matrix effects that lead to a high bias for reported result or non-homogeneous sample aliquots cannot be eliminated.
MS-22	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is within method specified criteria.
MS-23	Either matrix spike or MS duplicate is outside of control limits, but the other is within limits. RPD between the two MS/MSD results is outside of the method specified criteria. Reduced precision anticipated for any reported result for this compound.
PF-18	Re-analysis confirmed Extracted Internal Standard failure due to matrix effects.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
R-06	Matrix spike duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result for this compound in this sample.
S-29	Extracted Internal Standard is outside of control limits.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2025
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2025

Internal Transfer Chain of Custody

24H1317

☐ Rush Multiplier ____X

☒ Samples Pre-Logged into eCOC

State Of Origin: IL

Cert. Needed: ☐ Yes ☒ No

Workorder: 40282150 **Workorder Name:** BIOSOLIDS ~~PFA 1663~~ PFAS 1633 CKV 9/3/24 **Owner Received Date:** 8/7/2024 **Results Requested By:** 9/5/2024

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved					Requested Analysis: 1663 PFAS	LAB USE ONLY
1	PCD Classifier 1 080624	PS	8/6/2024 09:00	40282150001	Solid	2					X	
2	Field Blank 080624	PS	8/6/2009 09:00	40282150002	Water	2					X	
3												
4												
5												

Transfers	Released By	Date/Time	Received By	Date/Time
1	Matt [illegible] Pace	08/07/24 [illegible]	[illegible]	8/8/24 950
2				
3				

Comments: Need dry wieght and wet wieght

Cooler Temperature on Receipt 2.1 °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

FedEx® Tracking

DELIVERED

Thursday

8/8/24 at 9:50 AM

Signed for by: L.ARROYO

Obtain proof of delivery

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

427891389095

FROM
GREEN BAY, WI US

Label Created
8/7/24 4:22 PM

WE HAVE YOUR PACKAGE
GREEN BAY, WI
8/7/24 5:04 PM

ON THE WAY
WINDSOR LOCKS, CT
8/8/24 7:54 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
8/8/24 8:06 AM

DELIVERED
East Longmeadow, MA US

Delivered
8/8/24 at 9:50 AM

↓ View travel history

Want updates on this shipment? Enter your email and we will do the rest!

Your email

SUBMIT

MORE OPTIONS

Log In Back-Sheet

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

Client Pace -WI

Project Biosolids PFA 1163

MCP/RCP Required n/a

Deliverable Package Requirement n/a

Location IL

PWSID# (When Applicable) n/a

Arrival Method:

Courier ☐ Fed Ex ☒ Walk In ☐ Other ☐

Received By / Date / Time EGR 8/8/24 930

Back-Sheet By / Date / Time RLF 8/9/24 945

Temperature Method gun # 16

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

Temp < 6° C Actual Temperature 2.2°

Rush Samples: Yes / (No) Notify

Short Hold: Yes / (No) Notify

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE 8/7/24 ME –	☒	☐
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☐	☒
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☐	☒
COC Legible	☒	☐

COC Included: (Check all included)

Client ☒ Analysis ☒ Sampler Name ☒

Project ☒ IDs ☒ Collection Date/Time ☒

All Samples Proper pr: (N/A) ☐ ☐

Notes regarding Samples/COC outside of SOP:

Additional Container Notes

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

Sample																					
16oz Amb/Clear	Soils Jars (Circle Amb/Clear)																				
8oz Amb/Clear																				1	
4oz Amb/Clear																					
2oz Amb/Clear																					
Unpreserved	Ambers	1 Liter																			
HCL																					
Sulfuric																					
Sulfuric		250mL																			
Phosphoric																					
HCl																					
Unpreserved		100mL																			
Unpreserved	Plastics	1 Liter																			
Sulfuric																					
Unpreserved		500mL																	2		
Sulfuric																					
Unpreserved		250mL																			
Trizma																					
Sulfuric																					
Nitric																					
NaOH																					
Ammonium Acetate																					
NaOH/Zinc																					
Unpreserved	VOA Vials																				
HCl																					
MeOH																					
D.I. Water																					
BiSulfate																					
Col/Bact	Other / Fill in																				

9

CDPHE PFAS SAMPLING

SEPTEMBER 3, 2024

METROPOLITAN BIOSOLIDS MANAGEMENT LLC

CICERO, IL

ANALYSIS REPORT – PACE ANALYTICAL NE 40283460

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

September 27, 2024

Jon Gibson
Veolia
6001 W. Pershing Rd
Cicero, IL 60804

RE: Project: PFAS/1633
Pace Project No.: 40283460

Dear Jon Gibson:

Enclosed are the analytical results for sample(s) received by the laboratory on September 03, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Cindy K Varga

Cindy Varga
cindy.varga@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Connie Bollin, OT & T Inc
Bill Davis, OT&T Inc.
Jennfier Garcia, Veolia
Sara King, Veolia North America
Josef Novalinski, Veolia
Glenn Troyer, OT&T Inc
Sarah Troyer, OT&T Inc

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

SAMPLE SUMMARY

Project: PFAS/1633
Pace Project No.: 40283460

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40283460001	PCD 090324 CLASSIFIER 3	Solid	09/03/24 09:10	09/03/24 14:35
40283460002	FIELD BLANK 090324 WATER	Water	09/03/24 09:10	09/03/24 14:35

40283460

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

Page: 1 of 1

Section A Required Client Information	Section B Required Project Information	Section C Invoice Information
Veolia North America	Report To Same	Attention Veolia Support Services North
6001 W Pershing Rd	Copy To	Company Name Veolia Support Services North
Cicero, IL 60804		Address 125 S 84th St Suite 175, Milwaukee, WI 53214
Email To cletus ketter@veolia com	Purchase Order No: PO 1000361834	Pace Quote Reference na
Phone 708 652 0575 Fax N/A	Project Name: PFAS/1633	Pace Project Manager Cindy Varga
Requested Due Date/TAT:	Project Number NA	Pace Profile # 5083

REGULATORY AGENCY

_ NPDES _GROUND WATER _DRINKING WATER _UST _RCRA OTHER X

SITE LOCATION _GA X IL _IN _MI _NC _OH _SC _WI OTHER__

Filtered (Y/N): N

Analysis: 1633 PFAS; Residual Chlor

Section D Required Client Information — SAMPLE ID — One Character per box. (A-Z, 0-9 / ,-) Samples IDs MUST BE UNIQUE

Valid Matrix Codes: MATRIX / CODE — DRINKING WATER DW, WATER WT, WASTE WATER WW, PRODUCT P, SOIL/SOLID SL, OIL OL, WIPE WP, AIR AR, OTHER OT, TISSUE TS

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COMPOSITE START DATE	TIME	COMPOSITE END/GRAB DATE	TIME	# OF CONTAINERS	Preservatives: Unpreserved	1633 PFAS	Pace Project Number Lab I D
1	PCD 090324 Classifier 3	SL	G	9-3-24	9:10Am			1		X	
2	Field Blank 090324 WAter	W	W	9-3-24	9:10Am			1			
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

WO#: 40283460

40283460

Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
[signature]			[signature]	9/3/24	1030	Y/N Y/N Y/N
[signature]	9/3/24					Y/N Y/N Y/N
						Y/N Y/N Y/N
						Y/N Y/N Y/N

Temp in °C | Received on Ice | Custody Sealed Cooler | Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Josef Novalbanski

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/3/24

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September 27, 2024

Cindy Varga
Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302

Project Location: PFAS/1633
Client Job Number:
Project Number: 40283460
Laboratory Work Order Number: 24I0465

Enclosed are results of analyses for samples as received by the laboratory on September 4, 2024. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rebecca Faust
Project Manager

Table of Contents

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

Pace Analytical Services - WI
1241 Bellevue Street Suite 9
Green Bay, WI 54302
ATTN: Cindy Varga

REPORT DATE: 9/27/2024

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 40283460

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 24I0465

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

PROJECT LOCATION: PFAS/1633

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PCD 090324 CLASSIFIER 3	24I0465-01	Biosolids		Draft Method 1633	
				SM 2540G	
FIELD BLANK 090324 WATER	24I0465-02	Field Blank		Draft Method 1633	
PCD 090324 CLASSIFIER 3 - Wet Weight	24I0465-03	Biosolids		Draft Method 1633	

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CASE NARRATIVE SUMMARY

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

Draft Method 1633

Qualifications:

PF-17C

Extracted internal standard is outside of control limits. Analyte is a known difficult compound.

Analyte & Samples(s) Qualified:

13C2-6:2FTS
S110767-CCV2

13C2-8:2FTS
S110767-CCV2, S110767-CCV3, S110767-CCV4

1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS
S110767-CCV2, S110767-CCV3, S110767-CCV4

1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS
S110767-CCV2

PF-23

Qualifier ion ratio <50% of associated calibration. Detection is suspect.

Analyte & Samples(s) Qualified:

Perfluoropentanoic acid (PFPeA)
24I0465-01[PCD 090324 CLASSIFIER 3], 24I0465-03[PCD 090324 CLASSIFIER 3 - Wet Weight]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA
S110667-CCV1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Perfluorooctanesulfonic acid (PFOS)
S110767-CCV1

SM 2540G

Qualifications:

H-06

Sample was extracted past the recommended holding time.

Analyte & Samples(s) Qualified:

% Solids
24I0465-01[PCD 090324 CLASSIFIER 3]

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The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Technical Representative

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

Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: PCD 090324 CLASSIFIER 3 Sampled: 9/3/2024 09:10

Sample ID: 24I0465-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	74	30	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoropentanoic acid (PFPeA)	5.4	37	4.2	µg/kg dry	1	J, PF-23	Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorohexanoic acid (PFHxA)	ND	19	3.1	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoroheptanoic acid (PFHpA)	ND	19	1.3	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorooctanoic acid (PFOA)	ND	19	2.9	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorononanoic acid (PFNA)	ND	19	1.3	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorodecanoic acid (PFDA)	ND	19	1.6	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoroundecanoic acid (PFUnA)	ND	19	2.2	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorododecanoic acid (PFDoA)	ND	19	2.0	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorotridecanoic acid (PFTrDA)	ND	19	2.0	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorotetradecanoic acid (PFTeDA)	ND	19	1.9	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorobutanesulfonic acid (PFBS)	ND	19	1.9	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	19	2.4	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	19	7.3	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	19	2.0	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorooctanesulfonic acid (PFOS)	9.8	19	2.9	µg/kg dry	1	J	Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorononanesulfonic acid (PFNS)	ND	19	2.0	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorodecanesulfonic acid (PFDS)	ND	19	2.9	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorododecanesulfonic acid (PFDoS)	ND	19	2.8	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	74	6.5	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	74	47	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	74	8.6	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorooctanesulfonamide (PFOSA)	ND	19	2.9	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	19	2.3	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	19	2.2	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-MeFOSAA (NMeFOSAA)	ND	19	3.3	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-EtFOSAA (NEtFOSAA)	ND	19	2.7	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	190	20	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	190	20	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	74	4.7	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	74	5.5	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
9Cl-PF3ONS (F53B Minor)	ND	74	5.3	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
11Cl-PF3OUdS (F53B Major)	ND	74	8.2	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	190	18	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	930	120	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	930	140	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	37	2.9	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	37	3.0	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: PCD 090324 CLASSIFIER 3 Sampled: 9/3/2024 09:10

Sample ID: 24I0465-01

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	37	3.1	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	37	5.6	µg/kg dry	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	20.2	10-130		9/26/24 18:25
13C5-PFPeA	55.0	35-150		9/26/24 18:25
13C5-PFHxA	66.5	55-150		9/26/24 18:25
13C4-PFHpA	63.1	55-150		9/26/24 18:25
13C8-PFOA	73.9	60-140		9/26/24 18:25
13C9-PFNA	70.2	55-140		9/26/24 18:25
13C6-PFDA	66.1	50-140		9/26/24 18:25
13C7-PFUnA	54.3	30-140		9/26/24 18:25
13C2-PFDoA	60.4	10-150		9/26/24 18:25
13C2-PFTeDA	47.3	10-130		9/26/24 18:25
13C3-PFBS	72.2	55-150		9/26/24 18:25
13C3-PFHxS	72.1	55-150		9/26/24 18:25
13C8-PFOS	73.5	45-150		9/26/24 18:25
13C2-4:2FTS	87.8	60-200		9/26/24 18:25
13C2-6:2FTS	123	60-200		9/26/24 18:25
13C2-8:2FTS	146	50-200		9/26/24 18:25
13C8-PFOSA	69.1	30-130		9/26/24 18:25
D3-NMeFOSA	32.4	15-130		9/26/24 18:25
D5-NEtFOSA	20.4	10-130		9/26/24 18:25
D3-NMeFOSAA	66.8	45-200		9/26/24 18:25
D5-NEtFOSAA	61.8	10-200		9/26/24 18:25
D7-NMeFOSE	12.1	10-150		9/26/24 18:25
D9-NEtFOSE	29.6	10-150		9/26/24 18:25
13C3-HFPO-DA	61.7	25-160		9/26/24 18:25

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: PCD 090324 CLASSIFIER 3 Sampled: 9/3/2024 09:10

Sample ID: 24I0465-01

Sample Matrix: Biosolids

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	96.3		% Wt	1	H-06	SM 2540G	9/19/24	9/19/24 10:08	NC

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: FIELD BLANK 090324 WATER Sampled: 9/3/2024 09:10

Sample ID: 24I0465-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	3.6	2.0	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoropentanoic acid (PFPeA)	ND	1.8	0.39	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorohexanoic acid (PFHxA)	ND	0.91	0.22	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoroheptanoic acid (PFHpA)	ND	0.91	0.24	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorooctanoic acid (PFOA)	ND	0.91	0.24	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorononanoic acid (PFNA)	ND	0.91	0.17	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorodecanoic acid (PFDA)	ND	0.91	0.19	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.91	0.18	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.91	0.18	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.91	0.27	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.91	0.24	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorobutanesulfonic acid (PFBS)	ND	0.91	0.19	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoropentanesulfonic acid (PFPeS)	ND	0.91	0.23	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorohexanesulfonic acid (PFHxS)	ND	0.91	0.25	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.91	0.30	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorooctanesulfonic acid (PFOS)	ND	0.91	0.35	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.91	0.23	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.91	0.26	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.91	0.26	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.6	0.68	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.6	2.7	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.6	1.0	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.91	0.21	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	ND	0.91	0.30	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.91	0.31	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.91	0.32	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
N-EtFOSAA (NEtFOSAA)	ND	0.91	0.36	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.1	2.5	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.1	2.4	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.6	0.93	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.6	0.74	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.6	0.87	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
11Cl-PF3OUdS (F53B Major)	ND	3.6	0.97	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.1	2.0	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	45	10	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	45	8.6	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.8	0.32	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.8	0.50	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: FIELD BLANK 090324 WATER Sampled: 9/3/2024 09:10

Sample ID: 24I0465-02

Sample Matrix: Field Blank

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.8	0.49	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.8	0.50	ng/L	1		Draft Method 1633	9/17/24	9/19/24 5:40	AMS

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	81.2	10-130		9/19/24 5:40
13C5-PFPeA	91.6	35-150		9/19/24 5:40
13C5-PFHxA	79.9	55-150		9/19/24 5:40
13C4-PFHpA	77.1	55-150		9/19/24 5:40
13C8-PFOA	80.6	60-140		9/19/24 5:40
13C9-PFNA	71.7	55-140		9/19/24 5:40
13C6-PFDA	75.3	50-140		9/19/24 5:40
13C7-PFUnA	79.3	30-140		9/19/24 5:40
13C2-PFDoA	71.1	10-150		9/19/24 5:40
13C2-PFTeDA	65.4	10-130		9/19/24 5:40
13C3-PFBS	76.2	55-150		9/19/24 5:40
13C3-PFHxS	78.2	55-150		9/19/24 5:40
13C8-PFOS	75.4	45-140		9/19/24 5:40
13C2-4:2FTS	72.5	60-200		9/19/24 5:40
13C2-6:2FTS	75.1	60-200		9/19/24 5:40
13C2-8:2FTS	72.7	50-200		9/19/24 5:40
13C8-PFOSA	65.5	30-130		9/19/24 5:40
D3-NMeFOSA	60.6	15-130		9/19/24 5:40
D5-NEtFOSA	58.4	10-130		9/19/24 5:40
D3-NMeFOSAA	75.5	45-200		9/19/24 5:40
D5-NEtFOSAA	73.2	10-200		9/19/24 5:40
D7-NMeFOSE	64.0	10-150		9/19/24 5:40
D9-NEtFOSE	64.4	10-150		9/19/24 5:40
13C3-HFPO-DA	76.7	25-160		9/19/24 5:40

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: FIELD BLANK 090324 WATER Sampled: 9/3/2024 09:10

Sample ID: 24I0465-02

Sample Matrix: Field Blank

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

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	9/9/24	9/9/24 11:01	LL

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: PCD 090324 CLASSIFIER 3 - Wet Weight Sampled: 9/3/2024 09:10

Sample ID: 24I0465-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	ND	71	29	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoropentanoic acid (PFPeA)	5.2	36	4.1	µg/kg wet	1	J, PF-23	Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorohexanoic acid (PFHxA)	ND	18	3.0	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoroheptanoic acid (PFHpA)	ND	18	1.3	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorooctanoic acid (PFOA)	ND	18	2.8	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorononanoic acid (PFNA)	ND	18	1.2	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorodecanoic acid (PFDA)	ND	18	1.6	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoroundecanoic acid (PFUnA)	ND	18	2.1	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorododecanoic acid (PFDoA)	ND	18	1.9	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorotridecanoic acid (PFTrDA)	ND	18	2.0	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorotetradecanoic acid (PFTeDA)	ND	18	1.8	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorobutanesulfonic acid (PFBS)	ND	18	1.9	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoropentanesulfonic acid (PFPeS)	ND	18	2.3	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorohexanesulfonic acid (PFHxS)	ND	18	7.0	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoroheptanesulfonic acid (PFHpS)	ND	18	1.9	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorooctanesulfonic acid (PFOS)	9.4	18	2.8	µg/kg wet	1	J	Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorononanesulfonic acid (PFNS)	ND	18	2.0	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorodecanesulfonic acid (PFDS)	ND	18	2.8	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorododecanesulfonic acid (PFDoS)	ND	18	2.7	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	71	6.2	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	71	45	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	71	8.3	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluorooctanesulfonamide (PFOSA)	ND	18	2.8	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	18	2.2	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	18	2.1	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-MeFOSAA (NMeFOSAA)	ND	18	3.2	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-EtFOSAA (NEtFOSAA)	ND	18	2.6	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	180	19	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	180	19	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	71	4.5	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	71	5.3	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
9Cl-PF3ONS (F53B Minor)	ND	71	5.2	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
11Cl-PF3OUdS (F53B Major)	ND	71	7.9	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	180	17	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	890	120	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	890	130	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	36	2.8	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	36	2.9	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB

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Project Location: PFAS/1633 Sample Description: Work Order: 24I0465

Date Received: 9/4/2024

Field Sample #: PCD 090324 CLASSIFIER 3 - Wet Weight Sampled: 9/3/2024 09:10

Sample ID: 24I0465-03

Sample Matrix: Biosolids

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	36	2.9	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	36	5.4	µg/kg wet	1		Draft Method 1633	9/25/24	9/26/24 18:25	AB

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C4-PFBA	20.2	10-130		9/26/24 18:25
13C5-PFPeA	55.0	35-150		9/26/24 18:25
13C5-PFHxA	66.5	55-150		9/26/24 18:25
13C4-PFHpA	63.1	55-150		9/26/24 18:25
13C8-PFOA	73.9	60-140		9/26/24 18:25
13C9-PFNA	70.2	55-140		9/26/24 18:25
13C6-PFDA	66.1	50-140		9/26/24 18:25
13C7-PFUnA	54.3	30-140		9/26/24 18:25
13C2-PFDoA	60.4	10-150		9/26/24 18:25
13C2-PFTeDA	47.3	10-130		9/26/24 18:25
13C3-PFBS	72.2	55-150		9/26/24 18:25
13C3-PFHxS	72.1	55-150		9/26/24 18:25
13C8-PFOS	73.5	45-150		9/26/24 18:25
13C2-4:2FTS	87.8	60-200		9/26/24 18:25
13C2-6:2FTS	123	60-200		9/26/24 18:25
13C2-8:2FTS	146	50-200		9/26/24 18:25
13C8-PFOSA	69.1	30-130		9/26/24 18:25
D3-NMeFOSA	32.4	15-130		9/26/24 18:25
D5-NEtFOSA	20.4	10-130		9/26/24 18:25
D3-NMeFOSAA	66.8	45-200		9/26/24 18:25
D5-NEtFOSAA	61.8	10-200		9/26/24 18:25
D7-NMeFOSE	12.1	10-150		9/26/24 18:25
D9-NEtFOSE	29.6	10-150		9/26/24 18:25
13C3-HFPO-DA	61.7	25-160		9/26/24 18:25

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Sample Extraction Data

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
24I0465-01 [PCD 090324 CLASSIFIER 3]	B387114	0.561	5.00	09/25/24
24I0465-03 [PCD 090324 CLASSIFIER 3 - Wet Weight]	B387114	0.561	5.00	09/25/24

Draft Method 1633

Lab Number [Field ID]	Batch	Initial [mL]	Date
24I0465-02 [FIELD BLANK 090324 WATER]	B385420	50.0	09/09/24

Prep Method:Draft Method 1633 **Analytical Method:Draft Method 1633** **Leachates were extracted on 9/9/2024 per NO PREP in Batch B385420**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
24I0465-02 [FIELD BLANK 090324 WATER]	B386185	552	5.00	09/17/24

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

Lab Number [Field ID]	Batch	Date
24I0465-01 [PCD 090324 CLASSIFIER 3]	B386604	09/19/24

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B386185 - Draft Method 1633										
Blank (B386185-BLK1)				Prepared & Analyzed: 09/17/24						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	0.26	0.98	ng/L							J
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropentanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	*90.5*		ng/L	97.81		92.5	10-130			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B386185 - Draft Method 1633										
Blank (B386185-BLK1)				Prepared & Analyzed: 09/17/24						
Surrogate: 13C5-PFPeA	*49.2*		ng/L	48.91		101	35-150			
Surrogate: 13C5-PFHxA	*22.0*		ng/L	24.45		90.1	55-150			
Surrogate: 13C4-PFHpA	*20.9*		ng/L	24.45		85.7	55-150			
Surrogate: 13C8-PFOA	*23.5*		ng/L	24.45		96.2	60-140			
Surrogate: 13C9-PFNA	*11.2*		ng/L	12.23		91.4	55-140			
Surrogate: 13C6-PFDA	*10.7*		ng/L	12.23		87.3	50-140			
Surrogate: 13C7-PFUnA	*10.9*		ng/L	12.23		89.2	30-140			
Surrogate: 13C2-PFDoA	*10.2*		ng/L	12.23		83.7	10-150			
Surrogate: 13C2-PFTeDA	*9.50*		ng/L	12.23		77.7	10-130			
Surrogate: 13C3-PFBS	*21.5*		ng/L	24.45		87.9	55-150			
Surrogate: 13C3-PFHxS	*21.7*		ng/L	24.45		88.9	55-150			
Surrogate: 13C8-PFOS	*22.7*		ng/L	24.45		92.7	45-140			
Surrogate: 13C2-4:2FTS	*46.2*		ng/L	48.91		94.6	60-200			
Surrogate: 13C2-6:2FTS	*58.2*		ng/L	48.91		119	60-200			
Surrogate: 13C2-8:2FTS	*61.2*		ng/L	48.91		125	50-200			
Surrogate: 13C8-PFOSA	*18.6*		ng/L	24.45		75.9	30-130			
Surrogate: D3-NMeFOSA	*15.8*		ng/L	24.45		64.7	15-130			
Surrogate: D5-NEtFOSA	*15.5*		ng/L	24.45		63.4	10-130			
Surrogate: D3-NMeFOSAA	*44.3*		ng/L	48.91		90.6	45-200			
Surrogate: D5-NEtFOSAA	*47.0*		ng/L	48.91		96.1	10-200			
Surrogate: D7-NMeFOSE	*177*		ng/L	244.5		72.3	10-150			
Surrogate: D9-NEtFOSE	*175*		ng/L	244.5		71.6	10-150			
Surrogate: 13C3-HFPO-DA	*80.2*		ng/L	97.81		82.0	25-160			
LCS (B386185-BS1)				Prepared & Analyzed: 09/17/24						
Perfluorobutanoic acid (PFBA)	90.7	3.9	ng/L	93.75		96.7	58-148			
Perfluoropentanoic acid (PFPeA)	46.9	2.0	ng/L	46.88		100	54-152			
Perfluorohexanoic acid (PFHxA)	23.3	0.98	ng/L	23.44		99.4	55-152			
Perfluoroheptanoic acid (PFHpA)	22.4	0.98	ng/L	23.44		95.4	54-154			
Perfluorooctanoic acid (PFOA)	22.8	0.98	ng/L	23.44		97.1	52-161			
Perfluorononanoic acid (PFNA)	22.2	0.98	ng/L	23.44		94.8	59-149			
Perfluorodecanoic acid (PFDA)	23.2	0.98	ng/L	23.44		98.9	52-147			
Perfluoroundecanoic acid (PFUnA)	22.0	0.98	ng/L	23.44		93.8	48-159			
Perfluorododecanoic acid (PFDoA)	22.6	0.98	ng/L	23.44		96.4	64-142			
Perfluorotridecanoic acid (PFTrDA)	22.5	0.98	ng/L	23.44		96.2	49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.1	0.98	ng/L	23.44		98.5	47-161			
Perfluorobutanesulfonic acid (PFBS)	19.5	0.98	ng/L	20.80		93.8	62-144			
Perfluoropentanesulfonic acid (PFPeS)	20.7	0.98	ng/L	22.03		94.0	59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.4	0.98	ng/L	21.45		85.8	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	21.6	0.98	ng/L	22.32		96.6	55-152			
Perfluorooctanesulfonic acid (PFOS)	19.8	0.98	ng/L	21.74		90.9	58-149			
Perfluorononanesulfonic acid (PFNS)	20.7	0.98	ng/L	22.56		91.7	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.2	0.98	ng/L	22.62		89.1	51-147			
Perfluorododecanesulfonic acid (PFDoS)	19.7	0.98	ng/L	22.73		86.5	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	91.1	3.9	ng/L	87.89		104	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	88.9	3.9	ng/L	89.06		99.8	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	87.8	3.9	ng/L	90.23		97.3	63-152			
Perfluorooctanesulfonamide (PFOSA)	21.9	0.98	ng/L	23.44		93.5	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	24.7	0.98	ng/L	23.44		105	63-145			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B386185 - Draft Method 1633										
LCS (B386185-BS1)				Prepared & Analyzed: 09/17/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	24.9	0.98	ng/L	23.44		106	65-139			
N-MeFOSAA (NMeFOSAA)	24.5	0.98	ng/L	23.44		105	58-144			
N-EtFOSAA (NEtFOSAA)	21.4	0.98	ng/L	23.44		91.2	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	236	9.8	ng/L	234.4		101	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	228	9.8	ng/L	234.4		97.1	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	96.3	3.9	ng/L	93.75		103	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.2	3.9	ng/L	88.48		107	68-146			
9Cl-PF3ONS (F53B Minor)	96.0	3.9	ng/L	87.89		109	56-156			
11Cl-PF3OUdS (F53B Major)	90.5	3.9	ng/L	88.48		102	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	173	9.8	ng/L	234.4		73.8	62-129			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	1090	49	ng/L	1172		93.1	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1000	49	ng/L	1172		85.6	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	47.8	2.0	ng/L	41.72		115	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.5	2.0	ng/L	46.88		86.3	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	43.4	2.0	ng/L	46.88		92.6	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	48.6	2.0	ng/L	46.88		104	48-161			
Surrogate: 13C4-PFBA	*87.3*		ng/L	97.66		89.4	10-130			
Surrogate: 13C5-PFPeA	*47.2*		ng/L	48.83		96.7	35-150			
Surrogate: 13C5-PFHxA	*20.2*		ng/L	24.41		82.8	55-150			
Surrogate: 13C4-PFHpA	*20.0*		ng/L	24.41		81.9	55-150			
Surrogate: 13C8-PFOA	*20.2*		ng/L	24.41		82.9	60-140			
Surrogate: 13C9-PFNA	*10.1*		ng/L	12.21		82.8	55-140			
Surrogate: 13C6-PFDA	*9.98*		ng/L	12.21		81.8	50-140			
Surrogate: 13C7-PFUnA	*10.7*		ng/L	12.21		87.5	30-140			
Surrogate: 13C2-PFDoA	*10.3*		ng/L	12.21		84.6	10-150			
Surrogate: 13C2-PFTeDA	*9.79*		ng/L	12.21		80.2	10-130			
Surrogate: 13C3-PFBS	*21.2*		ng/L	24.41		86.8	55-150			
Surrogate: 13C3-PFHxS	*21.9*		ng/L	24.41		89.7	55-150			
Surrogate: 13C8-PFOS	*21.2*		ng/L	24.41		87.0	45-140			
Surrogate: 13C2-4:2FTS	*46.9*		ng/L	48.83		96.1	60-200			
Surrogate: 13C2-6:2FTS	*54.1*		ng/L	48.83		111	60-200			
Surrogate: 13C2-8:2FTS	*63.6*		ng/L	48.83		130	50-200			
Surrogate: 13C8-PFOSA	*17.7*		ng/L	24.41		72.6	30-130			
Surrogate: D3-NMeFOSA	*15.1*		ng/L	24.41		61.8	15-130			
Surrogate: D5-NEtFOSA	*14.7*		ng/L	24.41		60.4	10-130			
Surrogate: D3-NMeFOSAA	*40.5*		ng/L	48.83		82.9	45-200			
Surrogate: D5-NEtFOSAA	*41.7*		ng/L	48.83		85.4	10-200			
Surrogate: D7-NMeFOSE	*163*		ng/L	244.1		66.6	10-150			
Surrogate: D9-NEtFOSE	*161*		ng/L	244.1		66.0	10-150			
Surrogate: 13C3-HFPO-DA	*78.5*		ng/L	97.66		80.4	25-160			
MRL Check (B386185-MRL1)				Prepared & Analyzed: 09/17/24						
Perfluorobutanoic acid (PFBA)	8.60	3.9	ng/L	7.814		110	44-157			
Perfluoropentanoic acid (PFPeA)	4.42	2.0	ng/L	3.907		113	57-148			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B386185 - Draft Method 1633										
MRL Check (B386185-MRL1)				Prepared & Analyzed: 09/17/24						
Perfluorohexanoic acid (PFHxA)	2.18	0.98	ng/L	1.953		111	62-149			
Perfluoroheptanoic acid (PFHpA)	1.90	0.98	ng/L	1.953		97.4	56-150			
Perfluorooctanoic acid (PFOA)	2.24	0.98	ng/L	1.953		115	57-161			
Perfluorononanoic acid (PFNA)	2.11	0.98	ng/L	1.953		108	53-157			
Perfluorodecanoic acid (PFDA)	2.13	0.98	ng/L	1.953		109	43-158			
Perfluoroundecanoic acid (PFUnA)	2.09	0.98	ng/L	1.953		107	50-155			
Perfluorododecanoic acid (PFDoA)	2.05	0.98	ng/L	1.953		105	60-141			
Perfluorotridecanoic acid (PFTrDA)	1.94	0.98	ng/L	1.953		99.4	52-140			
Perfluorotetradecanoic acid (PFTeDA)	2.18	0.98	ng/L	1.953		112	52-156			
Perfluorobutanesulfonic acid (PFBS)	1.88	0.98	ng/L	1.734		109	63-145			
Perfluoropentanesulfonic acid (PFPeS)	1.99	0.98	ng/L	1.836		108	58-144			
Perfluorohexanesulfonic acid (PFHxS)	1.85	0.98	ng/L	1.787		103	44-158			
Perfluoroheptanesulfonic acid (PFHpS)	2.06	0.98	ng/L	1.861		111	51-150			
Perfluorooctanesulfonic acid (PFOS)	2.16	0.98	ng/L	1.812		119	43-162			
Perfluorononanesulfonic acid (PFNS)	1.80	0.98	ng/L	1.880		95.7	46-151			
Perfluorodecanesulfonic acid (PFDS)	2.04	0.98	ng/L	1.885		108	50-144			
Perfluorododecanesulfonic acid (PFDoS)	1.81	0.98	ng/L	1.895		95.8	30-138			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	8.43	3.9	ng/L	7.325		115	52-158			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	8.70	3.9	ng/L	7.423		117	48-158			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.91	3.9	ng/L	7.521		105	46-165			
Perfluorooctanesulfonamide (PFOSA)	2.08	0.98	ng/L	1.953		106	47-163			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	2.29	0.98	ng/L	1.953		117	54-155			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	2.27	0.98	ng/L	1.953		116	49-156			
N-MeFOSAA (NMeFOSAA)	1.93	0.98	ng/L	1.953		98.5	32-160			
N-EtFOSAA (NEtFOSAA)	2.00	0.98	ng/L	1.953		102	51-154			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	20.3	9.8	ng/L	19.53		104	56-151			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	19.7	9.8	ng/L	19.53		101	60-147			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	7.27	3.9	ng/L	7.814		93.0	58-154			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	6.86	3.9	ng/L	7.374		93.0	61-148			
9Cl-PF3ONS (F53B Minor)	6.75	3.9	ng/L	7.325		92.1	44-167			
11Cl-PF3OUdS (F53B Major)	6.56	3.9	ng/L	7.374		88.9	36-158			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.4	9.8	ng/L	19.53		68.5	32-161			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	80.3	49	ng/L	97.67		82.3	39-156			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	75.7	49	ng/L	97.67		77.5	36-149			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.81	2.0	ng/L	3.477		110	56-144			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.53	2.0	ng/L	3.907		90.4	48-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.61	2.0	ng/L	3.907		92.4	49-154			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	4.02	2.0	ng/L	3.907		103	47-160			
Surrogate: 13C4-PFBA	*87.7*		ng/L	97.67		89.8	10-130			
Surrogate: 13C5-PFPeA	*47.6*		ng/L	48.84		97.5	35-150			
Surrogate: 13C5-PFHxA	*21.1*		ng/L	24.42		86.4	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B386185 - Draft Method 1633										
MRL Check (B386185-MRL1)				Prepared & Analyzed: 09/17/24						
Surrogate: 13C4-PFHpA	*20.2*		ng/L	24.42		82.9	55-150			
Surrogate: 13C8-PFOA	*21.6*		ng/L	24.42		88.4	60-140			
Surrogate: 13C9-PFNA	*9.98*		ng/L	12.21		81.7	55-140			
Surrogate: 13C6-PFDA	*10.0*		ng/L	12.21		82.3	50-140			
Surrogate: 13C7-PFUnA	*10.8*		ng/L	12.21		88.1	30-140			
Surrogate: 13C2-PFDoA	*10.3*		ng/L	12.21		84.0	10-150			
Surrogate: 13C2-PFTeDA	*9.57*		ng/L	12.21		78.4	10-130			
Surrogate: 13C3-PFBS	*21.7*		ng/L	24.42		88.7	55-150			
Surrogate: 13C3-PFHxS	*21.4*		ng/L	24.42		87.8	55-150			
Surrogate: 13C8-PFOS	*21.3*		ng/L	24.42		87.1	45-140			
Surrogate: 13C2-4:2FTS	*45.7*		ng/L	48.84		93.5	60-200			
Surrogate: 13C2-6:2FTS	*59.3*		ng/L	48.84		121	60-200			
Surrogate: 13C2-8:2FTS	*65.9*		ng/L	48.84		135	50-200			
Surrogate: 13C8-PFOSA	*18.0*		ng/L	24.42		73.6	30-130			
Surrogate: D3-NMeFOSA	*15.0*		ng/L	24.42		61.4	15-130			
Surrogate: D5-NEtFOSA	*14.6*		ng/L	24.42		59.8	10-130			
Surrogate: D3-NMeFOSAA	*43.6*		ng/L	48.84		89.2	45-200			
Surrogate: D5-NEtFOSAA	*44.7*		ng/L	48.84		91.6	10-200			
Surrogate: D7-NMeFOSE	*171*		ng/L	244.2		69.8	10-150			
Surrogate: D9-NEtFOSE	*169*		ng/L	244.2		69.0	10-150			
Surrogate: 13C3-HFPO-DA	*82.8*		ng/L	97.67		84.8	25-160			
Batch B387114 - Draft Method 1633										
Blank (B387114-BLK1)				Prepared: 09/25/24 Analyzed: 09/26/24						
Perfluorobutanoic acid (PFBA)	ND	59	µg/kg wet							
Perfluoropentanoic acid (PFPeA)	ND	29	µg/kg wet							
Perfluorohexanoic acid (PFHxA)	ND	15	µg/kg wet							
Perfluoroheptanoic acid (PFHpA)	ND	15	µg/kg wet							
Perfluorooctanoic acid (PFOA)	ND	15	µg/kg wet							
Perfluorononanoic acid (PFNA)	ND	15	µg/kg wet							
Perfluorodecanoic acid (PFDA)	ND	15	µg/kg wet							
Perfluoroundecanoic acid (PFUnA)	ND	15	µg/kg wet							
Perfluorododecanoic acid (PFDoA)	ND	15	µg/kg wet							
Perfluorotridecanoic acid (PFTrDA)	ND	15	µg/kg wet							
Perfluorotetradecanoic acid (PFTeDA)	ND	15	µg/kg wet							
Perfluorobutanesulfonic acid (PFBS)	ND	15	µg/kg wet							
Perfluoropentanesulfonic acid (PFPeS)	ND	15	µg/kg wet							
Perfluorohexanesulfonic acid (PFHxS)	ND	15	µg/kg wet							
Perfluoroheptanesulfonic acid (PFHpS)	ND	15	µg/kg wet							
Perfluorooctanesulfonic acid (PFOS)	ND	15	µg/kg wet							
Perfluorononanesulfonic acid (PFNS)	ND	15	µg/kg wet							
Perfluorodecanesulfonic acid (PFDS)	ND	15	µg/kg wet							
Perfluorododecanesulfonic acid (PFDoS)	ND	15	µg/kg wet							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	59	µg/kg wet							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	59	µg/kg wet							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	59	µg/kg wet							
Perfluorooctanesulfonamide (PFOSA)	ND	15	µg/kg wet							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	15	µg/kg wet							

