# PFAS Investigation Phase 2 Report Pellston Regional Airport (PLN)

Final Report for MDOT/EGLE Grant-Funded Activity

Prepared for: Emmet County, MI

Prepared by: LimnoTech 501 Avis Drive Ann Arbor, MI

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Environment Engineers



### **TABLE OF CONTENTS**

1 Introduction1
2 Summary of Phase 1 Investigation
2.1 Phase 1 Investigation Overview
2.2 Phase 1 Investigation Findings
3 Phase 2 Investigation Description9
3.1 Pre-Field Activities9
3.2 Investigation Overview9
3.3 Soil Boring Method9
3.4 Groundwater Sampling Method9
3.5 Sample Summary11
3.6 Sample Handling11
3.7 Laboratory Analysis12
3.8 Equipment Decontamination12
3.9 Soil Boring Closure12
3.10 Investigation-Derived Waste12
3.11 Deviations from Work Plan13
4 Phase 2 Investigation Results15
4.1 Subsurface Hydrogeological Conditions15
4.2 Data Quality Review25
4.2.1 Field Blanks 25
4.2.2 Equipment and Source Water Blanks
4.2.3 Field Duplicates 25
4.2.4 Data Quality Conclusion25

### **APPENDICES**

Appendix A:Soil Boring LogsAppendix B:Chain-of-Custody FormsAppendix C:Laboratory Reports

### **LIST OF FIGURES**

Figure 2-1. Site Map with Identified AFFF Use Location
Figure 2-2. Phase 1 Groundwater Sampling Results for PFAS at
Pellston Regional Airport6
Figure 2-3. Phase 1 Investigation Groundwater Elevation
(October 2020 Data)
Figure 3-1. Phase 2 Groundwater Sampling Locations 10
Figure 4-1. Groundwater Surface Map – May 202116
Figure 4-2. Groundwater Surface Map – August 202117
Figure 4-3. Phase 2 Investigation Results for PFHxS in
Groundwater18
Figure 4-4. Phase 2 Investigation Results for PFOS in
Groundwater19
Figure 4-5. Phase 2 Investigation Results for PFOA in
Groundwater20

### **LIST OF TABLES**

Table 3-1. Phase 2 Groundwater Sample Summary	11
Table 4-1. Phase 2 Investigation Sampling Results for Monito	oring
Wells (all ng/l or ppt)	21
Table 4-2. Phase 2 Investigation Vertical Aquifer Sampling	
Results for Borings SB21-01 and SB21-02	22
Table 4-3. Phase 2 Investigation Vertical Aquifer Sampling	
Results for Boring SB21-03	23
Table 4-4. Phase 2 Investigation Vertical Aquifer Sampling	
Results for Boring SB21-04	24

# **1** Introduction

This report documents the second phase of subsurface investigation activities performed at the Pellston Regional Airport (identified by its airport code "PLN" or "Airport") in accordance with the work plan dated April 15, 2021. The investigation of PFAS in the subsurface at the Airport is being conducted by Emmet County in response to the letter dated March 4, 2020 from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) (*Compliance Communication Regarding the Potential Release of Per- and Poly-fluoroalkyl Substances (PFAS) through use of Firefighting Foam at Pellston regional Airport, 1351 Highway US-31, Pellston, Michigan*). The work described in this report and the preparation of this report were completed under a grant from the Michigan Department of Transportation, Office of Aeronautics (MDOT) dated September 1, 2020 (MDOT project number PL-PFAS 2020).

The Phase 1 Investigation was designed to identify the presence or absence of PFAS in soil and groundwater at the reported locations of past AFFF use. As described in the Phase 1 investigation report (LimnoTech, 2021), PFAS was detected in groundwater at each of the five past AFFF use areas and at least one PFAS compound was measured above Michigan Part 201 drinking water criteria at four of those locations. A summary of the Phase 1 investigation is provided in Section 2 of this report.

The objective of the Phase 2 investigation was to begin delineation of the horizontal and vertical extent of PFAS in groundwater at the Airport. Specifically:

- Investigate the vertical extent of PFAS in groundwater on the east side of the Airport, in the Hangar Fire Location and the South Test Area, and
- Investigate the potential presence and depth of PFAS in groundwater south of the Hangar Fire Location and the South Test Area, along the southern property line of the Airport.

This report is intended to serve as the final report to MDOT and EGLE under MDOT grant number PL-PFAS 2020.



# **2** Summary of Phase 1 Investigation

#### 2.1 Phase 1 Investigation Overview

As described in detail in the May 28, 2020 work plan, Airport personnel reported that AFFF was released at five (5) locations described in detail in the work plan. These locations are:

- 1979 Hangar Fire An old aircraft hangar was reported to have caught fire as a result of an aircraft crash in 1979 and AFFF was reported to have been used. This location is labeled "Hangar Fire Location" on Figure 2-1.
- Equipment Testing Areas Airport ARFF personnel reported that AFFF has been used as a part of required equipment testing at four locations on the Airport over the years. These are labeled as the "West Test Area", "Central Test Area", "East Test Area", and "South Test Area" on Figure 1-1.

In addition to these five past AFFF use areas, EGLE requested the collection of shallow groundwater samples along the West Branch of the Maple River as shown on Figure 2-1.

A total of ten (10) soil borings were completed during the Phase 1 investigation. In accordance with the approved Work Plan, two (2) soil borings were completed to investigate each of the five AFFF use areas. Additionally, ten (10) groundwater-surface water interface (GSI) samples were collected along the West Branch Maple River, which is located on the south-southwest portion of Airport property. One (1) permanent monitoring well was installed in each of the five AFFF use areas to allow measurement of groundwater levels, to allow estimation of groundwater flow direction.

#### 2.2 Phase 1 Investigation Findings

PFOA was not detected in any soil sample collected during the Phase 1 investigation at the Airport. PFOS was measured in 15 of the 20 soil samples collected, at concentrations ranging from 0.33  $\mu$ g/kg to 72.2  $\mu$ g/kg. The Michigan Part 201 criterion for PFOS in soil is 0.24  $\mu$ g/kg for the protection of the GSI pathway. Although the measured concentrations of PFOS in soil exceed the Part 201 GSI criterion, these soil samples were collected more than 2,000 feet from the nearest surface water body and therefore are not necessarily of immediate concern.

At least one PFAS compound was detected in each groundwater sample collected during the Phase 1 investigation, from the five AFFF use areas. Three PFAS compounds for which Michigan has promulgated Part 201 cleanup criteria were detected above their respective criteria in several groundwater samples as follows:

- PFHxS was detected in all ten groundwater samples from the AFFF use areas at concentrations ranging from 7.8 ng/l<sup>1</sup> to 1,880 ng/l. Six of the ten groundwater samples had concentrations above the Part 201 PFHxS cleanup criterion for drinking water of 51 ng/l.
- PFOS was detected in nine of the ten of the samples, at concentrations ranging from 1.1 ng/l to 931 ng/l, and six of the samples had PFOS concentrations above the Part 201 PFOS cleanup criterion for drinking water of 16 ng/l.

 $<sup>\</sup>frac{1}{ng}$  ng/l = nanogram per liter, equivalent to parts per trillion (ppt)





Figure 2-1. Site Map with Identified AFFF Use Location



• PFOA was detected in seven out of ten groundwater samples collected from the AFFF use areas, at concentrations ranging from 3.5 ng/l to 192 ng/l. The Part 201 PFOA cleanup criterion for drinking water (8 ng/l) was exceeded in five samples.

Three other compounds (PFHxA, PFNA, and PFBS) were detected but were not measured at concentrations above their respective Part 201 criteria in any samples collected in the Phase 1 investigation. HFPO-DA (GenX) was not detected in any groundwater sample collected during the Phase 1 investigation. Very low concentrations of PFHxS, PFOS, PFOA, and/or PFNA were measured in seven (7) of the ten (10) shallow groundwater samples collected near the West Branch Maple River during the Phase 1 investigation, but concentrations were well below Part 201 GSI criteria in all samples. The Phase 1 investigation groundwater sampling results are presented in Figure 2-2.

Groundwater elevation measurements taken from the five monitoring wells installed during the Phase 1 investigation were used to interpolate groundwater elevation contours, as shown in Figure 2-3. These contours indicate that groundwater flow is to the south and southwest from the Airport.



Figure 2-2. Phase 1 Groundwater Sampling Results for PFAS at Pellston Regional Airport

September 14, 2021

September 14, 2021



Figure 2-3. Phase 1 Investigation Groundwater Elevation (October 2020 Data)



# **3** Phase 2 Investigation Description

LimnoTech conducted the Phase 2 investigation activities at the Airport between April 27 and May 12, 2021. The completed investigation tasks included advancement of soil borings and collection of vertically stratified groundwater samples (i.e., vertical aquifer sampling or VAS). In keeping with the approved work plan, no soil samples were collected during the Phase 2 investigation and no new monitoring wells were installed. Investigation details are described in this section.

#### **3.1 Pre-Field Activities**

Prior to field mobilization, a site-specific health and safety plan (HASP) was prepared to provide on-site investigation personnel with essential emergency service and contact information in the event of an accident. A copy of the HASP was maintained by the LimnoTech field leader and reviewed with the drilling personnel prior to beginning work. Soil boring locations were surveyed and marked by a licensed land surveyor and subsurface utility check was performed through Miss Dig. Additional buried utility clearance was performed through consultation with Airport personnel.

#### 3.2 Investigation Overview

In accordance with the approved work plan, the Phase 2 investigation included the following elements:

- Four (4) soil borings were drilled, with vertical aquifer sampling to collect groundwater samples at discrete depth intervals at each boring location;
- Resampling of the five (5) monitoring wells installed during the Phase 1 investigation; and
- Measuring static groundwater elevations in the five (5) monitoring wells installed during the Phase 1 investigation.

The Phase 2 investigation did not include new monitoring wells or soil sampling. Soil boring and groundwater sampling locations are shown on Figure 3-1.

#### 3.3 Soil Boring Method

All soil borings in this investigation were completed with a track-mounted sonic (Geoprobe® 8140DT) drill rig, operated by MATECO Drilling, using a continuous soil sampler. Each extracted soil core was roughly five (5) feet long. All soil borings were logged in the field by the geologist overseeing the field investigation and are included in Appendix A.

#### 3.4 Groundwater Sampling Method

All vertical aquifer groundwater samples were collected using a stainless steel screen (four [4] feet long), which was installed on the end of the inner drill stem casing and was advanced through the outer casing rods to the desired sampling depth for the collection of representative groundwater samples. Then, the outer casing is retracted to expose the screen to the target interval to be sampled. The borings were subsequently purged using a decontaminated PFOA-free stainless steel (i.e., Stainless Steel Hurricane® XL pump) or plastic submersible pump and by installing fresh, clean high-density polyethylene (HDPE) or low-density polyethylene (LDPE) tubing into the drill stem to the screened interval depth. Purged water was monitored using an EXO multi-parameter sonde and flow-through cell. Once temperature,

Ely Rd. MW20-01 SB20-01 SB20-02 SB20-03 MW20-02 🔿 SB20-04 SB20-05 SB20-06 MW20-SB20-09 MWZD SB21-01 SB20-07 SB20-08 🏷 MW2 um Bd SB21-02 PELLSTON REGIONAL AIRPORT SB21-04 SB21-03 **Phase 2 Sampling** Locations Phase 2 soil boring/ groundwater sampling location • Monitoring well installed V in 2020 2020 soil boring PELLSTON Approximate airport boundary 1,000

conductivity, pH, dissolved oxygen, and turbidity stabilized (i.e., low-flow sampling methodology), a sample was collected directly from the tubing into the sampling containers provided by the laboratory.

 Table 3-1. Phase 2 Groundwater Sampling Locations

In addition to vertical aquifer samples collected from the four new soil borings, each of the five monitoring wells installed in Phase 1 of the investigation were resampled. These groundwater samples were collected using a peristaltic pump, with new HDPE tubing used for each well, and by monitoring water quality parameters with an EXO multi-parameter sonde and flow-through cell until stabilization was achieved.

#### 3.5 Sample Summary

A total of twenty-one (21) groundwater samples were collected during this phase of the investigation; sixteen (16) of those were collected from the four new soil borings and five (5) were collected from existing monitoring wells. Soil borings SB21-01 and SB21-02 were both advanced to fifty (50) feet below ground surface (bgs) and three (3) vertically stratified groundwater samples were collected from each boring. Soil borings SB21-03 and SB21-04 were both advanced to one hundred ten (110) feet bgs and five (5) vertically stratified groundwater samples were collected from each boring. Table 3-1 presents a summary of all groundwater samples collected in Phase 2 of the investigation.

Boring or Monitoring Well ID	Groundwater Sample ID	Groundwater Sample Depth (ft bgs)
	SB21-01(16-20)	16-20
SB21-01	SB21-01(31-35)	31-35
	SB21-01(46-50)	46-50
	SB21-02(16-20)	16-20
SB21-02	SB21-02(31-35)	31-35
	SB21-02(46-50)	46-50
	SB21-03(30-34)	31-34
	SB21-03(51-55)	51-55
SB21-03	SB21-03(61-65)	61-65
	SB21-03(81-85)	81-85
	SB21-03(106-110)	106-110
	SB21-04(31-34)	31-34
	SB21-04(51-55)	51-55
SB21-04	SB21-04(61-65)	61-65
	SB21-04(81-85)	81-85
	SB21-04(106-110)	106-110
MW20-01	MW20-01	14-19
MW20-02	MW20-02	13-18
MW20-03	MW20-03	8-13
MW20-04	MW20-04	13-18
MW20-05	MW20-05	14-19

#### Table 3-2. Phase 2 Groundwater Sample Summary

#### 3.6 Sample Handling

Once each sample container was filled, it was capped and placed in a new zip-lock bag in a cooler with ice. Prior to shipment, sample containers were double-bagged using zip-locks, packed in bagged ice and shipped under proper chain-of-custody procedures to the laboratory. Copies of the chain-of-custody forms are included in Appendix B.

#### **3.7 Laboratory Analysis**

All samples were sent via Federal Express overnight delivery to SGS North America (SGS) in Orlando, Florida. SGS analyzed the samples using a modified Method 537 isotope dilution method. SGS is accredited by the U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for PFAS analysis in accordance with the program's Quality Systems Manual (QSM) and is also accredited by the State of California, therefore meeting the requirements of the Order. Laboratory reports are included in Appendix C.

#### **3.8 Equipment Decontamination**

Drilling equipment was decontaminated in between individual soil borings by power-washing the equipment. Decontamination water was collected and drummed for subsequent characterization and disposal. Manual sampling equipment (e.g., water level indicator) was decontaminated between borings using a Liquinox wash and PFAS-free water rinse. Water for decontamination was obtained from a well located near the north parking lot on Airport property. A water sample of this water (labeled "Source Water A") was collected and analyzed for quality assurance purposes, as discussed in Section 4.5.

#### 3.9 Soil Boring Closure

Upon completion of sampling at each borehole location, the boring was abandoned by grouting the boring according to the following standard procedure. A tremie pipe was lowered to the bottom of the borehole and cement grout (i.e., PUREGOLD® GROUT by CETCO® Energy Services and QUIK-GROUT® Borehole Grouting and Plugging Material by Baroid Industrial Drilling Products) was mixed in batches and pumped into the borehole from the bottom up, therefore eliminating the chance for the formation of air pockets. Once the grout reached the surface, the outer drill casing was removed from the borehole and decontaminated. Typically, borings were topped off with additional grout and bentonite chips (i.e., HOLEPLUG® 3/8" by Baroid Industrial Drilling Products consisting of Wyoming sodium bentonite and screened to 1/4" to 3/8" in size) to account for slight settling.

#### 3.10 Investigation-Derived Waste

Investigation activities generated the following types of investigation-derived waste (IDW):

- Used expendable materials related to sampling (e.g., nitrile gloves)
- Used drilling and sampling equipment (e.g., plastic sampling sleeves and tubing)
- Excess groundwater pumped during groundwater sampling
- Equipment decontamination water (Airport supply well)
- Excess soil material generated during soil borings

Used expendable materials were placed in sealed trash bags for disposal at a licensed solid waste facility. Drilling and sampling equipment (tubing and sleeves), environmental media (groundwater and soil), and decontamination water was stored in 55-gallon drums on Airport property pending disposal based on laboratory results.

#### 3.11 Deviations from Work Plan

The following deviations were noted from the approved work plan:

- Due to the presence of underground utilities, the location of soil boring SB20-01 was relocated approximately 185 feet west of the proposed location.
- In order to avoid the protection zone for Runway 14/32, the location of soil boring SB21-02 was relocated approximately 515 feet north/northeast of the proposed location.
- Due to the presence of mature trees and vegetation, the location of soil boring SB21-03 was relocated approximately 58 feet south of the proposed location.
- Due to issues with the stainless steel submersible pump, all groundwater samples collected from soil boring SB21-03, with the exception of groundwater sample SB21-03(106-110), were collected with a plastic submersible pump and LDPE tubing. Groundwater samples collected from the other three (3) soil borings (i.e., SB21-01, SB21-02, and SB21-04) were collected with a stainless steel submersible pump (i.e., Stainless Steel Hurricane® XL pump) and HDPE tubing.
- Due to loose soil sloughing into the borehole, the shallowest groundwater sample at soil boring SB21-03 was collected from 30-34 feet bgs instead of 31-35 feet bgs.

All of the above deviations are routine adjustments that are often necessary to adapt the written work plan to actual conditions in the field and do not affect the usability or reliability of the data.



## **4** Phase 2 Investigation Results

The results of the investigation are presented in this section.

#### 4.1 Subsurface Hydrogeological Conditions

The Phase 2 soil borings were drilled to much deeper depths (50 to 110 feet bgs) than the Phase 1 soil borings, which were all less than twenty (20) feet bgs. Soil in all borings consisted mainly of poorly graded (i.e., uniform) fine to medium sand. No significant layers of silt or clay were noted in any of the borings. Groundwater was encountered in the Phase 2 soil borings from 9 to 12 feet bgs, with saturated conditions to the bottom of each boring. Phase 2 soil boring logs are included as Appendix A.

Static water levels were measured in the five previously installed monitoring wells in May 2021 and again during a follow-up site visit in August 2021. Groundwater surface elevation contours were interpolated from these measurements to assess groundwater flow direction (Figures 4-1 and 4-2). These measurements and interpolations confirm the observations made during the Phase 1 investigation, that groundwater flow is primarily to the south, with a slight southwesterly component.

#### 4.2 Groundwater Sampling Results

A total of twenty-one (21) groundwater samples were collected during this phase of the investigation; sixteen (16) were collected from new soil borings using vertical aquifer sampling methods and five (5) were collected from monitoring wells installed in the first phase of the investigation. As described in Section 3.7, all groundwater samples were analyzed using a modified Method 537 isotope dilution method, with quantification of twenty-eight (28) PFAS compounds. EGLE has promulgated Part 201 groundwater cleanup criteria for seven PFAS compounds: PFOA, PFOS, perfluorobutanesulfonic acid (PFBS), perfluorohexanesulfonic acid (PFHxS), perfluorohexanoic acid (PFHxA), perfluorononanoic acid (PFNA), and hexafluoropropylene oxide dymer acid (HFPO-DA or Gen-X). PFHxA, PFNA, and PFBS were detected in some groundwater samples collected during the Phase 2 investigation at the Airport, but they were not detected above their respective Part 201 cleanup criteria in any sample. HFPO-DA was not detected at all in any sample. Results for the other three compounds are summarized as follows:

- PFHxS was detected in nineteen (19) out of twenty-one (21) groundwater samples at concentrations ranging from 2 ng/l to 784 ng/l. Twelve (12) of the groundwater samples had concentrations above the Part 201 PFHxS cleanup criterion for drinking water of 51 ng/l.
- PFOS was detected in eighteen (18) groundwater samples, at concentrations ranging from 1.8 ng/l to 1,830 ng/l and twelve (12) of the samples had PFOS concentrations above the Part 201 PFOS cleanup criterion for drinking water of 16 ng/l.
- PFOA was detected in sixteen (16) groundwater samples, at concentrations ranging from 1.7 ng/l to 102 ng/l. The Part 201 PFOA cleanup criterion for drinking water (8 ng/l) was exceeded in eleven (11) samples.

The analytical results for PFHxS, PFOS, and PFOA in all groundwater samples from the Phase 2 investigation are shown on Figure 3-3, Figure 3-4, and Figure 3-5, respectively. The results for all compounds are reported in Table 3-1. Laboratory reports are presented in Appendix C.



Figure 4-1. Groundwater Surface Map – May 2021



Figure 4-2. Groundwater Surface Map – August 2021



Figure 4-3. Phase 2 Investigation Results for PFHxS in Groundwater

September 14, 2021



Figure 4-4. Phase 2 Investigation Results for PFOS in Groundwater

September 14, 2021



Figure 4-5. Phase 2 Investigation Results for PFOA in Groundwater

Compound	MW20-01 4/27/2021	MW20-02 4/27/2021	MW20-03 4/28/2021	MW20-04 4/28/2021	MW20-05 4/28/2021
PFBA	ND_1.8	ND_1.8	ND_1.8	38.8	2.1
PFPeA	ND_0.89	ND_0.89	ND_0.89	101	ND_0.89
PFHxA	ND_0.89	1.8	ND_0.89	84.7	1.3
РҒНрА	ND_0.89	ND_0.89	ND_0.89	31.6	ND_0.89
PFOA	ND_0.89	1.7	1.8	43.7	1.2
PFNA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFUnA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDoA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFTriA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFTeA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFBS	1.3	60.8	2.6	11.9	ND_0.89
PFPeS	ND_0.89	83.5	83.5 4.9		ND_0.89
PFHxS	2	340	73.4	131	3.6
PFHpS	ND_0.89	1.3	9.8	16.1	ND_0.89
PFOS	ND_0.89	1.8	496	627	24.2
PFNS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFOSA	ND_1.8	ND_1.8	ND_1.8	3.2	ND_1.8
MeFOSAA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
EtFOSAA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
4:2FTS	ND_1.8	ND_1.8	ND_1.8	3.6	ND_1.8
6:2FTS	ND_1.8	ND_1.8	ND_1.8	346	ND_1.8
8:2FTS	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
HFPO-DA (GenX)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
ADONA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
9C1-PF3ONS (F-53B Major	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
11C1-PF3OUdS (F-53B Minor)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8

#### Table 4-1. Phase 2 Investigation Sampling Results for Monitoring Wells (all ng/l or ppt)

Compound	SB21-01 (16-20) 5/10/2021	SB21-01 (31-35) 5/11/2021	SB21-01 (46-50) 5/11/2021	SB21-02 (16-20) 5/6/2021	SB21-01 (31-35) 5/7/2021	SB21-01 (46-50) 5/7/2021
PFBA	35.4	5.2	2	3.4	3.5	5.1
PFPeA	162	8.4	2.3	0.9	3.8	2.3
PFHxA	103	12.1	2.9	ND_0.89	13.5	12.4
РҒНрА	44.3	5.8	1.2	ND_0.89	5.6	4.1
PFOA	74.8	10.7	2	ND_0.89	33.4	35.9
PFNA	3.8	ND_0.89	ND_0.89	ND_0.89	0.97	0.97
PFDA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFUnA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDoA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFTriA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFTeA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFBS	16.6	26.6	6.3	1.2	3.2	4.6
PFPeS	24.3	15.4	3.9	ND_0.89	5	6.2
PFHxS	552	63.5	9.3	2.8	172	196
PFHpS	34.2	1.7	ND_0.89	ND_0.89	11.3	13.7
PFOS	1830	130	12	ND_0.89	321	452
PFNS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFOSA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	370
MeFOSAA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
EtFOSAA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
4:2FTS	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
6:2FTS	808	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
8:2FTS	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
HFPO-DA (GenX)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
ADONA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
9C1-PF3ONS (F-53B Major	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
11C1-PF3OUdS (F-53B Minor)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8

#### Table 4-2. Phase 2 Investigation Vertical Aquifer Sampling Results for Borings SB21-01 and SB21-02

Compound	SB21-03 (30-34) 4/29/2021	SB21-03 (51-55) 4/29/2021	SB21-03 (61-65) 4/30/2021	SB21-03 (81-85) 4/30/2021	SB21-03 (106-110) 5/3/2021
PFBA	16.7	7.6	6.2	2.4	1.8
PFPeA	55.4	10.9	10.4	2.6	ND_0.89
PFHxA	43.6	11.7	10.7	2.4	ND_0.89
PFHpA	46.6	6	5.3	1.5	ND_0.89
PFOA	53.3	9.8	8.2	2.6	ND_0.89
PFNA	3.3	0.95	ND_0.89	ND_0.89	ND_0.89
PFDA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFUnA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDoA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFTriA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFTeA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFBS	5.6	13.5	7.1	2.5	ND_0.89
PFPeS	6.7	17.7 11.7		3.1	ND_0.89
PFHxS	47.1	100	100 70.9		ND_0.89
PFHpS	1.3	3.9	4.1	ND_0.89	ND_0.89
PFOS	8.2	69.1	67.1	15.2	ND_0.89
PFNS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89
PFDS	ND_0.89	ND_0.89	ND_0.89 ND_0.89		ND_0.89
PFOSA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
MeFOSAA	ND_8.9	ND_8.9	ND_8.9	ND_8.9	ND_8.9
EtFOSAA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
4:2FTS	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
6:2FTS	164	22.1	26.3	4.3	ND_1.8
8:2FTS	280	ND_1.8	ND_1.8	ND_1.8	ND_1.8
HFPO-DA (GenX)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
ADONA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
9C1-PF3ONS (F-53B Major	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
11C1-PF3OUdS (F-53B Minor)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8
ND = compound not detected at	method detection	limit shown			

#### Table 4-3. Phase 2 Investigation Vertical Aquifer Sampling Results for Boring SB21-03

#### Table 4-4. Phase 2 Investigation Vertical Aquifer Sampling Results for Boring SB21-04

Compound	SB21-04 (31-35) 5/4/2021	SB21-04 (51-55) 5/4/2021	SB21-04 (61-65) 5/5/2021	SB21-04 (81-85) 5/5/2021	SB21-04 (106-110) 5/5/2021				
PFBA	2.8	15.5	12	ND_0.89	1.9				
PFPeA	2.4	27.1	20.2	ND_0.89	ND_0.89				
PFHxA	5.2	38	28.8	ND_0.89	ND_0.89				
PFHpA	2.9	40.1	30.2	ND_0.89	ND_0.89				
PFOA	10.3	102	85.6	ND_0.89	ND_0.89				
PFNA	ND_0.89	4.1	3.4	ND_0.89	ND_0.89				
PFDA	ND_0.89	2.3	2.4	ND_0.89	ND_0.89				
PFUnA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89				
PFDoA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89				
PFTriA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89				
PFTeA	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89				
PFBS	10.4	12.1	6.9	ND_0.89	ND_0.89				
PFPeS	15.6	36	13.5	ND_0.89	ND_0.89				
PFHxS	145	784	350	1.5	ND_0.89				
PFHpS	9.3	8.3	8.6	ND_0.89	ND_0.89				
PFOS	43.4	353	322	6	2.2				
PFNS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89				
PFDS	ND_0.89	ND_0.89	ND_0.89	ND_0.89	ND_0.89				
PFOSA	ND_1.8	7.6	6.6	ND_0.89	ND_0.89				
MeFOSAA	ND_8.9	ND_8.9	ND_8.9	ND_0.89	ND_0.89				
EtFOSAA	ND_1.8	ND_1.8	ND_1.8	ND_0.89	ND_0.89				
4:2FTS	ND_1.8	ND_1.8	ND_1.8	ND_0.89	ND_0.89				
6:2FTS	ND_1.8	4.3	4.2	ND_0.89	ND_0.89				
8:2FTS	ND_1.8	4.6	6.6	ND_0.89	ND_0.89				
HFPO-DA (GenX)	ND_1.8	ND_1.8	ND_1.8	ND_0.89	ND_0.89				
ADONA	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8				
9C1-PF3ONS (F-53B Major	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8				
11C1-PF3OUdS (F-53B Minor)	ND_1.8	ND_1.8	ND_1.8	ND_1.8	ND_1.8				
ND = compound not detected at method detection limit shown									

#### 4.3 Data Quality Review

To assess sample collection, handling, and analytical procedures, quality assurance/quality control (QA/QC) samples were collected during the investigation. These samples are discussed below.

#### 4.3.1 Field Blanks

A total of three (3) field blanks were collected and analyzed to check for sample or sample bottle contamination originating from ambient sources such as sampler attire, vapors or airborne dust. Field blanks were prepared by pouring laboratory-supplied PFAS-free water into a sample bottle at the sample site and preserved according to the parameters to be analyzed. No PFAS compounds were detected in any field blanks collected during this investigation.

#### 4.3.2 Equipment and Source Water Blanks

Two (2) equipment blanks ("Equipment Blank A" and "Equipment Blank B") were collected and analyzed to check for cross-contamination from sampling equipment, either due to materials in the equipment or ineffective decontamination procedures. Equipment blank sampling procedures are described below:

- Equipment Blank A was collected by pouring laboratory-provided PFAS-free water through the stainless steel submersible pump (i.e., Stainless Steel Hurricane® XL pump) with HDPE tubing used for groundwater sampling.
- Equipment Blank B was collected by running laboratory-provided PFAS-free water through the drilling subcontractors plastic submersible pump with LDPE tubing used for groundwater sampling.

No PFAS compounds were detected in either equipment blank sample from this investigation. In addition to the two equipment blank samples, one (1) source water sample was collected from a well located at the Airport used to provide water for decontamination and drilling ("Source Water A"). One PFAS compound, PFPeA, was reported as an estimated concentration of 1 ng/l in this sample.

#### 4.3.3 Field Duplicates

A total of three (3) field duplicates were collected and analyzed to check the precision or reproducibility of sampling and analytical procedures. The analytical results for all sample/duplicate pairs were compared by calculating the relative percent difference (RPD), in accordance with standard quality assurance methods:

RPD = 100 x (X1 - X2) / [(X1 + X2)/2]

Where: X1 = original sample value

X2 = duplicate sample value

The target RPD limit was +/-40%, unless the concentration in either the sample or field duplicate is less than five (5) times the reporting limit, in which case the RPD was not calculated. None of the duplicates yielded a RPD value of greater than 40%.

#### 4.3.4 Data Quality Conclusion

Based on quality assurance review of the data produced during this investigation, all data were determined to be valid and reliable.



September 14, 2021

## APPENDIX A Soil Boring Logs







LimnoTech 🔮							ВС	DRING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-01		
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COM ING ME <sup>-</sup> STARTE	N: MPANY: FHOD: D:	Pellsto 1395 L J. Bleh MATE Sonic ( 05/10,	on Reg JS-31, a, Lim CO Dri (4" x 6 /2021	ional A Pellsto noTech lling Cc ") Drilli	irport n, MI 4 ompany ng (Geo	9769 , oprobe 814	DDT)	TOTA DEPT GROU LATIT LONG DATE	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	50' bgs 9' bgs 709' 45.568327° -84.786410° 05/11/2021		
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL	LITHOLOGIC DESCRIPTION							
-	_						SP	SAND, poorly graded, f sand and subangular gr mottled, loose to very	ine grai ravel (1 loose, t	ned sand with trace mediun /2" in size) and silt nodules ( an.	n to coarse grained 1/4" in size),		
11.0 — - 12.0 — - 13.0 —	— 698 - — 697 - — 696 -	4.0'/5.0' 80%					SP	SAND, poorly graded, f sand and silt nodules (:	ine grai 1/4" in	ned sand with trace mediun size), mottled, loose to very	n to coarse grained loose, tan.		
14.0 —	— 695 -							No Recovery					
15.0 —	— 694 -						SP	SAND, poorly graded, f grained sand, very loos	ine to v e, tan.	ery fine grained sand with t	race medium		
16.0 — -	— 693 -						SM SM	SILTY SAND, poorly gra SILTY SAND, poorly gra grained sand, very loos	ded, ve ded, fir e, tan.	ry fine grained sand and silt e to very fine grained sand v	loose, tan. with trace medium		
17.0 — - 18.0 —	— 692 - — 691 -	3.6'/5.0' 72%	GW Sample SB21-01 (16-20) GW				SP	SAND, poorly graded, n and subrounded gravel	nedium   (1" in :	grained sand with trace coa size), very loose, tan.	rse grained sand		
19.0 —	— 690 							No Recovery					
20.0	689												
Moistur starting	Moisture content and depth to groundwater values were estimated from measurements recorded during low flow sampling as water was utilized during drilling starting at 5.0 feet below ground surface.												
0											Page 2 of 5		

L	.im	no	ecl	1	)		BORING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-01			
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME STARTE	N: MPANY: THOD: D:	Pellsta 1395 J J. Bleh MATE Sonic 05/10	on Reg JS-31, ia, Lim CO Dri (4" x 6 /2021	ional Ai Pellstor noTech Iling Co ") Drillir	rport n, MI 49769 mpany ng (Geoprobe	9 8140DT)	TOTAL DEPTH:         50' bgs           DEPTH TO WATER:         9' bgs           GROUND SURFACE ELEVATION:         709'           LATITUDE:         45.568327°           LONGITUDE:         -84.786410°           DATE COMPLETED:         05/11/2021					
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL	LITHOLOGIC DESCRIPTION							
21.0 —	- 688					SP	SAND, poorly graded, coarse grained sand, v	fine to v ery loos	ery fine grained sand with t e, tan.	race medium to			
- 22.0	- - 687 -	3.2'/5.0' 64%			000000000000000000000000000000000000000	SP	SAND, poorly graded, sand and subrounded size), very loose, tan.	fine to r gravel (	nedium grained sand with tr 1/2" in size) with trace silt n	race coarse grained odules (1/4" in			
23.0 — 24.0 —	- 685 - 685				2		No Recovery						
25.0 — - 26.0 —	— 684 - — 683				000000000000000000000000000000000000000	SP	SAND, poorly graded, and subrounded grave	medium I (1" in :	grained sand with trace coa size) and cobbles, very loose	arse grained sand e, tan.			
27.0 —  28.0 —	682  681	3.8'/5.0' 76%											
_ 29.0 — _	- - 680			- Wet			No Recovery						
30.0	679												
Moistur starting	e conten at 5.0 fe	t and depth et below gr	n to groun round surf	dwater ace.	values w	vere estimated	from measurements recorded dur	ing low fl	ow sampling as water was utilize	ed during drilling Page 3 of 5			

LimnoTech 🔮							BC	DRING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-01			
SITE LOCATION:Pellston Regional AirportADDRESS:1395 US-31, Pellston, MI 49769LOGGED BY:J. Bleha, LimnoTechDRILLING COMPANY:MATECO Drilling CompanyDRILLING METHOD:Sonic (4" x 6") Drilling (Geoprobe 8140DT)DATE STARTED:05/10/2021								ODT)	TOTA DEPT GROL LATIT LONG DATE	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: SITUDE: COMPLETED:	50' bgs 9' bgs 709' 45.568327° -84.786410° 05/11/2021			
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL	LITHOLOGIC DESCRIPTION								
_	_						SP	SAND, poorly graded, fi sand, coarsening down	ne to n ward, v	nedium grained sand with tr rery loose, tan.	ace coarse grained			
31.0 —	— 678 -						SP	SAND, poorly graded, m gravel (1/2" in size), ver	nedium ry loose	to coarse grained sand with e, tan.	ו trace subrounded			
32.0 —	— 677	2.01/5.01					SP-GP	GRAVELLY SAND, poorly (1/2" in size) and cobble	y grade es, verv	d, coarse grained sand with loose, tan.	subrounded gravel			
33.0 —		60%	GW Sample SB21-01				SP	SAND, poorly graded, m sand, very loose, tan.	nedium	to fine grained sand with tr	ace coarse grained			
- 34.0 — -	- 675 		(31-35) GW					No Recovery						
- 35.0	- 674						SP	SAND, poorly graded, m sand, coarsening, down	ward, v	to fine grained sand with tr very loose, tan.	ace coarse grained			
36.0 —	- 673						SP	SAND, poorly graded, m gravel (1" in size) and co	nedium obbles,	to coarse grained sand with , very loose, tan.	ו trace subrounded			
38.0 —	- - 671	3.7'/5.0' 74%												
- 39.0 — -	- - 670							No Recovery						
40.0	_ 669													
Moistur starting	e conten at 5.0 fe	t and dep et below į	th to groun ground surf	dwater ace.	values v	were esti	mated from	measurements recorded durin	ng low fl	ow sampling as water was utilize	ed during drilling			
0											Page 4 of 5			




L	.im	no	<b>Tech</b>	1	V		ВС	DRING LOG	PROJECT NAME: BOREHOLE ID:	PLN SB21-02		
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME STARTE	VN: MPANY: THOD: D:	Pellsto 1395 L J. Bleh MATEC Sonic ( 05/06/	on Reg JS-31, a, Lim CO Dri 4" x 6 /2021	ional Ai Pellstor noTech lling Co ") Drillir	irport n, MI 49 mpany ng (Geo	9769 probe 814	ODT)	TOTAL DEPTH: 50' bgs   DEPTH TO WATER: 9' bgs   GROUND SURFACE ELEVATION: 706'   LATITUDE: 45.563696°   LONGITUDE: -84.786469°   DATE COMPLETED: 05/10/2021			
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			LITHO	DLOGIC DE	SCRIPTION		
-	_						SP	SAND, poorly graded, t sand, very loose, tan.	fine grai	ned sand with trace mediur	n to coarse grained	
11.0 — - 12.0 —	— 695 - — 694						SP	SAND, poorly graded, i gravel (1/4" in size), ve	medium ery loose	to fine grained sand with tr e, tan.	race subrounded	
- 13.0 — -	- 693 	4.0'/5.0' 80%					SP	SAND, poorly graded, t very loose, tan.	fine grai	ned sand with trace silt nod	lules (1/2" in size),	
14.0 —	— 692 -						-	No Recovery				
15.0 —	— 691						ML-SM	SANDY SILT, poorly gra	ided, sil	t and very fine grained sand	, loose, tan.	
	- 690 - 689	2 1/5 0'					SP	SAND, poorly graded, f grained sand and silt n	fine grai odules	ned sand and some silt with (1" in size), very loose to loc	n trace medium ose, tan.	
- 18.0	- 688	62%	GW Sample SB21-02				SP	SAND, poorly graded, t silt nodules (1/2" in siz	fine to r ze), very	nedium grained sand and so v loose, tan.	ome silt with trace	
			(10-20) GW					No Recovery				
Moistur starting	e conten at 5.0 fe	t and dept et below g	h to ground round surfa	dwater ace.	values w	vere estir	mated from	measurements recorded dur	ing low fl	ow sampling as water was utilize	ed during drilling Page 2 of 5	

L	.im	nol	ecl	1	V		BC	DRING LOG	PROJECT NAME: BOREHOLE ID:	PLN SB21-02		
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME STARTE	DN: MPANY: THOD: D:	Pellsto 1395 J J. Bleh MATE Sonic 05/06	on Reg US-31, na, Lim CO Dri (4" x 6 /2021	ional Ai Pellstor noTech Iling Co ") Drillir	AirportTOTAL DEPTH:50' bgon, MI 49769DEPTH TO WATER:9' bgshGROUND SURFACE ELEVATION:706'companyLATITUDE:45.563ling (Geoprobe 8140DT)LONGITUDE:-84.78DATE COMPLETED:05/10						
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			LITHO	DLOGIC DE	SCRIPTION		
-	_						SP	SAND, poorly graded, sand, very loose, tan.	fine to r	nedium grained sand with tr	ace coarse grained	
21.0 —	— 685 -						SP	SAND, poorly graded, sand and subangular g tan.	medium ravel (1	to fine grained sand with tr /2" in size), coarsening down	ace coarse grained 1ward, very loose,	
22.0 —	— 684						SP	SAND, poorly graded, and subrounded grave	medium l (1/2" i	grained sand with trace coa n size), very loose, tan.	rse grained sand	
- 23.0 — - 24.0 — -	683 682 	46%						No Recovery				
25.0 —  26.0 —	- 681 - 680 -						SP	SAND, poorly graded, gravel (1" in size), very	medium / loose, <sup>-</sup>	to coarse grained sand with tan.	trace subrounded	
27.0 — 	— 679 - — 678	3.5'/5.0' 70%										
 29.0 —  30.0	- - 677 - 676			Wet				No Recovery				
Moistur starting	e conten at 5.0 fe	nt and depth eet below gr	n to groun round surf	dwater face.	values w	vere estin	nated from r	neasurements recorded dur	ing low fl	ow sampling as water was utilize	ed during drilling Page 3 of 5	

L	.im	no	Tech	C			ВС	DRING LOG	PROJECT NAME: BOREHOLE ID:	PLN SB21-02
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COM ING ME <sup>-</sup> STARTE	N: MPANY: FHOD: D:	Pellsto 1395 L J. Bleh MATEC Sonic ( 05/06/	n Reg IS-31, a, Lim CO Dri 4" x 6 2021	ional Pells noTe Iling ") Dri	Airport ton, MI 4 ch Company illing (Geo	9769 , oprobe 814	ODT)	TOTAL DEPTH: DEPTH TO WATER: GROUND SURFACE ELEVATION: LATITUDE: LONGITUDE: DATE COMPLETED:	50' bgs 9' bgs 706' 45.563696° -84.786469° 05/10/2021
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			LITHOLC	DGIC DESCRIPTION	
- 31.0 —	- 675						SP	SAND, poorly graded, me (1/2" in size), very loose,	edium grained sand with trace su tan.	ıbrounded gravel
- 32.0 —	- 674	2.8'/5.0'					SP	SAND, poorly graded, me gravel (1" in size), very lo	edium to coarse grained sand wi	th trace subrounded
33.0 — 	— 673 - — 672	56%	GW Sample SB21-02 (31-35) GW					No Recovery		
- 35.0 — -	- 671						SP	SAND, poorly graded, me (1/2" in size), very loose,	edium to coarse sand with trace tan.	subrounded gravel
36.0 — - 37.0 —	— 670 - — 669									
- 38.0 — -	- - 668 -	3.0'/5.0' 60%						No Recovery		
39.0 — - 40.0	- 667 - 666									
Moistur starting	e conten at 5.0 fe	t and dep et below g	th to ground ground surfa	lwater ace.	value	s were esti	mated from I	measurements recorded during	low flow sampling as water was utili	zed during drilling Page 4 of 5

L	.im	no	<b>Fech</b>	1			ВС	DRING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-02
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME <sup>-</sup> STARTE	VN: MPANY: THOD: D:	Pellsto 1395 L J. Bleh MATE Sonic ( 05/06/	on Reg JS-31, a, Lim CO Dri 4" x 6 /2021	ional A Pellstc noTech Iling Co ") Drilli	Airport on, MI 49 h ompany ing (Geo	9769 oprobe 814	DDT)	L DEPTH: H TO WATER: IND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	50' bgs 9' bgs 706' 45.563696° -84.786469° 05/10/2021	
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			LITHOL	LOGIC DE	SCRIPTION	
- 41.0 —	- 665						SP	SAND, poorly graded, m gravel (1" in size), very l	nedium loose, 1	to coarse grained sand with an.	ı trace subrounded
-	-						SP	SAND, poorly graded, co	oarse g	rained sand with trace subro	ounded gravel (1/2"
42.0 —	- 664	3.0'/5.0' 60%					SP	SAND, poorly graded, m gravel (1" in size), very	nedium loose, t	to coarse grained sand with an.	ı trace subrounded
43.0	— 663  662 							No Recovery			
45.0 — - 46.0 — -	- 661 - 660 -						SP	SAND, poorly graded, m gravel (1/2" in size), coa	nedium arsenin	to coarse grained sand with g downward, very loose, tar	ו trace subrounded ו.
47.0 —	— 659 -	2.9'/5.0' 58%									
48.0 —	— 658 -		GW Sample SB21-02 (46-50) GW					No Recovery			
49.0 —	— 657 										
50.0	656			$ \downarrow\rangle$				End of Boring.			
Moistur	e conten at 5.0 fe	t and dept et below ø	h to ground	dwater ace.	values	were esti	mated from r	neasurements recorded durin	ng low fl	ow sampling as water was utilize	ed during drilling
0											Page 5 of 5



Page 1 01 11	Page	1	of	11
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Ĺ	.im	nol	ecl	hC	)	В	DRING LOG	PROJECT NAME: BOREHOLE ID:	PLN SB21-03
SITE L ADDR LOGG DRILL DRILL DATE	OCATIO ESS: ED BY: ING COM ING ME <sup>-</sup> STARTE	N: MPANY: THOD: D:	Pellst 1395 J. Blef MATE Sonic 04/29	on Reg US-31, ha, Lim CO Dri (4" x 6 0/2021	ional Ai Pellstor noTech lling Col ") Drillir	rport n, MI 49769 mpany ng (Geoprobe 814	TO DE GR LA ODT) LO DA	TAL DEPTH: PTH TO WATER: OUND SURFACE ELEVATION FITUDE: NGITUDE: TE COMPLETED:	110' bgs 12' bgs : 700' 45.558326° -84.789263° 05/03/2021
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL		LITHOLOGIC	DESCRIPTION	
_	_					SP	SAND, poorly graded, fine g to no fines, mottled, very lo	rained sand with trace medi ose, tan.	um grained sand, little
11-	— 689					SP-SM	SILTY SAND, poorly graded, nodules (1/4" in size), mott	very fine grained sand and s led, very loose, tan.	ilt with trace silt
- 12 —	- 688				•	SP	SAND, poorly graded, fine g subrounded gravel (1/2" in	rained sand with trace medi size), very loose, tan.	um grained sand and
-	-	3.5'/5.0' 70%				SP-SM	SILTY SAND, poorly graded, nodules (1/4" in size), mott	very fine grained sand and s led, very loose, tan.	ilt with trace silt
13-	- 687					SP	SAND, poorly graded, fine g to no fines, very loose, tan.	rained sand with trace medi	um grained sand, little
14 —	— 686 -						No Recovery		
15 —	- 685					SP	SAND, poorly graded, very t loose, tan.	ine to fine grained sand and	some fines, very
16 —	— 684 -						No Recovery		
17 —	— 683	1.0'/5.0'							
18 —	- - 682	20%							
19 —	— 681 -								
20_	_ 680								
Moistur	e conten	t and depth at 5.0 feet h	to groun	ndwater und sur	values w face.	ere estimated from	measurements recorded during lo	v flow sampling at SB21-04 as wa	ter was utilized during
0			5.0 m Bro						Page 2 of 11





