

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 03, 2022

Mr. Tom Rodgers  
Benton Harbor- St. Joseph WWTP  
269 Anchors Way  
St. Joseph, MI 49085

RE: Trace Project 22A0669  
Client Project Biosolids PFAS 1/21/22

Dear Mr. Rodgers:

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](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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**SAMPLE SUMMARY**

Trace Project ID: 22A0669  
Client Project ID: Biosolids PFAS 1/21/22

| Trace ID   | Sample ID | Matrix | Collected By | Date Collected | Date Received  |
|------------|-----------|--------|--------------|----------------|----------------|
| 22A0669-01 | Biosolids | Sludge | Client       | 01/21/22 15:00 | 01/24/22 11:00 |

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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 03, 2022

Fibertec Project Number: A06610  
Project Identification: 22A0669 /22A0669  
Submittal Date: 01/25/2022

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 7.7%.

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 "Sue Ricketts". The signature is fluid and cursive.

*By Sue Ricketts at 12:02 PM, Feb 03, 2022*

For Daryl P. Strandbergh  
Laboratory Director

Enclosures

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F: (231) 775-8584

**Analytical Laboratory Report**  
**Laboratory Project Number: A06610**  
**Laboratory Sample Number: A06610-001**

Order: A06610  
Page: 2 of 3  
Date: 02/03/22

|                        |  |                     |                   |                   |                 |
|------------------------|--|---------------------|-------------------|-------------------|-----------------|
| Client Identification: | <b>Trace Analytical Laboratories, Inc.</b> | Sample Description: | <b>22A0669-01</b> | Chain of Custody: | <b>n/a</b>      |
| Client Project Name:   | <b>22A0669</b>                             | Sample No:          |                   | Collect Date:     | <b>01/21/22</b> |
| Client Project No:     | <b>22A0669</b>                             | Sample Matrix:      | <b>Biosolids</b>  | Collect Time:     | <b>15:00</b>    |

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: A06610-001  |          | Matrix: Biosolids |          |          |          |       |
|------------------------|--------|------|-------|-------------------------|----------|-------------------|----------|----------|----------|-------|
| Method: ASTM D7968-17a |        |      |       | Description: 22A0669-01 |          |                   |          |          |          |       |
| 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      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 2. 9CI-PF3ONS        | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 3. 11CI-PF3OUdS      | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 4. N-EtFOSAA         | 10     |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 5. FtS 4:2           | U      | EIS+ | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 6. FtS 6:2           | U      | EIS+ | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 7. FtS 8:2           | U      | EIS+ | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 8. HFPO-DA           | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 9. N-MeFOSAA         | 28     |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 10. PFBA             | 2.7    |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 11. PFBS             | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 12. PFDA             | 3.2    |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 13. PFDoA            | 2.2    |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 14. PFDS             | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 15. PFHpA            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 16. PFHpS            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 17. PFHxA            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 18. PFHxS-Total      | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 19. PFNA             | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 20. PFNS             | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 21. PFOA             | 2.1    |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 22. PFOSA            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 23. PFOS-Total       | 16     |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 24. PFPeA            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 25. PFPeS            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 26. PFTeA            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 27. PFTriA           | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |
| ‡ 28. PFUnA            | U      |      | µg/kg | 2.0                     | 1.0      | 01/31/22          | PS22A31G | 01/31/22 | SM22A31B | SKG   |

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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

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**Exception Summary:**

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

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**Analysis Locations:**

All analyses performed in Holt.

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Accreditation Number(s):

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

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**TRIPLE**  
ANALYTICAL LABORATORIES, INC.

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## CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Trace ID No. 22A0669

**Report Results To:**

**Bill To:**

|                        |                            |                                 |
|------------------------|----------------------------|---------------------------------|
| Company Name:          | BHSB WUNT                  | PO #:                           |
| Report To:             | Tom Rodgers, Taikeo Kikera | Contact Name:                   |
| Mailing Address:       | 269 Anderson Way           | Billing Address (if different): |
| City, State, Zip Code: | St. Joseph, MI, 49085      | City, State, Zip Code:          |
| Office Phone:          | 269 983-7719               | Phone Number:                   |
| Cell Phone:            |                            |                                 |
| Email Address:         | tkikera@bhsbwunt.com       | Billing Email Address:          |

**Trace Use:**

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

### Turnaround Requirements:

**Matrix Key:**

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

|                  |                    |
|------------------|--------------------|
| S = Soil / Solid | WI = Wipes         |
| W = Water        | LW = Liquid Waster |
| SL = Sludge      | A = Air            |
| OI = Oil         | 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](http://www.trace-labs.com/downloads)

Form 70-Z.1

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**22A0669**

Benton Harbor- St. Joseph  
Project Manager: Tim Brewer

**Sample Log In Checklist**

|                               |                      |                       |                   |                    |                       |            |               |
|-------------------------------|----------------------|-----------------------|-------------------|--------------------|-----------------------|------------|---------------|
| Date: 1/24/22                 | 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: 16:35                   |                      |                       |                   |                    |                       |            |               |
| Logged by: KLB                |                      |                       |                   |                    |                       |            |               |
| Package Description: Coder    |                      |                       |                   |                    |                       |            |               |
| Package Temp °C               | 30.34                |                       |                   |                    |                       |            |               |
| Representative Sample Temp °C | 1.4                  | 1.2                   |                   |                    |                       |            |               |

**Sample Receipt**

|                                     |                          |                                  |  |
|-------------------------------------|--------------------------|----------------------------------|--|
| Yes                                 | No                       |                                  |  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Received on ice or other coolant |  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Ice still present upon receipt   |  |
| <input type="checkbox"/>            | <input type="checkbox"/> | Custody seals present            | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Trace Courier                    | <input type="checkbox"/> UPS                             |
| <input type="checkbox"/>            | <input type="checkbox"/> | Client Drop-off                  | <input type="checkbox"/> Fed Ex                          |
|                                     |                          |                                  | <input type="checkbox"/> US Mail                         |
|                                     |                          |                                  | <input type="checkbox"/> Other                           |

**Sample Condition**

|                                     |                          |                                     |  |
|-------------------------------------|--------------------------|-------------------------------------|--|
| Yes                                 | No                       | N/A                                 |  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | All sample containers arrived unbroken and labeled   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Sufficient sample to run requested analyses  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Correct chemical preservative added to samples   |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | Samples preserved at Trace   |
| <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Chemical preservation verified, check EMD pH test strip used (if applicable)   |
|                                     |                          |                                     | <input type="checkbox"/> pH 0-2.5 (Lot: HC046681) <input type="checkbox"/> pH 11.0-13.0 (Lot: HC022540) <input type="checkbox"/> Other |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Air bubbles absent from VOAs   |

**Chain of Custody (COC)**

|                                     |                          |                                  |
|-------------------------------------|--------------------------|----------------------------------|
| Yes                                 | No                       |                                  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | All bottle labels agree with COC |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | COC filled out properly          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | COC signed by client             |

**Notes:**