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B387114 - Draft Method 1633										
Blank (B387114-BLK1)				Prepared: 09/25/24 Analyzed: 09/26/24						
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	15	µg/kg wet							
N-MeFOSAA (NMeFOSAA)	ND	15	µg/kg wet							
N-EtFOSAA (NEtFOSAA)	ND	15	µg/kg wet							
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	ND	150	µg/kg wet							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	150	µg/kg wet							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	59	µg/kg wet							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	59	µg/kg wet							
9Cl-PF3ONS (F53B Minor)	ND	59	µg/kg wet							
11Cl-PF3OUdS (F53B Major)	ND	59	µg/kg wet							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	150	µg/kg wet							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	740	µg/kg wet							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	740	µg/kg wet							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	29	µg/kg wet							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	29	µg/kg wet							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	29	µg/kg wet							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	29	µg/kg wet							
Surrogate: 13C4-PFBA	*61.9*		µg/kg wet	73.64		84.1	10-130			
Surrogate: 13C5-PFPeA	*32.9*		µg/kg wet	36.82		89.3	35-150			
Surrogate: 13C5-PFHxA	*15.0*		µg/kg wet	18.41		81.4	55-150			
Surrogate: 13C4-PFHpA	*13.2*		µg/kg wet	18.41		71.4	55-150			
Surrogate: 13C8-PFOA	*15.8*		µg/kg wet	18.41		85.8	60-140			
Surrogate: 13C9-PFNA	*7.23*		µg/kg wet	9.205		78.6	55-140			
Surrogate: 13C6-PFDA	*7.78*		µg/kg wet	9.205		84.6	50-140			
Surrogate: 13C7-PFUnA	*8.05*		µg/kg wet	9.205		87.4	30-140			
Surrogate: 13C2-PFDoA	*7.59*		µg/kg wet	9.205		82.5	10-150			
Surrogate: 13C2-PFTeDA	*6.93*		µg/kg wet	9.205		75.3	10-130			
Surrogate: 13C3-PFBS	*15.2*		µg/kg wet	18.41		82.7	55-150			
Surrogate: 13C3-PFHxS	*15.6*		µg/kg wet	18.41		84.6	55-150			
Surrogate: 13C8-PFOS	*15.7*		µg/kg wet	18.41		85.4	45-150			
Surrogate: 13C2-4:2FTS	*26.5*		µg/kg wet	36.82		72.0	60-200			
Surrogate: 13C2-6:2FTS	*27.4*		µg/kg wet	36.82		74.5	60-200			
Surrogate: 13C2-8:2FTS	*26.0*		µg/kg wet	36.82		70.6	50-200			
Surrogate: 13C8-PFOSA	*13.2*		µg/kg wet	18.41		71.9	30-130			
Surrogate: D3-NMeFOSA	*10.2*		µg/kg wet	18.41		55.5	15-130			
Surrogate: D5-NEtFOSA	*10.3*		µg/kg wet	18.41		56.1	10-130			
Surrogate: D3-NMeFOSAA	*30.7*		µg/kg wet	36.82		83.5	45-200			
Surrogate: D5-NEtFOSAA	*36.8*		µg/kg wet	36.82		99.9	10-200			
Surrogate: D7-NMeFOSE	*123*		µg/kg wet	184.1		66.9	10-150			
Surrogate: D9-NEtFOSE	*124*		µg/kg wet	184.1		67.3	10-150			
Surrogate: 13C3-HFPO-DA	*51.3*		µg/kg wet	73.64		69.7	25-160			
LCS (B387114-BS1)				Prepared: 09/25/24 Analyzed: 09/26/24						
Perfluorobutanoic acid (PFBA)	89.7	66	µg/kg wet	79.60		113	58-148			
Perfluoropentanoic acid (PFPeA)	46.7	33	µg/kg wet	39.80		117	54-152			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B387114 - Draft Method 1633										
LCS (B387114-BS1)				Prepared: 09/25/24 Analyzed: 09/26/24						
Perfluorohexanoic acid (PFHxA)	23.2	17	µg/kg wet	19.90		117	55-152			
Perfluoroheptanoic acid (PFHpA)	21.9	17	µg/kg wet	19.90		110	54-154			
Perfluorooctanoic acid (PFOA)	20.7	17	µg/kg wet	19.90		104	52-161			
Perfluorononanoic acid (PFNA)	23.5	17	µg/kg wet	19.90		118	59-149			
Perfluorodecanoic acid (PFDA)	22.4	17	µg/kg wet	19.90		113	52-147			
Perfluoroundecanoic acid (PFUnA)	22.3	17	µg/kg wet	19.90		112	48-159			
Perfluorododecanoic acid (PFDoA)	22.9	17	µg/kg wet	19.90		115	64-142			
Perfluorotridecanoic acid (PFTrDA)	21.9	17	µg/kg wet	19.90		110	49-148			
Perfluorotetradecanoic acid (PFTeDA)	23.2	17	µg/kg wet	19.90		117	47-161			
Perfluorobutanesulfonic acid (PFBS)	19.6	17	µg/kg wet	17.66		111	62-144			
Perfluoropentanesulfonic acid (PFPeS)	20.4	17	µg/kg wet	18.71		109	59-151			
Perfluorohexanesulfonic acid (PFHxS)	18.5	17	µg/kg wet	18.21		102	57-146			
Perfluoroheptanesulfonic acid (PFHpS)	21.7	17	µg/kg wet	18.96		115	55-152			
Perfluorooctanesulfonic acid (PFOS)	19.7	17	µg/kg wet	18.46		106	58-149			
Perfluorononanesulfonic acid (PFNS)	20.2	17	µg/kg wet	19.15		106	52-148			
Perfluorodecanesulfonic acid (PFDS)	20.4	17	µg/kg wet	19.20		106	51-147			
Perfluorododecanesulfonic acid (PFDoS)	19.1	17	µg/kg wet	19.30		98.9	36-145			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	86.7	66	µg/kg wet	74.63		116	67-146			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	88.6	66	µg/kg wet	75.62		117	61-151			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	91.9	66	µg/kg wet	76.62		120	63-152			
Perfluorooctanesulfonamide (PFOSA)	21.6	17	µg/kg wet	19.90		109	61-148			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	23.7	17	µg/kg wet	19.90		119	63-145			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	24.0	17	µg/kg wet	19.90		121	65-139			
N-MeFOSAA (NMeFOSAA)	25.4	17	µg/kg wet	19.90		127	58-144			
N-EtFOSAA (NEtFOSAA)	18.7	17	µg/kg wet	19.90		94.1	59-146			
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	229	170	µg/kg wet	199.0		115	71-136			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	222	170	µg/kg wet	199.0		111	69-137			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	94.0	66	µg/kg wet	79.60		118	63-144			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	100	66	µg/kg wet	75.12		133	68-146			
9Cl-PF3ONS (F53B Minor)	95.8	66	µg/kg wet	74.63		128	56-156			
11Cl-PF3OUdS (F53B Major)	91.4	66	µg/kg wet	75.12		122	46-156			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	153	170	µg/kg wet	199.0		76.7	62-129			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	925	830	µg/kg wet	995.0		92.9	63-134			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	881	830	µg/kg wet	995.0		88.5	50-138			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	44.8	33	µg/kg wet	35.42		126	56-151			
Perfluoro-3-methoxypropanoic acid (PFMPA)	37.7	33	µg/kg wet	39.80		94.6	51-145			
Perfluoro-4-methoxybutanoic acid (PFMBA)	44.0	33	µg/kg wet	39.80		111	55-148			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	35.4	33	µg/kg wet	39.80		88.8	48-161			
Surrogate: 13C4-PFBA	*62.6*		µg/kg wet	82.92		75.5	10-130			
Surrogate: 13C5-PFPeA	*34.2*		µg/kg wet	41.46		82.4	35-150			
Surrogate: 13C5-PFHxA	*15.1*		µg/kg wet	20.73		73.0	55-150			

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B387114 - Draft Method 1633										
LCS (B387114-BS1)				Prepared: 09/25/24 Analyzed: 09/26/24						
Surrogate: 13C4-PFHpA	*14.2*		µg/kg wet	20.73		68.7	55-150			
Surrogate: 13C8-PFOA	*15.9*		µg/kg wet	20.73		76.8	60-140			
Surrogate: 13C9-PFNA	*7.04*		µg/kg wet	10.36		67.9	55-140			
Surrogate: 13C6-PFDA	*7.55*		µg/kg wet	10.36		72.9	50-140			
Surrogate: 13C7-PFUnA	*8.47*		µg/kg wet	10.36		81.7	30-140			
Surrogate: 13C2-PFDoA	*7.45*		µg/kg wet	10.36		71.9	10-150			
Surrogate: 13C2-PFTeDA	*6.61*		µg/kg wet	10.36		63.8	10-130			
Surrogate: 13C3-PFBS	*15.2*		µg/kg wet	20.73		73.5	55-150			
Surrogate: 13C3-PFHxS	*15.3*		µg/kg wet	20.73		73.7	55-150			
Surrogate: 13C8-PFOS	*15.8*		µg/kg wet	20.73		76.0	45-150			
Surrogate: 13C2-4:2FTS	*29.4*		µg/kg wet	41.46		71.0	60-200			
Surrogate: 13C2-6:2FTS	*29.2*		µg/kg wet	41.46		70.4	60-200			
Surrogate: 13C2-8:2FTS	*31.6*		µg/kg wet	41.46		76.3	50-200			
Surrogate: 13C8-PFOSA	*13.3*		µg/kg wet	20.73		64.1	30-130			
Surrogate: D3-NMeFOSA	*10.4*		µg/kg wet	20.73		50.1	15-130			
Surrogate: D5-NEtFOSA	*10.4*		µg/kg wet	20.73		50.1	10-130			
Surrogate: D3-NMeFOSAA	*30.2*		µg/kg wet	41.46		72.8	45-200			
Surrogate: D5-NEtFOSAA	*42.8*		µg/kg wet	41.46		103	10-200			
Surrogate: D7-NMeFOSE	*123*		µg/kg wet	207.3		59.4	10-150			
Surrogate: D9-NEtFOSE	*126*		µg/kg wet	207.3		60.9	10-150			
Surrogate: 13C3-HFPO-DA	*54.8*		µg/kg wet	82.92		66.1	25-160			
MRL Check (B387114-MRL1)				Prepared: 09/25/24 Analyzed: 09/26/24						
Perfluorobutanoic acid (PFBA)	7.11	71	µg/kg wet	7.130		99.8	44-157			J
Perfluoropentanoic acid (PFPeA)	3.70	36	µg/kg wet	3.565		104	57-148			J
Perfluorohexanoic acid (PFHxA)	1.76	18	µg/kg wet	1.783		99.0	62-149			J
Perfluoroheptanoic acid (PFHpA)	1.75	18	µg/kg wet	1.783		98.4	56-150			J
Perfluorooctanoic acid (PFOA)	1.93	18	µg/kg wet	1.783		108	57-161			J
Perfluorononanoic acid (PFNA)	1.73	18	µg/kg wet	1.783		97.0	53-157			J
Perfluorodecanoic acid (PFDA)	1.69	18	µg/kg wet	1.783		94.6	43-158			J
Perfluoroundecanoic acid (PFUnA)	1.80	18	µg/kg wet	1.783		101	50-155			J
Perfluorododecanoic acid (PFDoA)	1.70	18	µg/kg wet	1.783		95.6	60-141			J
Perfluorotridecanoic acid (PFTrDA)	1.74	18	µg/kg wet	1.783		97.8	52-140			J
Perfluorotetradecanoic acid (PFTeDA)	1.78	18	µg/kg wet	1.783		99.8	52-156			J
Perfluorobutanesulfonic acid (PFBS)	1.49	18	µg/kg wet	1.582		94.0	63-145			J
Perfluoropentanesulfonic acid (PFPeS)	1.73	18	µg/kg wet	1.676		103	58-144			J
Perfluorohexanesulfonic acid (PFHxS)	1.63	18	µg/kg wet	1.631		99.7	44-158			J
Perfluoroheptanesulfonic acid (PFHpS)	1.98	18	µg/kg wet	1.698		117	51-150			J
Perfluorooctanesulfonic acid (PFOS)	1.76	18	µg/kg wet	1.653		107	43-162			J
Perfluorononanesulfonic acid (PFNS)	1.79	18	µg/kg wet	1.716		104	46-151			J
Perfluorodecanesulfonic acid (PFDS)	1.75	18	µg/kg wet	1.720		102	50-144			J
Perfluorododecanesulfonic acid (PFDoS)	1.65	18	µg/kg wet	1.729		95.6	30-138			J
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	6.71	71	µg/kg wet	6.684		100	52-158			J
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.16	71	µg/kg wet	6.774		106	48-158			J
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	7.00	71	µg/kg wet	6.863		102	46-165			J
Perfluorooctanesulfonamide (PFOSA)	1.86	18	µg/kg wet	1.783		104	47-163			J
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	1.77	18	µg/kg wet	1.783		99.5	54-155			J
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.88	18	µg/kg wet	1.783		105	49-156			J
N-MeFOSAA (NMeFOSAA)	2.19	18	µg/kg wet	1.783		123	32-160			J

