

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



231-773-5998 Phone  
888-979-4469 Fax  
[www.trace-labs.com](http://www.trace-labs.com)

September 17, 2021

Rick Mohr  
Manistee, City of  
50 9th St.  
Manistee, MI 49660

Phone: (231) 723-1553  
Fax: (231) 723-1546

RE: Trace ID: 21I0043

Enclosed are your analytical results associated with your project for Biosolids PFAS - (08/26/21). The results of this report relate only to the samples listed in the body of this report.

The results were obtained from Fibertec Environmental Services

Thank you for working with Trace. If you have questions concerning this report, please contact me at 231.773.5998 or by email at [tbrewer@trace-labs.com](mailto:tbrewer@trace-labs.com).

Sincerely,

A handwritten signature in black ink that reads "Timothy W. Brewer".

Tim Brewer  
Project Manager

Enclosures



NJDEP Accreditation No. MI008

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Friday, September 17, 2021

Fibertec Project Number: A03793  
Project Identification: 21I0043 /21I0043  
Submittal Date: 09/02/2021

Mr. Jon Mink  
Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444

Dear Mr. Mink,

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.

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 Sue Ricketts at 2:58 PM, Sep 17, 2021

For Daryl P. Strandbergh  
Laboratory Director

Enclosures



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1914 Holloway Drive  
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8660 S. Mackinaw Trail

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Client Identification:	Trace Analytical Laboratories, Inc.	Sample Description:	Bio-Solid Storage 21I0043-01	Chain of Custody:	N/A
Client Project Name:	21I0043	Sample No:		Collect Date:	08/26/21
Client Project No:	21I0043	Sample Matrix:	Biosolids	Collect Time:	11:30
Sample Comments:					
Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.					

Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1. ADONA	U	EIS-	µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 2.9Cl-PF3ONS	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 3.11Cl-PF3OudS	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 4. N-EtFOSAA	11		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 5. FtS 4:2	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 6. FtS 6:2	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 7. FtS 8:2	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 8. HFPO-DA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 9. N-MeFOSAA	16		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 10. PFBA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 11. PFBS	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 12. PFDA	3.6		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 13. PFDoA	2.9		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 14. PFDS	2.5		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 15. PFHpA	U	EIS-	µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 16. PFHpS	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 17. PFHxA	2.8		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 18. PFHxS-Total	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 19. PFNA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 20. PFNS	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 21. PFOA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 22. PFOSA	2.5		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 23. PFOS-Total	9.0		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 24. PFPeA	2.6		µg/kg	2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 25. PFPeS	U	EIS-	µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 26. PFTeA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 27. PFTriA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG
‡ 28. PFUnA	U		µg/kg	< 2.0	1.0	09/03/21	PS21I03F	09/11/21	SM21I11A	SKG

**PS21I03F: Method Blank (MB)**

**ASTM D7968-17a**

Run Time: PS21I03F.MB 09/11/2021 18:25 [SM21I11A]

Analyte	MB Result	MB Qualifier	MB RDL
ADONA	U		2.0
9Cl-PF3ONS	U		2.0
11Cl-PF3OuDs	U		2.0
N-EtFOSAA	U		2.0
FtS 4:2	U		2.0
FtS 6:2	U		2.0
FtS 8:2	U		2.0
HFPO-DA	U		2.0
N-MeFOSAA	U		2.0
PFBA	U		2.0
PFBS	U		2.0
PFDA	U		2.0
PFDoA	U		2.0
PFDS	U		2.0
PFHpA	U		2.0
PFHpS	U		2.0
PFhxA	U		2.0
PFhxs-Total	U		2.0
PFNA	U		2.0
PFNS	U		2.0
PFOA	U		2.0
PFOSA	U		2.0
PFOS-Total	U		2.0
PFPeA	U		2.0
PFPeS	U		2.0
PFTeA	U		2.0
PFTriA	U		2.0
PFUnA	U		2.0

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F: (231) 775-8584

PS21I03F: Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD)

ASTM D7968-17a

Run Time: PS21I03F.LCS: 09/11/2021 18:38 [SM21I11A] PS21I03F.LCSD: 09/11/2021 18:51 [SM21I11A]