Page 4 of 11

Ĺ	im	no	<b>Tech</b>	1(	V		ВС	RING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-03
SITE LO ADDRI LOGGI DRILLI DRILLI DATE S	DCATIO ESS: ED BY: NG COM NG MET STARTE	N: MPANY: FHOD: D:	Pellsto 1395 U J. Bleh MATE Sonic 04/29	on Reg JS-31, ha, Lim CO Dri (4" x 6 /2021	ional Pellst noTec lling ( ") Dril	Airport on, MI 4 ch Company lling (Geo	9769 , oprobe 8140	)DT)	L DEPTH: H TO WATER: IND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	110' bgs 12' bgs 700' 45.558326° -84.789263° 05/03/2021	
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			ЦТНО	ILOGIC DE	SCRIPTION	
41	- 659 -						SP	SAND, poorly graded, n and subrounded gravel	nedium   (3/4" i	grained sand with trace coa n size), very loose, tan.	rse grained sand
42	— 658 - — 657 -	3.7'/5.0' 74%					SP	SAND, poorly graded, n and subrounded gravel	nedium   (1" in s	grained sand with trace coa ize), coarsening downward,	rse grained sand very loose, tan.
44 —	— 656 -							No Recovery			
45 — - 46 —	— 655 - — 654				-			No Recovery			
- 47 — -	- — 653 -	0.0'/5.0' 0%									
48	- 652										
49 — 	— 651 - _ 650										
Moistur drilling s	e conten starting a	t and dept It 5.0 feet	h to groun below grou	dwater und surf	values face.	were esti	mated from r	neasurements recorded duri	ng low fl	ow sampling at SB21-04 as water	r was utilized during Page 5 of 11

L	im	no	<b>Fech</b>	1	V	BC	DRING LOG	PROJECT NAME: BOREHOLE ID:	PLN SB21-03		
SITE LC ADDRE LOGGE DRILLII DRILLII DATE S	DCATIO ESS: ED BY: NG COM NG ME <sup>T</sup> STARTE	N: MPANY: THOD: D:	Pellsto 1395 L J. Bleh MATEC Sonic ( 04/29/	on Reg JS-31, a, Lim CO Dri (4" x 6 /2021	ional A Pellsto noTech lling Cc ") Drilli	AirportTOTAL DEPTH:110'on, MI 49769DEPTH TO WATER:12' bhGROUND SURFACE ELEVATION:700'ompanyLATITUDE:45.5ing (Geoprobe 8140DT)LONGITUDE:-84.7DATE COMPLETED:05/C					
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL		LITHOLOGIC [	ESCRIPTION			
51 —	- — 649 -					SP	SAND, poorly graded, fine to sand and subrounded gravel	medium grained sand with tr (1" in size), very loose, tan.	ace coarse grained		
52 — - 53 —	— 648 - — 647	3.1'/5.0' 62%	GW Sample SB21-03 (51-55) GW			SP	SAND, poorly graded, fine to coarse grained sand and sub- loose, tan. No Recovery	very fine grained sand with t ounded gravel (1" in size) an	race medium to d cobbles, very		
54	- 646										
55 <del></del> 56	— 645 - — 644						No Recovery				
57	- 643 - - 642	0.0'/5.0' 0%									
59	- 641										
60	_ 640										
Moisture drilling s	e conten tarting a	t and dept at 5.0 feet	th to ground below grou	dwater Ind sur	values v face.	were estimated from	measurements recorded during low	flow sampling at SB21-04 as wate	r was utilized during Page 6 of 11		

Ĺ	.im	no	Tech	1	V		ВС	DRING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-03
SITE LO ADDR LOGGI DRILLI DRILLI DATE	OCATIO ESS: ED BY: NG COI NG ME <sup>-</sup> STARTE	VN: MPANY: THOD: D:	Pellsto 1395 L J. Bleh MATEC Sonic ( 04/29/	on Reg JS-31, a, Lim CO Dri (4" x 6 /2021	ional A Pellsto noTec lling C ") Drill	Airport on, MI 4 h ompany ling (Geo	9769 oprobe 814	ODT)	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: SITUDE: COMPLETED:	110' bgs 12' bgs 700' 45.558326° -84.789263° 05/03/2021	
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			LITHOL	OGIC DE	SCRIPTION	
_	_						SP	SAND, poorly graded, fir subrounded gravel (1/4'	ne grai " in siz	ned sand with trace coarse ; e), very loose, tan.	grained sand and
61 —	— 639 -			- Wet			SP	SAND, poorly graded, fir sand, very loose, tan.	ne to r	nedium grained sand with tr	ace coarse grained
62 —	— 638 -	3.2'/5.0' 64%	G <b>W</b> Sample				SP	SAND, poorly graded, ve	ery fine	e grained sand, little to no fi	nes, very loose, tan.
63 —	— 637 -		SB21-03 (61-65) GW					No Recovery			
64 —	— 636 -										
65 —	— 635 -						SP	SAND, poorly graded, fir medium to coarse grain	ne to v ed san	ery fine grained sand and so d, very loose, tan.	me fines with trace
66 —	- 634										
67 —	— 633 -	2.0'/5.0' 40%					H	No Recovery			
68 —	— 632 -										
69 — - 70	- 631 - 630										
									0,104		The second states of the
Moistur drilling :	e conten starting a	t and dep at 5.0 feet	th to ground below grou	dwater Ind sur	values face.	were esti	mated from r	neasurements recorded durin	g low fl	ow sampling at SB21-04 as wate	r was utilized during
0											Page 7 of 11

Ĺ	im	no	<b>Fec</b>	1(	V		ВС	RING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-03
SITE LO ADDRI LOGGE DRILLI DRILLI DATE S	DCATIO ESS: ED BY: NG COM NG MET STARTE	N: MPANY: FHOD: D:	Pellsto 1395 I J. Bleh MATE Sonic 04/29	on Reg JS-31, ha, Lim CO Dri (4" x 6 /2021	ional Pellst noTec Iling C ") Dril	Airport on, MI 4 ch Company ling (Geo	9769 oprobe 814(	)DT)	L DEPTH: H TO WATER: IND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	110' bgs 12' bgs 700' 45.558326° -84.789263° 05/03/2021	
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			итно	LOGIC DE	SCRIPTION	
71 —	- — 629						SP	SAND, poorly graded, fi medium to coarse grair	ne to v ned san	ery fine grained sand and so d, very loose, tan.	me fines with trace
72 —	- — 628						SP	SAND, poorly graded, v gravel (1" in size) and s	ery fine ilt nodu	to fine grained sand with tr lles (1/2" in size), very loose	race subrounded , tan.
- 73 —	- — 627	2.3'/5.0' 46%						No Recovery			
74 —	- — 626 -										
75 —	— 625 -				-			No Recovery			
76 —	— 624 -										
77 —	— 623 -	0.0'/5.0' 0%									
78 —	— 622 -										
79 — 	— 621 - _ 620										
Moistur	e conten	t and dept	h to groun	dwater	values	were esti	mated from r	neasurements recorded duri	ng low fl	ow sampling at SB21-04 as water	r was utilized during
drilling s	starting a	t 5.0 feet	below grou	und surf	ace.		mateo n vill I		-5 .0W II	Southing of SPET-04 as Wale	Page 8 of 11

L	.im	no	<b>Tech</b>	6	V	B	ORING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-03
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: NG COI NG ME <sup>-</sup> STARTE	N: MPANY: THOD: D:	Pellsto 1395 L J. Bleh MATEC Sonic ( 04/29/	n Reg IS-31, a, Lim CO Dri 4'' x 6 2021	ional Ai Pellstor noTech lling Co ") Drillir	rport n, MI 49769 mpany ng (Geoprobe 814	łodt)	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	110' bgs 12' bgs 700' 45.558326° -84.789263° 05/03/2021	
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL		LITHC	DLOGIC DE	SCRIPTION	
80	620						No Recovery			
81-	- 619 									
82 —	— 618	0.0'/5.0'								
83 —	- 617 	0%	GW Sample SB21-03 (81-85) GW							
84 —	— 616 -									
85 —	— 615 -						No Recovery			
86 —	— 614 -									
87 —	— 613 -	0.0'/5.0'								
88 —	— 612 -	0%								
89 —	— 611 -									
90 _	610									
Moistur drilling	e conten starting a	t and dep at 5.0 feet	th to ground below grou	lwater nd sur	values w face.	vere estimated from	measurements recorded dur	ing low fl	ow sampling at SB21-04 as wate	r was utilized during
0										Page 9 of 11







L	.im	nol	ecl	h			BORING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-04
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME STARTE	N: MPANY: THOD: D:	Pellsta 1395 J. Bleł MATE Sonic 05/03	on Reg US-31, na, Lim CO Dri (4" x 6	ional A Pellsto noTech illing Co ") Drilli	irport n, MI 49769 ompany ng (Geoprobe	2 8140DT)	TOTA DEPT GROU LATIT LONG DATE	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: SITUDE: COMPLETED:	110' bgs 12' bgs 701' 45.558480° -84.787356° 05/06/2021
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL		ШТН	OLOGIC DE	SCRIPTION	
-	_					SP	SAND, poorly graded, sand and subangular	medium gravel (1	to fine grained sand with tr " in size), very loose, brown.	ace coarse grained
11-	- 690					SP	SAND, poorly graded, sand, very loose, tan.	fine to r	nedium grained sand with tr	ace coarse grained
12 —	- 689				×	SP	SAND, poorly graded, sand and subrounded mottled, very loose, t	medium gravel ( an.	to fine grained sand with tr 1/2" in size) and silt nodules	ace coarse grained (1/4" in size),
-		3.3'/5.0' 66%				SP-SI SP	SILTY SAND, poorly gr nodules (1/4" in size),	aded, ve mottlec	ry fine grained sand and silt I, loose, tan.	with trace silt
- 13	- 688						SAND, poorly graded, sand and subrounded mottled, very loose, t	medium gravel ( an.	to fine grained sand with tr 1/2" in size) and silt nodules	ace coarse grained (1/4" in size),
14 —	- 687						No Recovery			
15 — - 16 —	— 686 - — 685					SP	SAND, poorly graded, coarse grained sand a (1/4" in size), very loc	fine to r nd suba se, tan.	nedium grained sand and so ngular gravel (1/4" in size) a	me silt with trace nd silt nodules
-	_									
17 —	- 684						No Recovery			
- 18 — -	- 683 	30%								
19 —	- 682									
20_	681									
Moistur	re conten	t and depth et below gr	to groun	dwater face	values v	vere estimated	from measurements recorded du	ring low fl	ow sampling as water was utilize	ed during drilling
	, at 9.010	ar perow BI	Sana Sul							Page 2 of 11





Page	4	of	11
1 4 5 4	-	0.	

L	.im	nol	ecl	1(	)		ВС	ORING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-04
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME STARTE	N: MPANY: THOD: D:	Pellsto 1395 ( J. Bleh MATE Sonic 05/03,	)n Reg JS-31, 1a, Lim CO Dri (4" x 6 /2021	ional A Pellstc noTech Iling Co ") Drill	Airport on, MI 4 h ompany ing (Geo	9769 , oprobe 814(	DDT)	TOTA DEPT GROU LATIT LONG DATE	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: SITUDE: COMPLETED:	110' bgs 12' bgs 701' 45.558480° -84.787356° 05/06/2021
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			ЦТНО	LOGIC DE	SCRIPTION	
- 41	- 660						SP	SAND, poorly graded, n and subrounded gravel	nedium (1" in s	grained sand with trace coa size), very loose, tan.	arse grained sand
- 42 —	- 659						SP	SAND, poorly graded, fi coarse grained sand, ve	ine grai ery loos	ned sand and some fines wi e, tan.	th trace medium to
- 43 —	- 658	3.4'/5.0' 68%					SP	SAND, poorly graded, n subrounded gravel (1 ½	nedium 2" in siz	grained sand with trace gra e), very loose, tan.	ined sand and
 44 	- - 657 -							No Recovery			
45	- 656 - 655 -						SP	SAND, poorly graded, n and subrounded gravel	nedium (1/4" i	grained sand with trace coan size), very loose, tan.	arse grained sand
47 — - 48 —	— 654 — — 653	3.4'/5.0' 68%					SP	Same as above, mottled	d.		
49	- 652 - 651							No Recovery			
Moistur starting	re conten at 5.0 fe	t and depth et below gr	to groun ound surf	dwater ace.	values	were esti	mated from r	neasurements recorded durii	ng low fl	ow sampling as water was utilize	ed during drilling Page 5 of 11



Page 6 of 11



Page 7 of 11

L	im	no	<b>fecl</b>	h	2		В	ORING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-04
SITE LO ADDRE LOGGE DRILLI DRILLI DATE S	DCATIO ESS: ED BY: NG COM NG ME <sup>-</sup> STARTE	N: MPANY: THOD: D:	Pellsta 1395 J. Bleł MATE Sonic 05/03	on Reg US-31, na, Lim CO Dri (4" x 6 /2021	ional Pellst noTeo Iling ( ") Dri	Airport con, MI 4 ch Company Illing (Geo	9769 , oprobe 814	IODT)	TOTA DEPT GROL LATIT LONG DATE	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	110' bgs 12' bgs 701' 45.558480° -84.787356° 05/06/2021
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			ЦТНО	LOGIC DE	SCRIPTION	
-	-						SP	SAND, poorly graded, n and silt nodules (1/2" i	nedium n size),	grained sand with trace coa very loose, tan.	rse grained sand
71 —	— 630							SILTY SAND, poorly gra	ded, ve	ry fine grained sand and silt,	mottled, loose,
	- — 629 -	3.3'/5.0'					SP	tan. SAND, poorly graded, f silt nodules (1" in size),	ine to n , very lo	nedium grained sand and so ose, tan.	me silt with trace
73 —	— 628	66%					SM	SILTY SAND, poorly gra tan.	ded, ve	ry fine grained sand and silt,	mottled, loose,
74 —	- — 627 -										
75 —	— 626 -						SP	SAND, poorly graded, n sand, very loose, tan.	nedium	to fine grained sand with tr	ace coarse grained
76 —	- 625										
	- 624	2.8'/5.0' 56%									
78 —	— 623 -							No Recovery			
79 —	— 622 -										
80	_ 621										
Moistur	e conten at 5.0 fe	t and depth et below g	n to groun	dwater face.	values	s were esti	mated from	measurements recorded duri	ng low fl	ow sampling as water was utilize	d during drilling
	2. 3.0 10	- serew gi	Janu Jul								Page 8 of 11



Page 9 of 11



Page 10 of 11

L	.im	no	Tech	1	V		ВС	DRING LOG		PROJECT NAME: BOREHOLE ID:	PLN SB21-04
SITE L ADDR LOGG DRILLI DRILLI DATE	OCATIO ESS: ED BY: ING COI ING ME STARTE	N: MPANY: THOD: D:	Pellsto 1395 L J. Bleh MATE Sonic ( 05/03/	on Reg JS-31, a, Lim CO Dri (4" x 6 /2021	ional Ai Pellstor noTech Iling Co ") Drillir	rport n, MI 49 mpany ng (Geol	769 probe 814	ODT)	TOTA DEPT GROU LATIT LONG DATE	L DEPTH: H TO WATER: JND SURFACE ELEVATION: UDE: ITUDE: COMPLETED:	110' bgs 12' bgs 701' 45.558480° -84.787356° 05/06/2021
DEPTH (ft)	SURF. ELEVATION	RECOVERY	SAMPLE(S)	MOISTURE CONTENT	WATER LEVEL			ЦТНС	DLOGIC DE	SCRIPTION	
- 101 — - 102 —	- 600  599						SP	SAND, poorly graded, i little to no fines, very l	nedium oose, ta	grained sand with trace coan.	arse grained sand,
- 103 —	- 598	3.3'/5.0' 66%					SP-GP	GRAVELLY SAND, poor subrounded gravel (1"	ly grade in size)	d, medium to coarse graine and cobbles, little to no fin	d sand and es, very loose, tan.
- 104 — -								No Recovery			
105 —	— 596 -		-				SP	SAND, poorly graded, 1 grained sand, coarseni	ine to v ng dow	ery fine grained sand with t nward, very loose, tan.	race medium
106 —	- 595						SP	SAND, poorly graded, t sand and subrounded	ine to r gravel (	nedium grained sand with tr 1" in size) and cobbles, very	ace coarse grained loose, tan.
107 —	— 594						SP-GP	GRAVELLY SAND, poor subrounded gravel (1"	ly grade in size)	d, medium to coarse graine and cobbles, little to no fin	d sand and es, very loose, tan.
- 108 — -	- 593 	2.7'/5.0' 54%	GW Sample SB21-04 (106-110) GW					No Recovery			
109 —	— 592 -										
110 _	_ 591			$ \downarrow\rangle$				End of Boring.			
Moistur starting	e conten at 5.0 fe	t and dep et below (	th to ground ground surf	dwater ace.	values w	ere estin	nated from	measurements recorded dur	ing low fl	ow sampling as water was utiliz	ed during drilling
0											Page 11 of 11

September 14, 2021

## APPENDIX B Chain-of-Custody Forms



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		SG	S No	rth /	Ame	erica	In	10	- (	)r	laı	nd	0											
(	202		.**	Cha	in o	of Cu	ust	od	ly					SGS	- OR	LAND	o Jo	B # :			PAG		OF	2
	000		4	405 Vinelar TEL. 40	id Road, 1 7-425-67	Suite C-15 00 FAX:	Orland 407-42	do, Fl 25-07	32811 07				1	SGS	- OR	LAND	O Qu	ote #	-	SKI	FF #			
	Client / Reporting Information				Proje	rw.sgs.com	mati	on									An	alvtic	al Inf	form	ation		1	Matrix Codes
Company	lame:	andalaha ana yayaree Artistaatid	Project N	ame:							Process Party			-		1		1						DW - Drinking
Address:	LIMNOICLA		Street	at inite						-													1	GW - Ground
011	501 Auis Drive		City						Sta	fo						1								Water
City: AN	IN ARBOR State: MI ZIP: 1	18108	City		1.00				ota					00										SW - Surface
Project Co	sbella shella	IMADO. COM	Project #	PLN P	FHS (	PHASE	22	TU	NEST	16	HTI	(MC		575										Water SO - Soil
Phone #:	734) 332-1200		Fax #											0										SL- Sludge
Sampler(s	Name(s) (Printed)		Client Pu	rchase O	rder #									ISI									L	IQ - Other Liquid
Sampler 1	Sampler 2:		COLLECTION			(	ONTAI	NER IN	NFORM	ATION	4		-	1									S	AIR - Air SOL - Other Solid
SGS						TOTAL #	~					ER	T	AS		1								
Orlando Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED	MATRIX	OF	THEF		IaOH	NO3	12SO4	HOH	HOH	0										LAB USE ONLY
- Campion -	DUP-GW-A	4128/21		LTI	GW	2		X		-		210	~	×										
	DUP-GW-B	4/29/21	-	LTI	GW	2		X						X										
	MW20-01	4/27/21	1510	LTI	GW	2		X						X										
	MW20-02	HAFAI	1635	LTI	GW	2		X						X						·				
	MW20-03	4/28/21	0920	LTI	GAW	2	)	×						×										
	mw20-04	4/28/21	1055	LTI	Giw	2	)	X						X										
	MW20-05	4/28/21	1205	LTI	GW	2	)	×		_				X	_	_			_				_	
	SOURCE WATER A	4/28/21	1420	LTI	GW	2		X						X		_								
	SB21-03 (30-34) GW	4/29/21	1420	LTI	GW	2		A	_					X									_	
	5821-03 (57-55) GW	4/29/21	1715	LTI	GW	X	2	X					_	X		_	-	-					_	
	SB21-03(61-65)GW	4/30/21	1010	111	GW	2		X						X		_		-	_					
at a provide a subsidiary	SB2(-03(81-85) GW	4/30/21	1245	LTI	CAW	2		×				-		X			_	_					-	
	Turnaround Time ( Business days	<u>s) (</u>	Sector and the		Da	ata Deli	veral		Infor	ma	tion	1							00	mme	ents /	Rema	rks	and the second second second
1	10 Day (Business) Appro	oved By: / Date:					(RESI		S ONL	.T) IS 0														
	5 Day					PALEVE		ULI	OFLU		.0)				ŀ									
	3 Day RUSH			FUL	LT1 (El	PA LEVE	L 4)																	
	2 Day RUSH				)'S										ſ									
	1 Day RUSH																						_	
	Other																							
	Rush I/A Data Available VIA Email or	Sample Custor	ly must be	documer	nted be	low each	time	sam	ples	chai	nge p	osse	ssior	n, incl	uding	ourier	delive	ry.						
Relinquis	shed by Sampler/Affiliation Date Time:	Received By/A	ffiliation					R	lelinq	uish	ed B	y/Affi	liatio	n			Dat	e Time	:	Rece	eived B	y/Affilia	ation	
1 Relinqui	thed by Affiliation Date Time:	2 Received Bull	filiation					3	eling	uish	ed B	V/Affi	liatio	n			Dat	Time		4 Reco	ived B	v/Affili	ation	
5	Date Time:	6	annauon					7	ennq	4131	eu D	yrain	nauo				Dat	- Time		8	iveu D	y/~010	auon	
Lab Use	Only : Cooler Temperature (s) Celsius (corre	cted):								-									h	ttp://w	ww.sgs	.com/e	n/term	s-and-conditions

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CCC				Cha	in o	of Cu	ust	od	y				5	GS	- OR	LAN	. 00	JOB	#:			PAG	= 2	0	F 2
000			44	405 Vinelan TEL. 407	id Road, S 7-425-670	Suite C-15 00 FAX:	Orlan 407-4	do, Fl 25-070	32811 07				5	GS	- OR	LAN	00	Quot	e #		SKIF	F #			
Client / Reporting	Information				Projec	ct Infor	mati	ion						*****	********			Anal	ytica	al Inf	orma	ation			Matrix Codes
Company Name:		<u></u>	Project N	ame:																					DW - Drinking Water
Address: FOI A			Street										-												GW - Ground
OUT AVIS DEIVE	Zint		City						Stat	te			_	~											Water WW - Water
ANN ARBOR State.	MI 210. 4810	8					_			_				20											SW - Surface
Scort BELL	sbell@linno	·com	Project #	PLN	PFAS	S(PHH	SE	27	Gue	50	Grt	(LAD)		1											SO - Soil
Phone #: (734) 332 - 1200			Fax #											01											SL- Sludge OI - Oil
Sampler(s) Name(s) (Printed)	r 2.		Client Pu	rchase O	rder #									415											LIQ - Other Liquid AIR - Air
Sampler 1. Deciting Sample	1 2.		COLLECTION			(	ONTA	INER IN	FORM			21	_	5											SOL - Other Solid
SGS						TOTAL #	μ.				4	I+ZNA	-	11											
Sample # Field ID / Poin	t of Collection	DATE	TIME	SAMPLED BY:	MATRIX	OF BOTTLES	OTHE	NONE	NaOH	CONH	H2SO	DI W	MEOH	p.,											LAB USE ONLY
FIELD BLANE 03	1_	4/30/21	1320	LTI	WW	2		×						X											
																								Ĩ	
	× *																								
																									•
				-																					
								-										-							
Turnaround Time	( Business days)				Da	ta Deli	vera	ble I	nfor	mat	tion					L			* 1	Co	mme	nts /	Rema	arks	
10 Day (Business)	Approved	By: / Date:			MERC	IAL "A"	(RES	ULTS	ONL	Y)											~	-			
7 Day	,				MMERC	IAL "B"	(RES	ULTS	B PLU	IS Q	C)														
5 Day				RED	DT1 (EP	PALEVE	L 3)																		-
3 Day RUSH				FUL	LT1 (EF	PALEVE	L 4)									_					_				
2 Day RUSH				EDE	o's																				
1 Day RUSH																									
Other Rush T/A Data Ava	ailable VIA Email or Labli	nk																							
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Relinquished by Sampler/Affiliation	Date Time: Rec	eived By/A	ffiliation					R	elinq	uish	ed By	/Affili	ation					Date 1	ime:		Rece	ived B	y/Affil	ation	
1 Relinquished by/Affiliation	Date Time: Reco	eived By/A	ffiliation					3	eling	uish	ed B	/Affili	ation	_				Date 7	lime:	-	4 Rece	ived B	v/Affil	iation	
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Lab Use Only : Cooler Temperatur	re (s) Celsius (corrected)	:															_			ht	tp://w	ww.sg	s.com/	en/terr	ns-and-conditions

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	000			44	405 Vinelan TEL. 403	d Road, 7-425-67	Suite C-15 00 FAX:	Orlan 407-4	1do, Fl 125-070	32811 07			•	SG	5 - OF			iote #		SKIF	F #			
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Project Co	ntact: CONTER REAL Email: hel	16/100	Daly	Project #	DING	0114 51	Fir	n s H		( sela	1.00	ND	207	U U										SW - Surface Water
Phone #:	(734) 237-1200	in protocol	- Lal	Fax #	1-CAV()	111-21	her it do		GG1 1		100	SI I	[ Page	5			1							SO - Soil SL- Sludge
Sampler(s	) Name(s) (Printed)			Client Pu	rchase O	rder #																	L	-IQ - Other Liquid
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SGS Orlando							TOTAL #	H.	ш	T		H+ZNA	ATER	A										
Sample #	Field ID / Point of Collection	D	ATE	TIME	BY:	MATRIX	BOTTLES	OTH	HCI	NaO	ONH	NAO	DIW					_	-			_	_	LAB USE ONLY
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	SBA1.03 (106-110) GW	5/3	3/21	1320	LTT	GW	2		X		_			×					_		-		_	
	5821-04 (31-35)GU	21	9/21	1125	61	Caw	à		X			-		X			-	-			_			
	5321-04 (SI-55) GW	2/1	1/3.1	1750	411	Criw	2		X		_	-		- C			-		-					
	SB21-04 (GI-GD) GW	5/2	121	1040	LII	CAW	X		X			-		X			-	_	-				-	
	SISAL-04 (81-83)04	5/0	121	1920	111	GW	5		X	++	-	-		X			-		+			_	-	
	SB21-02 (16-20) GW	5/6	121	1725	LTI	Call	2		X		-			X			-	-						6.
	5821-02 (31-35) GW	5/	7/21	0955	LITT	Gul	1 2		×					V					-					
	SP21-02/46-50 GW	51-	7/21	1228	LTI	Crud	2		x					×										
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Address:	LIMBOIECH		Street																					GW - Ground
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City: AN	N ARBOR State: M11 Zip: 481	08	City						514	ue				10										SW - Surface
Project Cor	ntact: Scort Bell Email: chella lin	10.COM	Project #	PLNP	FAS	PHAS	Eá	2 -	IN.	ES	TIG	ATTO	N	4										Water
Phone #:	(72)() 022 1220	the hertyst :	Fax #																					SL- Sludge
Sampler(s)	(+54) $332 - 1400$		Client Pu	rchase O	rder #									N										OI - Oil
Sampler 1:	: BLEHH Sampler 2:		Glentru	chase o	Tuel #									2										AIR - Air
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SGS						TOTAL #	£	ш	-		4	H+ZN ATER	Ŧ	I										
Sample #	Field ID / Point of Collection	DATE	TIME	SAMPLED BY:	MATRIX	BOTTLES	OTH	NON	HCI NaOI	HNO	H2S(	NAO DI W	MEO	5	_									LAB USE ONLY
	SB21-01 (16-20) GW	sticlar	1530	LTT	GW	2		X						×										
	SB21-01 (31-35) GW	5/11/21	0350	LTT	GW	2		×						×										
	5B21-01 (46-50) GW	5/11/21	1105	LTI	GW	2		×						×										
	FIELD BLANK 03	5/10/21	1030	LTI	WW	2		×						X										
	EQUIPMENT BLANK A	5/11/21	1150	LTT	WW	2		×						×										
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September 14, 2021

## APPENDIX C Laboratory Reports



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### **Orlando, FL**

The results set forth herein are provided by SGS North America Inc.

## **Technical Report for**

LimnoTech

Pellston Airport, MI

SGS Job Number: FA85196



Sampling Dates: 04/27/21 - 04/30/21

**Report to:** 

LimnoTech 501 Avis Drive Ann Arbor, MI 48108 sbell@limno.com

ATTN: Scott Bell

### Total number of pages in report: 64



Norme Farm

Norm Farmer Technical Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, UT, VT, WA, WV This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

SGS North America Inc. • 4405 Vineland Road • Suite C-15 • Orlando, FL 32811 • tel: 407-425-6700 • fax: 407-425-0707

Please share your ideas about how we can serve you better at: EHS.US.CustomerCare@sgs.com



1 of 64 FA85196

05/25/21

**Automated Report** 

e-Hardcopy 2.0

# **Table of Contents**

# 1 2 3 4 5

6

	-11	
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Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	5
Section 3: Summary of Hits	6
Section 4: Sample Results	10
<b>4.1:</b> FA85196-1: DUP-GW-A	11
<b>4.2:</b> FA85196-2: DUP-GW-B	13
<b>4.3:</b> FA85196-3: MW20-01	15
<b>4.4:</b> FA85196-4: MW20-02	17
<b>4.5:</b> FA85196-5: MW20-03	19
<b>4.6:</b> FA85196-6: MW20-04	21
<b>4.7:</b> FA85196-7: MW20-05	23
<b>4.8:</b> FA85196-8: SOURCE WATER A	25
<b>4.9:</b> FA85196-9: SB21-03 (30-34)GW	27
<b>4.10:</b> FA85196-10: SB21-03 (51-55)GW	29
<b>4.11:</b> FA85196-11: SB21-03 (61-65)GW	31
<b>4.12:</b> FA85196-12: SB21-03 (81-85)GW	33
4.13: FA85196-13: FIELD BLANK 01	35
Section 5: Misc. Forms	37
5.1: Certification Exceptions	38
5.2: Chain of Custody	39
Section 6: MS Semi-volatiles - QC Data Summaries	42
6.1: Method Blank Summary	43
6.2: Blank Spike Summary	53
6.3: Matrix Spike Summary	57
6.4: Duplicate Summary	61



# Sample Summary

LimnoTech

Pellston Airport, MI

Sample Number	Collected Date	Time By	Received	Matr Code	ix • Type	Client Sample ID
This report co Organics ND	ontains resu	lts reported as = Not detecte	s ND = Nc ed above the	ot dete e MDI	cted. The following app L	olies:
FA85196-1	04/28/21	00:00 OB	05/01/21	AQ	Ground Water	DUP-GW-A
FA85196-2	04/29/21	00:00 OB	05/01/21	AQ	Ground Water	DUP-GW-B
FA85196-3	04/27/21	15:10 OB	05/01/21	AQ	Ground Water	MW20-01
FA85196-4	04/27/21	16:35 OB	05/01/21	AQ	Ground Water	MW20-02
FA85196-5	04/28/21	09:20 OB	05/01/21	AQ	Ground Water	MW20-03
FA85196-6	04/28/21	10:55 OB	05/01/21	AQ	Ground Water	MW20-04
FA85196-7	04/28/21	12:05 OB	05/01/21	AQ	Ground Water	MW20-05
FA85196-8	04/28/21	14:20 OB	05/01/21	AQ	Water	SOURCE WATER A
FA85196-9	04/29/21	14:20 OB	05/01/21	AQ	Ground Water	SB21-03 (30-34)GW
FA85196-10	04/29/21	17:15 OB	05/01/21	AQ	Ground Water	SB21-03 (51-55)GW
FA85196-11	04/30/21	10:10 OB	05/01/21	AQ	Ground Water	SB21-03 (61-65)GW
FA85196-12	04/30/21	12:45 OB	05/01/21	AQ	Ground Water	SB21-03 (81-85)GW

**Job No:** FA85196

4



# Sample Summary (continued)

LimnoTech

Pellston Airport, MI

Sample Collected Matrix Client **Received Code Type** Number Time By Sample ID Date FA85196-13 04/30/21 13:20 OB 05/01/21 AQ Field Blank Water FIELD BLANK 01

#### Job No: FA85196

4 of 64





### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	LimnoTech	Job No:	FA85196
Site:	Pellston Airport, MI	Report Date	5/25/2021 3:34:10 PM

12 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were collected on between 04/27/2021 and 04/30/2021 and were received at SGS North America Inc - Orlando on 05/01/2021 properly preserved, at 0.4 Deg. C and intact. These Samples received an SGS Orlando job number of FA85196. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### MS Semi-volatiles By Method EPA 537M BY ID

#### Batch ID: OP85344

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA85196-1MS, FA85196-2DUP, FA85196-1MS were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Sample(s) FA85196-8 have surrogates outside control limits.