QUALITY CONTROL

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B387114 - Draft Method 1633										
MRL Check (B387114-MRL1)				Prepared: 09/25/24 Analyzed: 09/26/24						
N-EtFOSAA (NEtFOSAA)	1.56	18	µg/kg wet	1.783		87.6	51-154			J
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	18.3	180	µg/kg wet	17.83		102	56-151			J
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	17.8	180	µg/kg wet	17.83		99.9	60-147			J
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.69	71	µg/kg wet	7.130		93.8	58-154			J
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	7.17	71	µg/kg wet	6.729		107	61-148			J
9Cl-PF3ONS (F53B Minor)	6.92	71	µg/kg wet	6.684		104	44-167			J
11Cl-PF3OUdS (F53B Major)	6.42	71	µg/kg wet	6.729		95.4	36-158			J
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	13.3	180	µg/kg wet	17.83		74.4	32-161			J
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	77.0	890	µg/kg wet	89.13		86.4	39-156			J
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	73.0	890	µg/kg wet	89.13		81.9	36-149			J
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	3.26	36	µg/kg wet	3.173		103	56-144			J
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.00	36	µg/kg wet	3.565		84.2	48-150			J
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.35	36	µg/kg wet	3.565		93.9	49-154			J
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.79	36	µg/kg wet	3.565		78.2	47-160			J
Surrogate: 13C4-PFBA	*69.4*		µg/kg wet	89.13		77.9	10-130			
Surrogate: 13C5-PFPeA	*37.5*		µg/kg wet	44.56		84.2	35-150			
Surrogate: 13C5-PFHxA	*16.7*		µg/kg wet	22.28		75.0	55-150			
Surrogate: 13C4-PFHpA	*16.0*		µg/kg wet	22.28		72.0	55-150			
Surrogate: 13C8-PFOA	*18.0*		µg/kg wet	22.28		80.8	60-140			
Surrogate: 13C9-PFNA	*8.28*		µg/kg wet	11.14		74.3	55-140			
Surrogate: 13C6-PFDA	*8.12*		µg/kg wet	11.14		72.9	50-140			
Surrogate: 13C7-PFUnA	*8.92*		µg/kg wet	11.14		80.1	30-140			
Surrogate: 13C2-PFDoA	*8.23*		µg/kg wet	11.14		73.9	10-150			
Surrogate: 13C2-PFTeDA	*7.11*		µg/kg wet	11.14		63.8	10-130			
Surrogate: 13C3-PFBS	*16.6*		µg/kg wet	22.28		74.6	55-150			
Surrogate: 13C3-PFHxS	*16.3*		µg/kg wet	22.28		72.9	55-150			
Surrogate: 13C8-PFOS	*16.8*		µg/kg wet	22.28		75.4	45-150			
Surrogate: 13C2-4:2FTS	*28.7*		µg/kg wet	44.56		64.3	60-200			
Surrogate: 13C2-6:2FTS	*29.3*		µg/kg wet	44.56		65.8	60-200			
Surrogate: 13C2-8:2FTS	*28.7*		µg/kg wet	44.56		64.5	50-200			
Surrogate: 13C8-PFOSA	*14.2*		µg/kg wet	22.28		63.7	30-130			
Surrogate: D3-NMeFOSA	*11.9*		µg/kg wet	22.28		53.3	15-130			
Surrogate: D5-NEtFOSA	*11.9*		µg/kg wet	22.28		53.5	10-130			
Surrogate: D3-NMeFOSAA	*32.1*		µg/kg wet	44.56		71.9	45-200			
Surrogate: D5-NEtFOSAA	*39.9*		µg/kg wet	44.56		89.6	10-200			
Surrogate: D7-NMeFOSE	*132*		µg/kg wet	222.8		59.1	10-150			
Surrogate: D9-NEtFOSE	*136*		µg/kg wet	222.8		61.1	10-150			
Surrogate: 13C3-HFPO-DA	*60.5*		µg/kg wet	89.13		67.9	25-160			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-06	Sample was extracted past the recommended holding time.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
PF-17C	Extracted internal standard is outside of control limits. Analyte is a known difficult compound.
PF-23	Qualifier ion ratio <50% of associated calibration. Detection is suspect.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
Draft Method 1633 in Water	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NH-P,NY,PA,WV,CT
Perfluoropentanoic acid (PFPeA)	NH-P,NY,PA,WV,CT
Perfluorohexanoic acid (PFHxA)	NH-P,NY,PA,WV,CT
Perfluoroheptanoic acid (PFHpA)	NH-P,NY,PA,WV,CT
Perfluorooctanoic acid (PFOA)	NH-P,NY,PA,WV,CT
Perfluorononanoic acid (PFNA)	NH-P,NY,PA,WV,CT
Perfluorodecanoic acid (PFDA)	NH-P,NY,PA,WV,CT
Perfluoroundecanoic acid (PFUnA)	NH-P,NY,PA,WV,CT
Perfluorododecanoic acid (PFDoA)	NH-P,NY,PA,WV,CT
Perfluorotridecanoic acid (PFTrDA)	NH-P,NY,PA,WV,CT
Perfluorotetradecanoic acid (PFTeDA)	NH-P,NY,PA,WV,CT
Perfluorobutanesulfonic acid (PFBS)	NH-P,NY,PA,WV,CT
Perfluoropentanesulfonic acid (PFPeS)	NH-P,NY,PA,WV,CT
Perfluorohexanesulfonic acid (PFHxS)	NH-P,NY,PA,WV,CT
Perfluoroheptanesulfonic acid (PFHpS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonic acid (PFOS)	NH-P,NY,PA,WV,CT
Perfluorononanesulfonic acid (PFNS)	NH-P,PA,WV,CT
Perfluorodecanesulfonic acid (PFDS)	NH-P,PA,WV,CT
Perfluorododecanesulfonic acid (PFDoS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P,PA,WV,CT
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NH-P,NY,PA,WV,CT
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NH-P,NY,PA,WV,CT
Perfluorooctanesulfonamide (PFOSA)	NH-P,PA,WV,CT
N-methyl perfluoroocatnesulfonamide (NMeFOSA)	NH-P,PA,WV,CT
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P,PA,WV,CT
N-MeFOSAA (NMeFOSAA)	NH-P,NY,PA,WV,CT
N-EtFOSAA (NEtFOSAA)	NH-P,NY,PA,WV,CT
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P,PA,WV,CT
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P,PA,WV,CT
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NH-P,NY,PA,WV,CT
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NH-P,NY,PA,WV,CT
9Cl-PF3ONS (F53B Minor)	NH-P,NY,PA,WV,CT
11Cl-PF3OUdS (F53B Major)	NH-P,NY,PA,WV,CT
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P,PA,WV,CT
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P,PA,WV,CT
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P,PA,WV,CT
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	NH-P,NY,PA,WV,CT
Perfluoro-3-methoxypropanoic acid (PFMPA)	NH-P,NY,PA,WV,CT
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P,PA,WV,CT
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P,PA,WV,CT

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Con-Test, a Pace Environmental Laboratory, operates under the following certifications and accreditations:

Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2025
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2025
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2025
RI	Rhode Island Department of Health	LAO00373	12/30/2024
NC	North Carolina Div. of Water Quality	652	12/31/2024
ME	State of Maine	MA00100	06/9/2025
VA	Commonwealth of Virginia	460217	12/14/2024
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2025
PA	Commonwealth of Pennsylvania DEP	68-05812	06/30/2025
WV	West Virginia DEP Division of Water and Waste Management	419	08/31/2025

24I0465

Internal Transfer Chain of Custody

Pace

☐ Rush Multiplier____X
☐ Samples Pre-Logged into eCOC

State Of Origin: IL
Cert. Needed: ☐ Yes ☒ No
Owner Received Date: 9/3/2024 **Results Requested By:** 10/2/2024

Workorder: 40283460 **Workorder Name:** PFAS/1633

Report To	Subcontract To
Cindy Varga Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436	Pace New England 39 Spruce St. East Longmeadow, MA 01028 Phone (413)525-2332

						Preserved Containers						Requested Analysis												
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Unpreserved						1633 PFAS												LAB USE ONLY
1	PCD 090324 CLASSIFIER 3	PS	9/3/2024 09:10	40283460001	Solid	1						X												
2	FIELD BLANK 090324 WATER	PS	9/3/2024 09:10	40283460002	Water	1						X												
3																								
4																								
5																								

Transfers	Released By	Date/Time	Received By	Date/Time
1			[illegible]	9/4/24 1058
2				
3				

Comments

Need dry and wet weight reporting.
MDL Reporting

Cooler Temperature on Receipt 4.4 °C | **Custody Seal** Y or N | **Received on Ice** Y or N | **Samples Intact** Y or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document.*
This chain of custody is considered complete as is since this information is available in the owner laboratory.

FedEx® Tracking

DELIVERED

Wednesday

9/4/24 at 10:58 AM

Signed for by: M.MAHONEY

Obtain proof of delivery

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

400513071328

FROM
Schaumburg, IL US

Label Created
9/3/24 3:38 PM

WE HAVE YOUR PACKAGE
SCHAUMBURG, IL
9/3/24 3:48 PM

ON THE WAY
WINDSOR LOCKS, CT
9/4/24 7:31 AM

OUT FOR DELIVERY
WINDSOR LOCKS, CT
9/4/24 8:32 AM

DELIVERED
EAST LONGMEADOW, MA US

Delivered
9/4/24 at 10:58 AM

View travel history

Want updates on this shipment? Enter your email and we will do the rest!

Your email

SUBMIT

MORE OPTIONS

Log In Back-Sheet

Client Pace- MI

Project 40283960

MCP/RCP Required NO

Deliverable Package Requirement NO

Location IL

PWSID# (When Applicable) NA

Arrival Method:

Courier ☐ Fed Ex ☑ Walk In ☐ Other ☐

Received By / Date / Time SR 9/4/24 1058

Back-Sheet By / Date / Time SR 9/4/24 1622

Temperature Method GUN # 6

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

Temp < 6° C Actual Temperature 4.4

Rush Samples: Yes / No Notify

Short Hold: Yes / No Notify

Notes regarding Samples/COC outside of SOP:

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

	True	False
Received on Ice	☑	☐
Received in Cooler	☑	☐
Custody Seal: DATE 9/3/24 TIME	☑	☐ NT
COC Relinquished	☑	☐
COC/Samples Labels Agree	☑	☐
All Samples in Good Condition	☑	☐
Samples Received within Holding Time	☑	☐
Is there enough Volume	☑	☐
Proper Media/Container Used	☑	☐
Splitting Samples Required	☐	☑
MS/MSD	☐	☑
Trip Blanks	☐	☑
Lab to Filters	☐	☑
COC Legible	☑	☐

COC Included: (Check all included)

Client ☐ Analysis ☑ Sampler Name ☑

Project ☑ IDs ☑ Collection Date/Time ☑

All Samples Proper pH: N/A ☐ ☐

Additional Container Notes

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

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

Sample	Soils Jars (Circle Amb/Clear)				Ambers					Plastics													VOA Vials					Other / Fill in			
	16oz Amb/Clear	8oz Amb/Clear	4oz Amb/Clear	2oz Amb/Clear	1 Liter			250mL		100mL	1 Liter		500mL		250mL								Unpreserved	HCl	MeOH	D.I. Water	Bisulfate	Col/Bact			
					Unpreserved	HCL	Sulfuric	Sulfuric	Phosphoric	HCl	Unpreserved	Unpreserved	Sulfuric	Unpreserved	Sulfuric	Trizma	Nitric	NaOH	Ammonium Acetate	NaOH/Zinc											
1																														
2													2																	
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