Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673

TRACE ANALYTICAL LABORATORIES, INC.

231-773-5998 Phone
888-979-4469 Fax
www.trace-labs.com

February 18, 2022

Mr. Matt Griffith
Charlotte, City of
111 E. Lawrence
Charlotte, MI 48813

RE: Trace Project 22B0066
Client Project Biosolids PFAS

Dear Mr. Griffith:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

The results were obtained from Fibertec Environmental Services.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at tbrewer@trace-labs.com.

Sincerely,

Timothy W. Brewer

Tim Brewer
Project Manager

Enclosures

NELAP ACCREDITED LABORATORY

NJDEP Accreditation No. MI008

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SAMPLE SUMMARY

Trace Project ID: 22B0066
Client Project ID: Biosolids PFAS

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
22B0066-01	Biosolids	Sludge	GS/JS	02/01/22 14:45	02/02/22 10:53

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

Fibertec
environmental
services

Friday, February 18, 2022

Fibertec Project Number:	A06826
Project Identification:	PFAS ANALYSIS /
Submittal Date:	02/08/2022

Mr. Tim Brewer
Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444

Dear Mr. Brewer,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 7 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

Percent Solids for sample -001 were reported at 4.5%

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

By Sharon Rakow at 10:24 AM, Feb 18, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Client Identification:	**Trace Analytical Laboratories, Inc.**	Sample Description:	**Biosolids**	Chain of Custody:	**N/A**
Client Project Name:	**PFAS ANALYSIS**	Sample No:	**22B0066-01**	Collect Date:	**02/01/22**
Client Project No:	**NA**	Sample Matrix:	**Biosolids**	Collect Time:	**14:45**

Sample Comments:

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

PFAS
Method: ASTM D7968-17a

Aliquot ID: A06826-001 **Matrix: Biosolids**
Description: Biosolids

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation P. Date	Preparation P. Batch	Analysis A. Date	Analysis A. Batch	Init.
‡ 1. ADONA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 2. 9Cl-PF3ONS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 3. 11Cl-PF3OUdS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 4. N-EtFOSAA	**7.3**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 5. FtS 4:2	U	EIS+	µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 6. FtS 6:2	**3.1**	EIS+	µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 7. FtS 8:2	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 8. HFPO-DA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 9. N-MeFOSAA	**16**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 10. PFBA	**2.3**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 11. PFBS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 12. PFDA	**17**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 13. PFDoA	**4.5**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 14. PFDS	**2.7**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 15. PFHpA	**2.5**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 16. PFHpS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 17. PFHxA	**3.4**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 18. PFHxS-Total	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 19. PFNA	**4.0**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 20. PFNS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 21. PFOA	**17**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 22. PFOSA	**5.1**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 23. PFOS-Total	**25**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 24. PFPeA	**2.5**		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 25. PFPeS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 26. PFTeA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 27. PFTriA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 28. PFUnA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK

Definitions/ Qualifiers:

A: Spike recovery or precision unusable due to dilution.
B: The analyte was detected in the associated method blank.
E: The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
J: The concentration is an estimated value.
M: Modified Method
U: The analyte was not detected at or above the reporting limit.
X: Matrix Interference has resulted in a raised reporting limit or distorted result.
W: Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

Exception Summary:

EIS+ : The Isotope Dilution/Extracted Internal Standard area exceeds the upper control limit.

Analysis Locations:

All analyses performed in Holt.

NELAP ACCREDITED LABORATORY

Accreditation Number(s):

T104704518-19-8 (TX)

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TRACE
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CHAIN-OF-CUSTODY RECORD

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Page 1 of 1

Trace ID No. 22B0066

Report Results To:

Company Name:	City of Charlotte
Report To:	Matt Griffith
Mailing Address:	1035 Paine Dr.
City, State, Zip Code:	Charlotte MI 48813
Office Phone:	
Cell Phone:	
Email Address:	MGriffith@Charlottemi.org

Bill To:

PO #:	
Contact Name:	
Billing Address (if different):	
City, State, Zip Code:	
Phone Number:	
Billing Email Address:	

Turnaround Requirements:

☑ Standard: 5-10 Days
☐ 3 Day*
☐ 1 Day*
*Results provided end of business day, requires prior approval.

Matrix Key:

S = Soil / Solid
W = Water
SL = Sludge
Oil = Oil
WI = Wipes
LW = Liquid Waste
A = Air
D = Drinking Water

Trace Use:

Logged By: MC
Checked By: DH
Soil Volatiles Preserved (circle if applicable): MeOH Low Level Lab
Sampling Time:

Project Name: Biosolids
Sampled By: GS/JS

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation: Cool	HCl	HNO_3	H_2SO_4	NaOH	Other	Analysis Requested: PFAS	Remarks	Possible Health Hazards?
1	2-1-22	2:45pm	Biosolids	N	SL	2	X					X	PFAS		

Please Sign	Released By	Received By	Date	Time	Released By	Received By	Date	Time
1)	[signature]	[signature]	2-2-22	1053	2) [signature]	[signature]	2/3/22	8:52
3)					4)			

In executing this Chain of Custody, the client acknowledges the terms as set forth at www.trace-labs.com/terms-of-agreement.

☐ Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at www.trace-labs.com/downloads.

Form 70-Z.1

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22B0066
Charlotte, City of
Project Manager: Tim Brewer

Sample Log In Checklist

	Original Observation	Corrected Temperature	IR-9 (CF: +0.4°C)	IR-10 (CF: +0.4°C)	20B12743 (CF: -0.2°C) Temp Blank	Client Sample
Date: 2/3/22						
Time: 8:52						
Logged by: DH						
Package Description: Cooler						
Package Temp °C	3.9	4.3	✓			
Representative Sample Temp °C	1.8	4.6			✓	✓

Sample Receipt

Yes	No	
☑	☐	Received on ice or other coolant
☑	☐	Ice still present upon receipt
☐	☑	Custody seals present

☐ Yes ☐ No Custody seals intact (if applicable)

☑ Trace Courier ☐ Client Drop-off ☐ UPS ☐ Fed Ex ☐ US Mail ☐ Other

Sample Condition

Yes	No	N/A	
☑	☐	☐	All sample containers arrived unbroken and labeled
☑	☐	☐	Sufficient sample to run requested analyses
☑	☐	☐	Correct chemical preservative added to samples
☐	☐	☑	Samples preserved at Trace _____
☐	☐	☑	Chemical preservation verified, check EMD pH test strip used (if applicable)

☐ pH 0-2.5 (Lot: HC046681) ☐ pH 11.0-13.0 (Lot: HC022540) ☐ Other

☐ ☐ ☑ Air bubbles absent from VOAs _____

Chain of Custody (COC)

Yes	No	
☑	☐	All bottle labels agree with COC
☑	☐	COC filled out properly
☑	☐	COC signed by client

Notes: