

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



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

February 18, 2022

Stewart Beach
Fleis and Vandenbrink Engineers
2960 Lucerne Drive, SE
Grand Rapids, MI 49546

RE: Trace Project 22B0134
Client Project Marine City WWTP- Biosolids PFAS

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,

A handwritten signature in black ink, appearing to read "Timothy W. Brewer".

Tim Brewer
Project Manager

Enclosures



NJDEP Accreditation No. MI008

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SAMPLE SUMMARY

Trace Project ID: 22B0134
Client Project ID: Marine City WWTP- Biosolids PFAS

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
22B0134-01	Final Sludge	Sludge	RM	02/02/22 11:00	02/03/22 11:35

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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.



Thursday, February 17, 2022

Fibertec Project Number: A06827
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 8.0%.

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,

A handwritten signature in black ink, appearing to read "Sharon L. Rakow".

By Sharon Rakow at 10:09 AM, Feb 17, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

1914 Holloway Drive
11766 E. Grand River
8660 S. Mackinaw Trail

Holt, MI 48842
Brighton, MI 48116
Cadillac, MI 49601

T: (517) 699-0345
T: (810) 220-3300
T: (231) 775-8368

F: (517) 699-0388
F: (810) 220-3311
F: (231) 775-8584

Client Identification:	Trace Analytical Laboratories, Inc.	Sample Description:	Biosolids	Chain of Custody:	N/A
Client Project Name:	PFAS ANALYSIS	Sample No:	22B0134-01	Collect Date:	02/02/22
Client Project No:	NA	Sample Matrix:	Biosolids	Collect Time:	11:00

Sample Comments:

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

PFAS				Aliquot ID: A06827-001		Matrix: Biosolids				
Method: ASTM D7968-17a				Description: Biosolids						
Parameter(s)	Result	Q	Units	Reporting Limit	Dilution	Preparation		Analysis		
						P. Date	P. Batch	A. Date	A. Batch	Init.
‡ 1.ADONA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 2.9CI-PF3ONS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 3.11CI-PF3OUdS	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 4.N-EtFOSAA	3.2		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	U	F+	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	8.7		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 10.PFBA	U		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	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 13.PFDoA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 14.PFDS	2.5		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 15.PFHpA	U		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	5.0		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	U		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	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 22.PFOSA	U		µg/kg	2.0	1.0	02/11/22	PS22B11F	02/15/22	SM22B15A	GDK
‡ 23.PFOS-Total	6.4	F+	µg/kg	2.0	5.0	02/16/22	PS22B11F	02/16/22	SM22B16A	GDK
‡ 24.PFPeA	U		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	F+	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.
F+ : Recovery from the spiked aliquot exceeds the upper control limit (matrix spike or matrix spike duplicate).

Analysis Locations:

All analyses performed in Holt.



Accreditation Number(s):

T104704518-19-8 (TX)

1914 Holloway Drive
11766 E. Grand River
8660 S. Mackinaw Trail

Holt, MI 48842
Brighton, MI 48116
Cadillac, MI 49601

T: (517) 699-0345
T: (810) 220-3300
T: (231) 775-8368

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TRC
ANALYTICAL LABORATORIES, INC.

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Trace ID No.

22130134

Report Results To:

Bill To:

Company Name:	FVEDP - MARQUE CTRY WW/ND	PO #:	MARQUE CTRY WW/ND
Report To:	Ken Dery, FVEDP	Contact Name:	MIKE ITRACH, DPU SUPS
Mailing Address:	1696 S. PARKER ST.	Billing Address (if different):	514 S. PARKER ST
City, State, Zip Code:	MARQUE CTRY, MT 48039	City, State, Zip Code:	MARQUE CTRY, MT 48039
Office Phone:	810-765-8241	Cell Phone:	989-866-2143
Phone Number:	810-765-8257		
Email Address:	KDERY@FVEDP.COM	Billing Email Address:	MITRACH@MARQUECTRY-MT.OEG

Trace Use:

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

Turnaround Requirements:

☒ Standard, 5-10 Days☐ 3 Day*☐ 1 Day*

Matrix Key:

S = Soil / Solid

W = Water

SL = Sludge

$$O_i = O_{i1}$$

WI = Wipes

LW = Liquid Waste

$A = A_{\text{ir}}$

D = Drinking Water

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

[illegible]

☐ 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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22B0134

Fleis and Vandenbrink Engin
Project Manager: Tim Brewer

Sample Log In Checklist

Date: 2/3/22	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
Time: 11:35							
Logged by: BV							
Package Description: Cooler							
Package Temp °C	0.6	1.8	✓				
Representative Sample Temp °C	2.8	7.8			✓	✓	

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: 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:

