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

May 09, 2022

Ms. Tammi Gall
Mead & Hunt
8288 South Pleasantview Rd.
Harbor Springs, MI 49740

RE: Trace Project 22D0741
Client Project Biosolid Storage 4/19/22

Dear Ms. Gall:

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 dhilleary@trace-labs.com.

Sincerely,

Drew Hilleary
Project Manager

Enclosures

NELAP ACCREDITED TNI LABORATORY

NJDEP Accreditation No. MI008

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SAMPLE SUMMARY

Trace Project ID: 22D0741
Client Project ID: Biosolid Storage 4/19/22

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
22D0741-01	Biosolids Storage	Sludge	Client	04/19/22 10:00	04/20/22 12:40

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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

Monday, May 09, 2022

Fibertec Project Number:	A08133
Project Identification:	22D0741 /22D0741
Submittal Date:	04/22/2022

Mr. Drew Hilleary
Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444

Dear Mr. Hilleary,

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 6.4%.

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,

Sue Ricketts

By Sue Ricketts at 3:56 PM, May 09, 2022

For Daryl P. Strandbergh
Laboratory Director

Enclosures

Fibertec environmental services

Analytical Laboratory Report
Laboratory Project Number: A08133
Laboratory Sample Number: A08133-001

Order: A08133
Date: 05/09/22

Client Identification:	**Trace Analytical Laboratories, Inc.**	Sample Description:	**Biosolids Storage 22D0741-01**	Chain of Custody:	**NA**
Client Project Name:	**22D0741**	Sample No:		Collect Date:	**04/19/22**
Client Project No:	**22D0741**	Sample Matrix:	**Biosolids**	Collect Time:	**10:00**

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: A08133-001** **Matrix: Biosolids**
Method: ASTM D7968-17a **Description: Biosolids Storage 22D0741-01**

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	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 2. 9Cl-PF3ONS	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 3. 11Cl-PF3OUdS	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 4. N-EtFOSAA	**5.9**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 5. FtS 4:2	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 6. FtS 6:2	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 7. FtS 8:2	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 8. HFPO-DA	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 9. N-MeFOSAA	**5.2**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 10. PFBA	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 11. PFBS	**5.4**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 12. PFDA	**40**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 13. PFDoA	**12**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 14. PFDS	**8.5**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 15. PFHpA	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 16. PFHpS	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 17. PFHxA	**2.2**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 18. PFHxS-Total	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 19. PFNA	**4.5**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 20. PFNS	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 21. PFOA	**24**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 22. PFOSA	**3.9**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 23. PFOS-Total	**74**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 24. PFPeA	**4.4**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 25. PFPeS	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 26. PFTeA	**3.9**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 27. PFTriA	U		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG
‡ 28. PFUnA	**3.7**		µg/kg	2.0	1.0	04/27/22	PS22D27G	05/02/22	SM22E02A	SKG

Acronym (Param)	Analyte Name	CAS Number
1. ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
2. 9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	756426-58-1
3. 11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
4. N-EtFOSAA	2-(N-Ethylperfluorooctanesulfonamido) acetic acid	2991-50-6
5. FtS 4:2	Fluorotelomer sulphonic acid 4:2	757124-72-4
6. FtS 6:2	Fluorotelomer sulphonic acid 6:2	27619-97-2
7. FtS 8:2	Fluorotelomer sulphonic acid 8:2	39108-34-4
8. HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6
9. N-MeFOSAA	2-(N-Methylperfluorooctanesulfonamido) acetic acid	2355-31-9
10. PFBA	Perfluorobutanoic acid	375-22-4
11. PFBS	Perfluorobutanesulfonic acid	375-73-5
12. PFDA	Perfluorodecanoic acid	335-76-2
13. PFDoA	Perfluorododecanoic acid	307-55-1
14. PFDS	Perfluorodecanesulfonic acid	335-77-3
15. PFHpA	Perfluoroheptanoic acid	375-85-9
16. PFHpS	Perfluoroheptanesulfonic acid	375-92-8
17. PFHxA	Perfluorohexanoic acid	307-24-4
18. PFHxS-Total	Perfluorohexanesulfonic acid	355-46-4
19. PFNA	Perfluorononanoic acid	375-95-1
20. PFNS	Perfluorononanesulfonic acid	68259-12-1
21. PFOA	Perfluorooctanoic acid	335-67-1
22. PFOSA	Perfluorooctanesulfonamide	754-91-6
23. PFOS-Total	Perfluorooctanesulfonic acid	1763-23-1
24. PFPeA	Perfluoropentanoic acid	2706-90-3
25. PFPeS	Perfluoropentanesulfonic acid	2706-91-4
26. PFTeA	Perfluorotetradecanoic acid	376-06-7
27. PFTriA	Perfluorotridecanoic acid	72629-94-8
28. PFUnA	Perfluoroundecanoic acid	2058-94-8

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:

Analysis Locations:

All analyses performed in Holt.

Accreditation Number(s):

T104704518-19-8 (TX)

TRACE ANALYTICAL LABORATORIES, INC.

CHAIN-OF-CUSTODY RECORD

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Page 1 of 1

Trace ID No. 22D0741

Report Results To:

Company Name:	Mead & Hunt
Report To:	tammi.gall@meadhunt.com
Mailing Address:	
City, State, Zip Code:	
Office Phone:	Cell Phone:
Email Address:	

Bill To:

PO #:	32944
Contact Name:	Kris Kasik
Billing Address (if different):	1760 Lears Rd
City, State, Zip Code:	Petoskey, MI 49770
Phone Number:	231-439-6100 ext 5201
Billing Email Address:	KKasik@odawacasino.com

Trace Use:

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

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

Project Name:
Sampled By:

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 Biosolids											Remarks	Possible Health Hazards?
1	4/19/22	10am	Biosolids Storage		SL	1	X						X												

Please Sign

	Released By	Received By	Date	Time
1)	[signature]		4/19/22	2pm
2)	UPS	[signature]	4/20/22	12:22
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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22D0741
Mead & Hunt
Project Manager: Drew Hilleary

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: 4/20/22							
Time: 12:22							
Logged by: KB							
Package Description: Cooler							
Package Temp °C	1.6	2.0	✓				
Representative Sample Temp °C	5.1	5.5	✓				✓

Sample Receipt

Yes No
- [x] [ ] Received on ice or other coolant
- [x] [ ] Ice still present upon receipt
- [ ] [x] Custody seals present — [ ] Yes [ ] No Custody seals intact (if applicable)
- [ ] Trace Courier [ ] Client Drop-off [x] UPS [ ] Fed Ex [ ] US Mail [ ] Other

Sample Condition

Yes No N/A
- [x] [ ] [ ] All sample containers arrived unbroken and labeled
- [x] [ ] [ ] Sufficient sample to run requested analyses
- [ ] [ ] [x] Correct chemical preservative added to samples
- [ ] [ ] [x] Samples preserved at Trace _____
- [ ] [ ] [x] 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
- [ ] [ ] [x] Air bubbles absent from VOAs _____

Chain of Custody (COC)

Yes No
- [x] [ ] All bottle labels agree with COC
- [x] [ ] COC filled out properly
- [x] [ ] COC signed by client

Notes:

Form 70-A.41
Effective 1/7/22

TRACE Analytical Laboratories, Inc.