FA85196-2: Dilution due to sample clogging SPE cartridge, only partial volume was extracted.

FA85196-8: Confirmation run.

Matrix: AQ

#### Matrix: AQ Batch ID: OP85474

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA85474-1MS, FA85499-1DUP, FA85474-1MS were used as the QC samples indicated.

Matrix Spike Recovery(s) for Perfluorobutanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

RPD(s) for Duplicate for Perfluorotetradecanoic acid are outside control limits for sample OP85474-DUP. Probable cause is due to sample non-homogeneity.

Sample(s) FA85196-8 have surrogates outside control limits.

FA85196-8: Associated BS ID recovery standard outside control limits. Insufficient sample to re-extract.

FA85196-8 for Perfluorotetradecanoic acid: Associated ID Standard outside control limits.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Ariel Hartney, Client Services (signature on file)



Job Number:	FA85196
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	04/27/21 thru 04/30/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA85196-1	DUP-GW-A					
Perfluorooctanoio	e acid	1.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	2.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	6.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	84.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	10.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	402	8.9	4.5	ng/l	EPA 537M BY ID
FA85196-2	DUP-GW-B					
Perfluorobutanoi	c acid <sup>a</sup>	6.8	4.0	2.0	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid <sup>a</sup>	10.4	2.0	1.0	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid <sup>a</sup>	11.2	2.0	1.0	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid <sup>a</sup>	5.7	2.0	1.0	ng/l	EPA 537M BY ID
Perfluorooctanoio	e acid <sup>a</sup>	8.8	2.0	1.0	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid <sup>a</sup>	12.6	2.0	1.0	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid <sup>a</sup>	17.0	2.0	1.0	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid a	90.4	2.0	1.0	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid <sup>a</sup>	3.5	2.0	1.0	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid <sup>a</sup>	63.6	2.0	1.0	ng/l	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate <sup>a</sup>	22.3	8.0	2.0	ng/l	EPA 537M BY ID
FA85196-3	MW20-01					
Perfluorobutanes	ulfonic acid	1.3 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	2.0	1.8	0.89	ng/l	EPA 537M BY ID
FA85196-4	MW20-02					
Perfluorohexanoi	c acid	1.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoio	e acid	1.7 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	60.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	83.5	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	340	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	1.3 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	1.8	1.8	0.89	ng/l	EPA 537M BY ID
FA85196-5	MW20-03					
Perfluorooctanoio	c acid	1.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	2.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	4.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	73.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	9.8	1.8	0.89	ng/l	EPA 537M BY ID



FA85196

Job Number:	FA85196
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	04/27/21 thru 04/30/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Perfluorooctanes	ulfonic acid	496	8.9	4.5	ng/l	EPA 537M BY ID
FA85196-6	MW20-04					
Perfluorobutanoio	e acid	38.8	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	101	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	84.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid	31.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic	e acid	43.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	11.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	10.2	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	131	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	16.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanesu	ulfonic acid	627	8.9	4.5	ng/l	EPA 537M BY ID
PFOSA		3.2 J	3.6	1.8	ng/l	EPA 537M BY ID
4:2 Fluorotelome	r sulfonate	3.6 J	7.1	1.8	ng/l	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate	346	7.1	1.8	ng/l	EPA 537M BY ID
FA85196-7	MW20-05					
Perfluorobutanoio	e acid	2.1 J	3.6	1.8	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	1.3 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic acid		1.2 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanesulfonic acid		3.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanesu	alfonic acid	24.2	1.8	0.89	ng/l	EPA 537M BY ID
FA85196-8	SOURCE WATER	R A				
Perfluoropentano	ic acid <sup>b</sup>	1.0 J	1.8	0.89	ng/l	EPA 537M BY ID
FA85196-9	SB21-03 (30-34)GV	W				
Perfluorobutanoio	e acid	16 7	3.6	18	ng/l	FPA 537M BY ID
Perfluoropentano	ic acid	55.4	1.8	0.89	ng/1	EPA 537M BY ID
Perfluorohexanoi	c acid	43.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohentano	ic acid	46.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoio	acid	53.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorononanoi	c acid	3.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanesi	ulfonic acid	5.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	6.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	47.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	1.3 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	8.2	1.8	0.89	ng/l	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate	164	7.1	1.8	ng/l	EPA 537M BY ID
8:2 Fluorotelome	r sulfonate	280	7.1	1.8	ng/l	EPA 537M BY ID

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FA85196

Job Number:	FA85196
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	04/27/21 thru 04/30/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA85196-10	SB21-03 (51-55)GV	W				
Perfluorobutanoio	e acid	7.6	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	10.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	11.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid	6.0	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic	e acid	9.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorononanoi	c acid	0.95 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	13.5	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	17.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	100	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	3.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	Ilfonic acid	69.1	1.8	0.89	ng/l	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate	22.1	7.1	1.8	ng/l	EPA 537M BY ID
FA85196-11	SB21-03 (61-65)GV	W				
Perfluorobutanoio	e acid	6.2	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	10.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	10.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid	5.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic	e acid	8.2	1.8	0.89	ng/1	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	7.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	11.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	70.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	4.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ilfonic acid	67.1	1.8	0.89	ng/l	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate	26.3	7.1	1.8	ng/l	EPA 537M BY ID
FA85196-12	SB21-03 (81-85)GV	W				
Perfluorobutanoio	r acid	2.4 J	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	2.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	2.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohentano	ic acid	151	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoio	acid	2.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ilfonic acid	2.5	1.8	0.89	ng/1	EPA 537M BY ID
Perfluoropentane	sulfonic acid	3.1	1.8	0.89	ng/1	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	14.3	1.8	0.89	ng/1	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	15.2	1.8	0.89	ng/1	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate	4.3.I	7.1	1.8	ng/l	EPA 537M BY ID
					0 -	



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FA85196

Job Number:	FA85196
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	04/27/21 thru 04/30/21

Lab Sample ID	Client Sample ID	Result/				
Analyte		Qual	RL	MDL	Units	Method

#### FA85196-13 FIELD BLANK 01

No hits reported in this sample.

(a) Dilution due to sample clogging SPE cartridge, only partial volume was extracted.

(b) Associated BS ID recovery standard outside control limits. Insufficient sample to re-extract.

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Orlando, FL

Section 4

Sample Results

Report of Analysis



4



Client Sam Lab Sample Matrix: Method: Project:	ple ID: e ID:	DUP-GY FA8519 AQ - Gr EPA 53' Pellston	W-A 6-1 ound Water 7M BY ID – I Airport, MI	EPA 537 MOD	)		Date Date Perc	Sampled: 04 Received: 05 ent Solids: n/	4/28/21 5/01/21 a	4 •
	File ID		DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch	
Run #1	3Q3802	0.D	1	05/17/21 19:12	2 NG	05/11/2	21 11:00	OP85344	S3Q560	
Run #2	3Q3797	5.D	5	05/15/21 04:5	6 NG	05/11/2	21 11:00	OP85344	S3Q559	
	Initial V	Volume	Final Volu	ne						
Run #1	280 ml		1.0 ml							
Run #2	280 ml		1.0 ml							
CAS No.	Comp	ound		Result	RL	MDL	Units	Q		
PERFLUO	ROALK	YLCAR	BOXYLIC A	CIDS						
375-22-4	Perflu	orobutanc	oic acid	ND	3.6	1.8	ng/l			
2706-90-3	Perflu	oropentar	oic acid	ND	1.8	0.89	ng/l			
307-24-4	Perflu	orohexan	oic acid	ND	1.8	0.89	ng/l			
375-85-9	Perflu	oroheptar	oic acid	ND	1.8	0.89	ng/l			
335-67-1	Perflu	orooctanc	oic acid	1.8	1.8	0.89	ng/l			
375-95-1	Perflu	orononan	oic acid	ND	1.8	0.89	ng/l			
335-76-2	Perflu	orodecan	oic acid	ND	1.8	0.89	ng/l			
2058-94-8	Perflu	oroundeca	anoic acid	ND	1.8	0.89	ng/l			
307-55-1	Perflu	orododeca	anoic acid	ND	1.8	0.89	ng/l			
72629-94-8	Perflu	orotrideca	anoic acid	ND	1.8	0.89	ng/l			
376-06-7	Perflu	orotetrade	ecanoic acid	ND	1.8	0.89	ng/l			
PERFLUO	<b>ΡΟΛΙ Κ</b>	VISIII	FONIC ACI	ns						
375-73-5	Perflu	orobutane	sulfonic acid	29	1.8	0.89	ng/l			
2706-91-4	Perflu	oronentar	esulfonic aci	d 63	1.0	0.89	ng/1			
355-46-4	Perflu	orohevan	esulfonic acid	L 84 4	1.0	0.02	ng/1			
375-92-8	Perflu	orohentar	esulfonic aci	d 10.9	1.0	0.89	ng/1			
1763_23_1	Perflu	prooctane	sulfonic acid	402 a	8.0	4.5	ng/1			
68250 12 1	Dorflu	orononan	sulfonic acid		1.8	0.80	ng/1			
335-77-3	Perflu	orodecane	esulfonic acid	ND	1.8	0.89	ng/1 ng/1			
DEDELUO	DOOCT			EG			C			
<b>PERFLUO</b>	DEOC	ANESUI	LFUNAMID	LS ND	2.6	1.0	m o /1			
/54-91-6	PFOS	1		ND	3.6	1.8	ng/1			
PERFLUO	ROOCT	ANESU	LFONAMID	OACETIC A	CIDS					
2355-31-9	MeFO	SAA		ND	3.6	1.8	ng/l			
2991-50-6	EtFOS	AA		ND	3.6	1.8	ng/l			
FLUOROT	ELOMI	ER SULF	ONATES							
757124-72-4	4 4:2 Flu	uorotelon	ner sulfonate	ND	7.1	1.8	ng/l			
27619-97-2	6:2 Flu	uorotelon	her sulfonate	ND	7.1	1.8	ng/l			
							0			

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

Client Samp Lab Sample Matrix: Method: Project:	DUP-GW-A FA85196-1 AQ - Ground Water EPA 537M BY ID EP Pellston Airport, MI	°A 537 MO	D		Date Date Perce	Sampled: Received: ent Solids:	04/28/21 05/01/21 n/a	
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l		
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	ID Standard Recoveries		Run# 2	Lim	its		
	13C4-	PFBA	75%	84%	35-1	35%		
	13C5-	PFPeA	74%	84%	50-1	50%		
	13C5-	PFHxA	75%	83%	50-1	50%		
	13C4-	PFHpA	77%	87%	50-1	50%		
	13C8-	PFOA	77%	87%	50-1	50%		
	13C9-	PFNA	73%	84%	50-1	50%		
	13C6-	PFDA	73%	83%	50-1	50%		
	13C7-	PFUnDA	70%	77%	40-1	40%		
	13C2-	PFDoDA	64%	71%	40-1	40%		
	13C2-	PFTeDA	62%	70%	30-1	30%		
	13C3-	PFBS	75%	86%	50-1	50%		
	13C3-	PFHxS	71%	83%	50-1	50%		
	13C8-	PFOS	64%	77%	50-1	50%		
	13C8-	FOSA	64%	75%	30-1	30%		
	d3-Me	FOSAA	72%	88%	40-1	40%		
	d5-EtH	FOSAA	75%	87%	40-1	40%		
	13C2-	4:2FTS	72%	83%	50-1	50%		
	13C2-	6:2FTS	73%	85%	50-1	50%		
	13C2-	8·2FTS	71%	77%	50-1	50%		

77%

69%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Client Samj Lab Sample Matrix: Method: Project:	De ID: DUP-GW-B DI: FA85196-2 AQ - Ground Water EPA 537M BY ID E Pellston Airport, MI	EPA 537 MC	D	Date Sampled:04/29/21Date Received:05/01/21Percent Solids:n/a					
Run #1 <sup>a</sup> Run #2	File ID         DF         DF <t< th=""><th><b>Analyzed</b> 05/17/21 16:</th><th><b>By</b> 10 NG</th><th><b>Prep D</b> 05/11/2</th><th>pate 21 11:00</th><th>Prep Batch OP85344</th><th>Analytical Batch S3Q560</th></t<>	<b>Analyzed</b> 05/17/21 16:	<b>By</b> 10 NG	<b>Prep D</b> 05/11/2	pate 21 11:00	Prep Batch OP85344	Analytical Batch S3Q560		
Run #1 Run #2	Initial VolumeFinal Volume280 ml1.0 ml	ne							
CAS No.	Compound	Result	RL	MDL	Units	Q			
PERFLUOI	ROALKYLCARBOXYLIC A	CIDS							
375-22-4	Perfluorobutanoic acid	6.8	4.0	2.0	ng/l				
2706-90-3	Perfluoropentanoic acid	10.4	2.0	1.0	ng/l				
307-24-4	Perfluorohexanoic acid	11.2	2.0	1.0	ng/l				
375-85-9	Perfluoroheptanoic acid	5.7	2.0	1.0	ng/l				
335-67-1	Perfluorooctanoic acid	8.8	2.0	1.0	ng/l				
375-95-1	Perfluorononanoic acid	ND	2.0	1.0	ng/l				
335-76-2	Perfluorodecanoic acid	ND	2.0	1.0	ng/l				
2058-94-8	Perfluoroundecanoic acid	ND	2.0	1.0	ng/l				
307-55-1	Perfluorododecanoic acid	ND	2.0	1.0	ng/l				
72629-94-8	Perfluorotridecanoic acid	ND	2.0	1.0	ng/l				
376-06-7	Perfluorotetradecanoic acid	ND	2.0	1.0	ng/l				
PERFLUO	ROALKYLSULFONIC ACII	DS							
375-73-5	Perfluorobutanesulfonic acid	12.6	2.0	1.0	ng/l				
2706-91-4	Perfluoropentanesulfonic acid	1 17.0	2.0	1.0	ng/l				
355-46-4	Perfluorohexanesulfonic acid	90.4	2.0	1.0	ng/l				
375-92-8	Perfluoroheptanesulfonic acid	1 3.5	2.0	1.0	ng/l				
1763-23-1	Perfluorooctanesulfonic acid	63.6	2.0	1.0	ng/l				
68259-12-1	Perfluorononanesulfonic acid	ND	2.0	1.0	ng/1				
335-77-3	Perfluorodecanesulfonic acid	ND	2.0	1.0	ng/l				
PERFLUOI	ROOCTANESULEONAMID	FS							
754-91-6	PFOSA	ND	4.0	2.0	ng/l				
PERFI UAI	ROOCTANESHI FONAMIDA	OACETIC	ACIDS						
2355_31_0	MeEOSA A	ND	4.0	2.0	ng/l				
2991-50-6	EtFOSAA	ND	4.0	2.0	ng/l				
					-				
FLUOROT	ELOMER SULFONATES		0.5						
757124-72-4	4:2 Fluorotelomer sulfonate	ND	8.0	2.0	ng/l				
27619-97-2	6:2 Fluorotelomer sulfonate	22.3	8.0	2.0	ng/l				