Analyte	LCS	LCS Result	LCS Rec.	Rec. Limits	LCS	LCSD	LCSD	LCSD	LCSD	RPD	RPD Limits	RPD
	Spike Amount				Qualifier	Spike Amount	Result	Rec.	Qualifier	%	%	Qualifier
	µg/kg	µg/kg	%	%		µg/kg	µg/kg	%	%			
ADONA	2.36	2.46	104	70-130		2.36	2.32	98		6	30	
9Cl-PF3ONS	2.33	2.21	95	70-130		2.33	2.29	98		3	30	
11Cl-PF3OUdS	2.36	2.41	102	70-130		2.36	2.42	103		1	30	
N-EtFOSAA	2.50	2.61	104	70-130		2.50	2.67	107		3	30	
FtS 4:2	2.34	2.44	104	70-130		2.34	2.44	104		0	30	
FtS 6:2	2.38	2.28	96	70-130		2.38	2.31	97		1	30	
FtS 8:2	2.40	2.49	104	70-130		2.40	2.48	104		0	30	
HFPO-DA	2.50	2.56	102	70-130		2.50	2.58	103		1	30	
N-MeFOSAA	2.50	2.63	105	70-130		2.50	2.44	98		7	30	
PFBA	2.50	2.54	102	50-130		2.50	2.52	101		1	30	
PFBS	2.22	2.42	109	70-130		2.22	2.28	103		6	30	
PFDA	2.50	2.55	102	70-130		2.50	2.62	105		3	30	
PFDoA	2.50	2.53	101	70-130		2.50	2.57	103		2	30	
PFDS	2.41	2.43	101	70-130		2.41	2.46	102		1	30	
PFHpA	2.50	2.45	98	50-130		2.50	2.44	98		0	30	
PFHpS	2.38	2.41	101	70-130		2.38	2.27	95		6	30	
PFHxA	2.50	2.53	101	50-130		2.50	2.54	102		1	30	
PFHxS-Total	2.29	2.39	105	70-130		2.29	2.26	99		6	30	
PFNA	2.50	2.67	107	70-130		2.50	2.58	103		4	30	
PFNS	2.40	2.34	97	70-130		2.40	2.35	98		1	30	
PFOA	2.50	2.54	102	70-130		2.50	2.55	102		0	30	
PFOSA	2.50	2.57	103	70-130		2.50	2.53	101		2	30	
PFOS-Total	2.32	2.43	105	70-130		2.32	2.36	102		3	30	
PFPeA	2.50	2.51	100	70-130		2.50	2.55	102		2	30	
PFPeS	2.35	2.48	105	70-130		2.35	2.53	107		2	30	
PFTeA	2.50	2.64	106	70-130		2.50	2.60	104		2	30	
PFTriA	2.50	2.81	112	70-130		2.50	2.52	101		10	30	
PFUnA	2.50	2.56	102	70-130		2.50	2.58	103		1	30	

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F: (231) 775-8584

**Definitions/ Qualifiers:**

- U:** The analyte was not detected at or above the Reporting Limit (RL).  
**\***: Value reported is outside QC limits

**Exception Summary:**

Exceptions have been properly noted on reported results or affected samples have been scheduled for reanalysis when appropriate.

**Report Generated By:**



By Sue Ricketts at 2:59 PM, Sep 17, 2021

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**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 lower control limit.

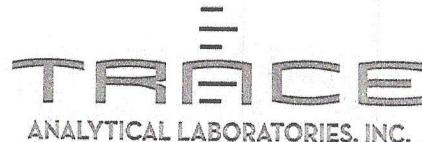
**Analysis Locations:**

All analyses performed in Holt.



Accreditation Number(s):

**T104704518-19-8 (TX)**



Report Results To:

Company Name:	<i>City of Manistee</i>			PO #:			
Report To:	<i>RICK Mohr</i>			Contact Name:	<i>Heather Pefley</i>		
Mailing Address:	<i>70 Maple Street</i>			Billing Address (if different):	<i>Same</i>		
City, State, Zip Code:	<i>Manistee, MI 49660</i>			City, State, Zip Code:	<i>Same</i>		
Office Phone:	<i>231-723-1553</i>	Cell Phone:	<i>233-0946</i>	Phone Number:	<i>231-723-2558</i>		
Email Address:	<i>r.mohr@manistee.mi.gov</i>			Billing Email Address:	<i>hpefley@manistee.mi.gov</i>		

Turnaround Requirements:

- Standard, 5-10 Days
- 3 Day\*
- 1 Day\*

\*Results provided end of business day, requires prior approval.

Matrix Key:

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

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Page 1 of 1

Trace ID No.

*21E0043*

Trace Use:

Logged By:	<i>TS</i>
Checked By:	<i>NE</i>
Soil Volatiles Preserved (circle if applicable):	
MeOH	Low Level Lab
Sampling Time:	

Analysis Requested

Trace No.	Date Collected	Time Collected	Client Sample ID	Analysis Requested								Remarks	Possible Health Hazards?	
				Metals Field Filtered (Y/N)	Matrix	Number of Containers	Cool	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH			Other
1	8-26-11 3:00 pm	<i>11:30 am</i>	<i>Bio-Solid - Storage</i>	<i>SLY</i>				X						
2														
3														
4														
Please Sign	Released By	Received By	Date	Time	Released By	Received By	Date	Time						
1)	<i>Rick Mohr</i>		<i>8-31-21</i>	<i>3:45 PM</i>	<i>Heather Pefley</i>		<i>9/1/21</i>	<i>15:23</i>						
2)														
3)														
4)														
In executing this Chain of Custody, the client acknowledges the terms as set forth at <a href="http://www.trace-labs.com/terms-of-agreement">www.trace-labs.com/terms-of-agreement</a> .														
<input type="checkbox"/>	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 <a href="http://www.trace-labs.com/downloads">www.trace-labs.com/downloads</a> .													

**CERTIFICATE OF ANALYSIS**

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www.trace-labs.com

**2110043-(**

Manistee, City of

Project Manager: Tim Brewer

#### Sample Log In Checklist

Date:	9/1/21	Original Observation	Corrected Temperature
Time:	15:23		
Logged by:	TS		
Package Description:	Cooler		
Package Temp °C	-0.9	-0.8	✓ IR-9 (CF: +0.1°C)
Representative Sample Temp °C	1.0	1.1	✓ IR-10 (CF: +0.1°C)
			✓ 20B12743 (CF: -0.3°C)
			Temp Blank
			Client Sample

#### Sample Receipt

Yes      No

- Received on ice or other coolant  
 Ice still present upon receipt  
 Custody seals present  
 Trace Courier       Client Drop-off

Yes     No    Custody seals intact (if applicable)  
 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: HC029115)       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:

Form 70-A.39  
Effective 7/2/21

TRACE Analytical Laboratories, Inc.

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