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



4.2 **4** 

Client Samp Lab Sample Matrix: Method: Project:	ole ID: ID:	DUP-GW-B FA85196-2 AQ - Ground Water EPA 537M BY ID EF Pellston Airport, MI	PA 537 MO	Date Date Perce	Sampled: Received: ent Solids:	04/29/21 05/01/21 n/a		
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	8.0	2.0	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	4.0	2.0	ng/l		
919005-14-4	ADON	NA	ND	8.0	2.0	ng/l		
756426-58-1	9CI-PI	F3ONS (F-53B Major)	ND	8.0	2.0	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	8.0	2.0	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	81%		35-1	35%		
	13C5-	PFPeA	81%		50-1	50%		
	13C5-	PFHxA	81%		50-1	50%		
	13C4-	PFHpA	85%		50-1	50%		
	13C8-	PFOA	89%		50-1			
	13C9-	PFNA	90%		50-1	50%		
	13C6-	PFDA	92%		50-1	50%		
	13C7-	PFUnDA	89%		40-1	40%		
	13C2-	PFDoDA	79%		40-1	40%		
	13C2-	PFTeDA	74%		30-1	30%		
	13C3-	PFBS	80%		50-1	50%		
	13C3-	PFHxS	83%		50-1	50%		
	13C8-	PFOS	85%		50-1	50%		
	13C8-	FOSA	82%		30-1	30%		
	d3-Me	FOSAA	92%		40-1	40%		
	d5-EtH	FOSAA	93%		40-1	40%		
	13C2-	4:2FTS	79%		50-1	50%		
	13C2-	6:2FTS	87%		50-1	50%		
	13C2-8:2FTS				50-1	50%		
	13C3-	HFPO-DA	75%		50-1	50%		

(a) Dilution due to sample clogging SPE cartridge, only partial volume was extracted.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



E = Indicates value exceeds calibration range

Client Samj Lab Sample Matrix: Method: Project:	De ID: MW20-0 E ID: FA85196 AQ - Gro EPA 5371 Pellston A	1 -3 ound Water M BY ID E Airport, MI	EPA 537 MC	D	Date Sampled:04/27/21Date Received:05/01/21Percent Solids:n/a					
Run #1 Run #2	<b>File ID</b> 3Q38011.D	<b>DF</b> 1	<b>Analyzed</b> 05/17/21 16:	<b>By</b> 43 NG	<b>Prep D</b> 05/11/2	eate 21 11:00	<b>Prep Batch</b> OP85344	Analytical Batch S3Q560		
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volur</b> 1.0 ml	ne							
CAS No.	Compound		Result	RL	MDL	Units	Q			
PERFLUO	ROALKYLCARB	OXYLIC A	CIDS							
375-22-4	Perfluorobutanoi	c acid	ND	3.6	1.8	ng/l				
2706-90-3	Perfluoropentanc	oic acid	ND	1.8	0.89	ng/l				
307-24-4	Perfluorohexanoi	ic acid	ND	1.8	0.89	ng/l				
375-85-9	Perfluoroheptanc	oic acid	ND	1.8	0.89	ng/l				
335-67-1	Perfluorooctanoi	c acid	ND	1.8	0.89	ng/l				
375-95-1	Perfluorononano	ic acid	ND	1.8	0.89	ng/l				
335-76-2	Perfluorodecanoi	ic acid	ND	1.8	0.89	ng/l				
2058-94-8	Perfluoroundecar	noic acid	ND	1.8	0.89	ng/l				
307-55-1	Perfluorododecar	noic acid	ND	1.8	0.89	ng/l				
72629-94-8	Perfluorotridecar	noic acid	ND	1.8	0.89	ng/l				
376-06-7	Perfluorotetradeo	canoic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROALKYLSULF	ONIC ACII	DS							
375-73-5	Perfluorobutanes	ulfonic acid	1.3	1.8	0.89	ng/l	J			
2706-91-4	Perfluoropentane	sulfonic acid	d ND	1.8	0.89	ng/l				
355-46-4	Perfluorohexanes	sulfonic acid	2.0	1.8	0.89	ng/l				
375-92-8	Perfluoroheptane	sulfonic acid	d ND	1.8	0.89	ng/l				
1763-23-1	Perfluorooctanes	ulfonic acid	ND	1.8	0.89	ng/l				
68259-12-1	Perfluorononanes	sulfonic acid	ND	1.8	0.89	ng/l				
335-77-3	Perfluorodecanes	sulfonic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROOCTANESUL	FONAMID	FS							
754-91-6	PFOSA		ND	3.6	1.8	ng/l				
PERFLUO	ROOCTANESUL	FONAMID	OACETIC	ACIDS						
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l				
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l				
<b>ΓΙ ΠΟΡΟ</b> Τ	ЕІ ОМЕР СІП <i>Б</i> и	) NA TES								
757124 72 A	4.2 Eluorotelom	or sulfonato	ND	7 1	1.8	ng/1				
27610 07 2	6.2 Elucrotalom	ar sulfonate	ND	7.1	1.0	ng/1				
2/019-9/-2	0.2 Phototeloline	a sunonate	ND	/.1	1.0	ng/1				

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.3 4

Client Sample ID:MW20-01Lab Sample ID:FA85196-3Matrix:AQ - Ground WateMethod:EPA 537M BY IDProject:Pellston Airport, M			A 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	04/27/21 05/01/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	08-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	JA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng/l		
CAS No.	ID Standard Recoveries		Run# 1	Run# 2	Limi	ts		
	13C4-	PFBA	70%		35-1	35%		
	13C5-	PFPeA	71%		50-1	50%		
	13C5-	PFHxA	70%		50-1	50%		
	13C4-	PFHpA	76%		50-1	50%		
	13C8-	PFOA	81%		50-1	50%		
	13C9-	PFNA	81%		50-1	50%		
	13C6-	PFDA	81%		50-1	50%		
	13C7-	PFUnDA	76%		40-1-	40%		
	13C2-	PFDoDA	69%		40-1-	40%		
	13C2-	PFTeDA	67%		30-1	30%		
	13C3-	PFBS	70%		50-1	50%		
	13C3-	PFHxS	71%		50-1	50%		
	13C8-	PFOS	72%		50-1	50%		
	13C8-	FOSA	75%		30-1	30%		
	d3-Me	FOSAA	79%		40-1-	40%		
	d5-EtH	FOSAA	79%		40-1-	40%		
	13C2-	4:2FTS	70%		50-1	50%		
	13C2-	6:2FTS	77%		50-1	50%		
	13C2-	8:2FTS	73%		50-1	50%		

65%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

4.3

4



Client Sam Lab Sample Matrix: Method: Project:	ple ID: e ID:	MW20-0 FA85190 AQ - Gr EPA 537 Pellston	)2 5-4 ound Water 7M BY ID E Airport, MI	EPA 537 MC	)D	Date Sampled:04/27/21Date Received:05/01/21Percent Solids:n/a						
Run #1 Run #2	<b>File ID</b> 3Q3801	2.D	<b>DF</b> 1	<b>Analyzed</b> 05/17/21 17:	<b>By</b> :00 NG	<b>Prep D</b> 05/11/2	ate 21 11:00	Prep Batch OP85344	Analytical Batch S3Q560			
Run #1 Run #2	<b>Initial</b> 280 ml	Volume	<b>Final Volun</b> 1.0 ml	ne								
CAS No.	Comp	ound		Result	RL	MDL	Units	Q				
PERFLUO	ROALK	YLCAR	BOXYLIC A	CIDS								
375-22-4	Perflu	orobutano	ic acid	ND	3.6	1.8	ng/l					
2706-90-3	Perflu	oropentan	oic acid	ND	1.8	0.89	ng/l					
307-24-4	Perflu	orohexano	oic acid	1.8	1.8	0.89	ng/l					
375-85-9	Perflu	oroheptan	oic acid	ND	1.8	0.89	ng/l					
335-67-1	Perflu	orooctano	ic acid	1.7	1.8	0.89	ng/l	J				
375-95-1	Perflu	orononan	oic acid	ND	1.8	0.89	ng/l					
335-76-2	Perflu	orodecano	oic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perflu	oroundeca	noic acid	ND	1.8	0.89	ng/l					
307-55-1	Perflu	orododeca	noic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perflu	orotrideca	noic acid	ND	1.8	0.89	ng/l					
376-06-7	Perflu	orotetrade	canoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALK	YLSULI	ONIC ACII	DS								
375-73-5	Perflu	orobutane	sulfonic acid	60.8	1.8	0.89	ng/l					
2706-91-4	Perflu	oropentan	esulfonic acid	1 83.5	1.8	0.89	ng/l					
355-46-4	Perflu	orohexane	esulfonic acid	340	1.8	0.89	ng/l					
375-92-8	Perflu	oroheptan	esulfonic acid	1.3	1.8	0.89	ng/l	J				
1763-23-1	Perflu	orooctane	sulfonic acid	1.8	1.8	0.89	ng/l					
68259-12-1	Perflu	orononane	esulfonic acid	ND	1.8	0.89	ng/l					
335-77-3	Perflu	orodecane	sulfonic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROOCT	ANESUI	FONAMID	ES								
754-91-6	PFOS	A		ND	3.6	1.8	ng/l					
PERFLUO	ROOCT	ANESII	FONAMID	OACETIC	ACIDS							
2355_31_0	Meen	SAA		ND	3.6	1.8	no/l					
2991_50_6	EtEOS			ND	3.6	1.0	$n\sigma/1$					
2771-50-0	LuOS	<i></i>		nυ	5.0	1.0	115/1					
FLUOROT	ELOM	ER SULF	ONATES									
757124-72-4	4 4:2 Fl	uorotelom	er sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fl	uorotelom	er sulfonate	ND	7.1	1.8	ng/l					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

Client Sample ID:MW20-02Lab Sample ID:FA85196-4Matrix:AQ - Ground WaMethod:EPA 537M BY IIProject:Pellston Airport,			A 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	04/27/21 05/01/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	08-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	JA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng/l		
CAS No.	ID Standard Recoveries		Run# 1	Run# 2	Limi	ts		
	13C4-	PFBA	76%		35-1	35%		
	13C5-	PFPeA	77%		50-1	50%		
	13C5-	PFHxA	78%		50-1	50%		
	13C4-	PFHpA	82%		50-1	50%		
	13C8-	PFOA	86%		50-1	50%		
	13C9-	PFNA	84%		50-1	50%		
	13C6-	PFDA	86%		50-1	50%		
	13C7-	PFUnDA	80%		40-1-	40%		
	13C2-	PFDoDA	68%		40-1-	40%		
	13C2-	PFTeDA	65%		30-1	30%		
	13C3-	PFBS	76%		50-1	50%		
	13C3-	PFHxS	79%		50-1	50%		
	13C8-	PFOS	78%		50-1	50%		
	13C8-	FOSA	90%		30-1	30%		
	d3-Me	FOSAA	86%		40-1-	40%		
	d5-EtH	FOSAA	81%		40-1-	40%		
	13C2-	4:2FTS	75%		50-1	50%		
	13C2-	6:2FTS	80%		50-1	50%		
	13C2-	8:2FTS	78%		50-1	50%		

74%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Sam Lab Sample Matrix: Method: Project:	ple ID: MW20 e ID: FA851 AQ - C EPA 5 Pellstor	-03 96-5 Ground Water 37M BY ID – I n Airport, MI	EPA 537 MOD		Date Sampled:04/28/21Date Received:05/01/21Percent Solids:n/a						
	File ID	DF	Analyzed	By	Prep Da	ite	<b>Prep Batch</b>	Analytical Batch			
Run #1	3Q38022.D	1	05/17/21 19:46	NG	05/11/21	1 11:00	OP85344	S3Q560			
Run #2	3Q37983.D	5	05/15/21 07:09	NG	05/11/21	1 11:00	OP85344	S3Q559			
	Initial Volume	Final Volu	me								
Run #1	280 ml	1.0 ml									
Run #2	280 ml	1.0 ml									
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCAI	RBOXYLIC A	ACIDS								
375-22-4	Perfluorobutar	noic acid	ND	3.6	1.8	ng/l					
2706-90-3	Perfluoropenta	noic acid	ND	1.8	0.89	ng/l					
307-24-4	Perfluorohexa	noic acid	ND	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	noic acid	ND	1.8	0.89	ng/l					
335-67-1	Perfluorooctan	oic acid	1.8	1.8	0.89	ng/l					
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l					
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetrac	lecanoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALKYLSUI	FONIC ACI	DS								
375-73-5	Perfluorobutar	nesulfonic acid	2.6	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	nesulfonic aci	d 4.9	1.8	0.89	ng/l					
355-46-4	Perfluorohexa	nesulfonic acid	1 73.4	1.8	0.89	ng/l					
375-92-8	Perfluorohepta	nesulfonic aci	d 9.8	1.8	0.89	ng/l					
1763-23-1	Perfluorooctan	esulfonic acid	496 <sup>a</sup>	8.9	4.5	ng/l					
68259-12-1	Perfluoronona	nesulfonic acid	I ND	1.8	0.89	ng/l					
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROOCTANESU	JLFONAMID	ES								
754-91-6	PFOSA		ND	3.6	1.8	ng/l					
PERFLUO	ROOCTANESU	JLFONAMID	OACETIC AC	CIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOMER SUL	FONATES									
757124-72-4	4 4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l					
						0					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.5 **4** 

Client Samp Lab Sample Matrix: Method: Project:	le ID: ID:	MW20-03 FA85196-5 AQ - Ground Water EPA 537M BY ID EP Pellston Airport, MI	PA 537 MOE	)		Date Date Perc	04/28/21 05/01/21 n/a	
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l		
NEXT GEN	ERATI	ON PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	JA	ND	7.1	1.8	ng/l		
756426-58-1 9Cl-PF3ONS (F-53B Major)			ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng/l		
CAS No.	ID Standard Recoveries		Run# 1	Run# 2	Lim	iits		
	13C4-	PFBA	84%	100%	35-1	35%		
	13C5-	PFPeA	83%	100%	50-1	50%		
	13C5-	PFHxA	83%	101%	50-1	50%		
	13C4-	PFHpA	87%	103%	50-1	50%		
	13C8-	PFOA	87%	105%	50-1	50%		
	13C9-	PFNA	82%	102%	50-1	50%		
	13C6-	PFDA	85%	103%	50-1	50%		
	13C7-	PFUnDA	81%	95%	40-1	40%		
	13C2-	PFDoDA	70%	86%	40-1	40%		
	13C2-	PFTeDA	37%	70%	30-1	30%		
	13C3-	PFBS	83%	101%	50-1	50%		
	13C3-	PFHxS	81%	97%	50-1	50%		
	13C8-	PFOS	75%	95%	50-1	50%		
	13C8-	FOSA	68%	86%	30-1	30%		
	d3-Me	FOSAA	85%	108%	40-1	40%		
	d5-EtF	FOSAA	86%	111%	40-1	40%		
	13C2-	4:2FTS	81%	99%	50-1	50%		
	13C2-	6:2FTS	83%	102%	50-1	50%		
	13C2-	8:2FTS	80%	96%	50-1	50%		

75%

90%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.5 4

Client Sam Lab Sample Matrix: Method: Project:	ple ID: MW20 e ID: FA851 AQ - C EPA 5 Pellsto	)-04 96-6 Ground Water 37M BY ID H n Airport, MI	EPA 537 MO	D	Date Sampled:04/28/21Date Received:05/01/21Percent Solids:n/a				
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch	
Run #1	3Q38023.D	1	05/17/21 20:	02 NG	05/11/2	21 11:00	OP85344	S3Q560	
Run #2	3Q37984.D	5	05/15/21 07:2	25 NG	05/11/2	21 11:00	OP85344	S3Q559	
	Initial Volume	Final Volur	ne						
Run #1	280 ml	1.0 ml							
Run #2	280 ml	1.0 ml							
CAS No.	Compound		Result	RL	MDL	Units	Q		
PERFLUO	ROALKYLCA	RBOXYLIC A	CIDS						
375-22-4	Perfluorobutar	noic acid	38.8	3.6	1.8	ng/l			
2706-90-3	Perfluoropenta	anoic acid	101	1.8	0.89	ng/l			
307-24-4	Perfluorohexa	noic acid	84.7	1.8	0.89	ng/l			
375-85-9	Perfluorohepta	anoic acid	31.6	1.8	0.89	ng/l			
335-67-1	Perfluorooctar	noic acid	43.7	1.8	0.89	ng/l			
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l			
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l			
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l			
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l			
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l			
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l			
PERFLUO	ROALKYLSUI	LFONIC ACII	DS						
375-73-5	Perfluorobutar	nesulfonic acid	11.9	1.8	0.89	ng/l			
2706-91-4	Perfluoropenta	anesulfonic acid	d 10.2	1.8	0.89	ng/l			
355-46-4	Perfluorohexa	nesulfonic acid	131	1.8	0.89	ng/l			
375-92-8	Perfluorohepta	anesulfonic acid	d 16.1	1.8	0.89	ng/l			
1763-23-1	Perfluorooctar	nesulfonic acid	627 <sup>a</sup>	8.9	4.5	ng/l			
68259-12-1	Perfluoronona	nesulfonic acid	ND	1.8	0.89	ng/l			
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l			
PERFLUO	ROOCTANESI	JLFONAMID	ES						
754-91-6	PFOSA		3.2	3.6	1.8	ng/l	J		
PERFLUO	ROOCTANESU	JLFONAMID	OACETIC A	ACIDS					
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l			
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l			
FLUOROT	ELOMER SUL	FONATES							
757124-72-4	4 4:2 Fluorotelo	mer sulfonate	3.6	7.1	1.8	ng/l	J		
27619-97-2	6:2 Fluorotelo	mer sulfonate	346	7.1	1.8	ng/l			
						U			

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.6 **4** 

Client Sample ID:MW20-04Lab Sample ID:FA85196-6Matrix:AQ - Ground WaterMethod:EPA 537M BY ID FProject:Pellston Airport, MI		MW20-04 FA85196-6 AQ - Ground Water EPA 537M BY ID EH Pellston Airport, MI	PA 537 MOI	D		Date Date Perce	Date Sampled: Date Received: Percent Solids:		
CAS No.	Comp	ound	Result	RL	MDL	Units	Q		
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l			
NEXT GEN	ERAT	ION PFAS ANALYTES	5						
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l			
919005-14-4 ADONA			ND	7.1	1.8	ng/l			
756426-58-1 9Cl-PF3ONS (F-53B Major)		ND	7.1	1.8	ng/l				
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l			
CAS No.	ID Standard Recoveries		Run# 1	Run# 2	Lim	iits			
	13C4-	PFBA	83%	105%	35-1	35%			
	13C5-	PFPeA	83%	104%	50-1	50%			
	13C5-	PFHxA	80%	105%	50-1	150%			
	13C4-	PFHpA	84%	110%	50-1	150%			
	13C8-	PFOA	84%	111%	50-1	150%			
	13C9-	PFNA	85%	110%	50-1	150%			
	13C6-	PFDA	92%	115%	50-1	150%			
	13C7-	PFUnDA	88%	107%	40-1	140%			
	13C2-	PFDoDA	77%	97%	40-1	140%			
	13C2-	PFTeDA	75%	94%	30-1	130%			
	13C3-	PFBS	83%	102%	50-1	150%			
	13C3-	PFHxS	82%	103%	50-1	150%			
	13C8-	PFOS	77%	102%	50-1	150%			
	13C8-	FOSA	94%	124%	30-1	130%			
	d3-Me	FOSAA	94%	119%	40-1	140%			
	d5-EtH	FOSAA	91%	118%	40-1	140%			
	13C2-	4:2FTS	78%	98%	50-1	150%			
	13C2-	6:2FTS	110%	148%	50-1	150%			
	13C2-	8:2FTS	86%	107%	50-1	150%			

74%

99%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Client Samj Lab Sample Matrix: Method: Project:	ple ID: MW20 D: FA8519 AQ - G EPA 53 Pellstor	-05 96-7 Fround Water 37M BY ID E n Airport, MI	PA 537 MC	)D	Date Sampled:04/28/21Date Received:05/01/21Percent Solids:n/a					
Run #1 Run #2	<b>File ID</b> 3Q38013.D	<b>DF</b> <i>A</i> 1 (	<b>Analyzed</b> 05/17/21 17:	<b>By</b> 16 NG	<b>Prep D</b> 05/11/2	eate 21 11:00	<b>Prep Batch</b> OP85344	Analytical Batch S3Q560		
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volun</b> 1.0 ml	ıe							
CAS No.	Compound		Result	RL	MDL	Units	Q			
PERFLUO	ROALKYLCAI	RBOXYLIC A	CIDS							
375-22-4	Perfluorobutan	oic acid	2.1	3.6	1.8	ng/l	J			
2706-90-3	Perfluoropenta	noic acid	ND	1.8	0.89	ng/l				
307-24-4	Perfluorohexa	noic acid	1.3	1.8	0.89	ng/l	J			
375-85-9	Perfluorohepta	noic acid	ND	1.8	0.89	ng/l				
335-67-1	Perfluorooctan	oic acid	1.2	1.8	0.89	ng/l	J			
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l				
335-76-2	Perfluorodecar	noic acid	ND	1.8	0.89	ng/l				
2058-94-8	Perfluorounded	canoic acid	ND	1.8	0.89	ng/l				
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l				
72629-94-8	Perfluorotrideo	canoic acid	ND	1.8	0.89	ng/l				
376-06-7	Perfluorotetrac	lecanoic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROALKYLSUL	FONIC ACID	S							
375-73-5	Perfluorobutan	esulfonic acid	ND	1.8	0.89	ng/l				
2706-91-4	Perfluoropenta	nesulfonic acid	ND	1.8	0.89	ng/l				
355-46-4	Perfluorohexa	nesulfonic acid	3.6	1.8	0.89	ng/l				
375-92-8	Perfluorohepta	nesulfonic acid	ND	1.8	0.89	ng/l				
1763-23-1	Perfluorooctan	esulfonic acid	24.2	1.8	0.89	ng/l				
68259-12-1	Perfluoronona	nesulfonic acid	ND	1.8	0.89	ng/l				
335-77-3	Perfluorodecar	nesulfonic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROOCTANESU	JLFONAMIDI	ES							
754-91-6	PFOSA		ND	3.6	1.8	ng/l				
PERFLUO	ROOCTANESU	JLFONAMID	DACETIC	ACIDS						
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l				
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l				
FLUOROT	ELOMER SUL	FONATES								
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l				
27619-97-2	6:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/1				
=:01/ /: 2	5.2 I Idol 010101		1.12	, . I	1.0	11-2/1				

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 2

Client Samp Lab Sample Matrix: Method: Project:	le ID: ID:	MW20-05 FA85196-7 AQ - Ground Water EPA 537M BY ID EP Pellston Airport, MI	PA 537 MO	D		Date Date Perce	Sampled: Received: ent Solids:	04/28/21 05/01/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9 11Cl-PF3OUdS (F-53B Minor			) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	84%		35-1	35%		
	13C5-	PFPeA	83%		50-1	50%		
	13C5-	PFHxA	84%		50-1	50%		
	13C4-	PFHpA	87%		50-1	50%		
	13C8-	PFOA	86%		50-1	50%		
	13C9-	PFNA	85%		50-1	50%		
	13C6-	PFDA	83%		50-1	50%		
	13C7-	PFUnDA	79%		40-1	40%		
	13C2-	PFDoDA	73%		40-1	40%		
	13C2-	PFTeDA	75%		30-1	30%		
	13C3-	PFBS	83%		50-1	50%		
	13C3-	PFHxS	81%		50-1	50%		
	13C8-	PFOS	78%		50-1	50%		
	13C8-	FOSA	94%		30-1	30%		
	d3-Me	FOSAA	83%		40-1	40%		
	d5-EtF	FOSAA	82%		40-1	40%		
	13C2-	4:2FTS	79%					
	13C2-	6:2FTS	79%		50-1	50%		
	13C2-	8:2FTS	75%		50-1	50%		

80%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Client Samj Lab Sample Matrix: Method: Project:	ple ID: SOUR e ID: FA851 AQ - V EPA 5 Pellsto	CE WATER A 96-8 Vater 37M BY ID n Airport, MI	EPA 537 MOD			Date Date Perc	e Sampled: e Received: eent Solids:	04/28/21 05/01/21 n/a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1 <sup>a</sup> Run #2 <sup>b</sup>	3Q38333.D 3Q37973.D	1 1	05/22/21 11:52 05/15/21 04:23	NG NG	05/19/2 05/11/2	21 08:45 21 11:00	OP85474 OP85344	S3Q563 S3Q559
D //1	Initial Volume	Final Volu	me					
Run #1 Run #2	280 ml 280 ml	1.0 ml 1.0 ml						
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCA	RBOXYLIC A	ACIDS					
375-22-4	Perfluorobuta	noic acid	ND	3.6	1.8	ng/l		
2706-90-3	Perfluoropenta	anoic acid	1.0	1.8	0.89	ng/l	J	
307-24-4	Perfluorohexa	noic acid	ND	1.8	0.89	ng/l		
375-85-9	Perfluorohepta	anoic acid	ND	1.8	0.89	ng/l		
335-67-1	Perfluorooctar	noic acid	ND	1.8	0.89	ng/l		
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l		
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l		
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKYLSUI	LFONIC ACI	DS					
375-73-5	Perfluorobutar	nesulfonic acid	ND	1.8	0.89	ng/l		
2706-91-4	Perfluoropenta	anesulfonic aci	d ND	1.8	0.89	ng/l		
355-46-4	Perfluorohexa	nesulfonic acid	l ND	1.8	0.89	ng/l		
375-92-8	Perfluorohepta	anesulfonic aci	d ND	1.8	0.89	ng/l		
1763-23-1	Perfluorooctar	nesulfonic acid	ND	1.8	0.89	ng/l		
68259-12-1	Perfluoronona	nesulfonic acid	i ND	1.8	0.89	ng/l		
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROOCTANES	ULFONAMID	ES					
754-91-6	PFOSA		ND	3.6	1.8	ng/l		
PERFLUO	ROOCTANESU	ULFONAMID	OACETIC AC	CIDS				
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l		
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l		
FLUOROT	ELOMER SUL	FONATES						
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

 $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$ 

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.8

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SGS

Client Sample ID: Lab Sample ID: Matrix: Method: Project:		SOURCE WATER A FA85196-8 AQ - Water EPA 537M BY ID EP Pellston Airport, MI	] ] ]	Date S Date I Perce	Sampled: Received: nt Solids:	04/28/21 05/01/21 n/a			
CAS No.	Comp	ound	Result	RL	MD	L Un	nits	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng	/1		
NEXT GEN	ERATI	ION PFAS ANALYTES							
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng	/1		
919005-14-4	ADON	NA	ND	7.1	1.8	ng	/1		
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng	/1		
763051-92-9	11Cl-F	PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng	/1		
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	I	limits			
	13C4-	PFBA	73%	80%	3	5-135%			
	13C5-	PFPeA	76%	82%	5	0-150%			
	13C5-	PFHxA	76%	82%	5	0-150%			
	13C4-	PFHpA	80%	88%	5	0-150%			
	13C8-	PFOA	85%	95%	5	0-150%			
	13C9-	PFNA	89%	89%	5	0-150%			
	13C6-	PFDA	89%	69%	5	0-150%			
	13C7-	PFUnDA	78%	32% <sup>d</sup>	4	0-140%			
	13C2-	PFDoDA	60%	13% <sup>d</sup>	4	0-140%			
	13C2-	PFTeDA	17% <sup>d</sup>	3% d	3	0-130%			
	13C3-	PFBS	70%	80%	5	0-150%			
	13C3-	PFHxS	78%	83%	5	0-150%			
	13C8-	PFOS	80%	60%	5	0-150%			
	13C8-	FOSA	69%	15% d	3	0-130%			
	d3-Me	FOSAA	95%	51%	4	0-140%			
	d5-EtF	FOSAA	96%	40%	4	0-140%			
	13C2-	4:2FTS	77%	81%	5	0-150%			
	13C2-	6:2FTS	90%	95%	5	0-150%			
	13C2-	8:2FTS	86%	70%	5	0-150%			
	13C3-	HFPO-DA	72%	70%	5	0-150%			

(a) Associated BS ID recovery standard outside control limits. Insufficient sample to re-extract.

(b) Confirmation run.

(c) Associated ID Standard outside control limits.

(d) Outside control limits.

ND = Not detected MDL = Method Detection Limit

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- E = Indicates value exceeds calibration range
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- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.8 **4** 

<b>NEPULUI</b> AHAIVSIS	Report	of	Ana	lvsis
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Client Sam Lab Sample Matrix: Method: Project:	ple ID: e ID:	<ul> <li>ID: SB21-03 (30-34)GW</li> <li>D: FA85196-9 AQ - Ground Water EPA 537M BY ID EPA 537 MOD Pellston Airport, MI</li> </ul>					Date Sampled:04/29/21Date Received:05/01/21Percent Solids:n/a							
Run #1 Run #2	<b>File ID</b> 3Q3801	4.D	<b>DF</b> 4 1 (	<b>Analyzed</b> )5/17/21 17:	<b>By</b> 33 NG	<b>Prep D</b> 05/11/2	<b>ate</b> 21 11:00	Prep Batch OP85344	Analytical Batch S3Q560					
Run #1 Run #2	<b>Initial</b> 280 ml	Volume	<b>Final Volun</b> 1.0 ml	ne										
CAS No.	Comp	ound		Result	RL	MDL	Units	Q						
PERFLUO	ROALK	YLCAR	BOXYLIC A	CIDS										
375-22-4	Perflue	orobutanc	oic acid	16.7	3.6	1.8	ng/l							
2706-90-3	Perflue	oropentar	noic acid	55.4	1.8	0.89	ng/l							
307-24-4	Perflue	orohexan	oic acid	43.6	1.8	0.89	ng/l							
375-85-9	Perflue	oroheptar	noic acid	46.6	1.8	0.89	ng/l							
335-67-1	Perflue	prooctant	oic acid	53.3	1.8	0.89	ng/l							
375-95-1	Perflue	orononan	oic acid	3.3	1.8	0.89	ng/l							
335-76-2	Perflue	orodecan	oic acid	ND	1.8	0.89	ng/l							
2058-94-8	Perflue	oroundec	anoic acid	ND	1.8	0.89	ng/l							
307-55-1	Perflue	orododec	anoic acid	ND	1.8	0.89	ng/l							
72629-94-8	Perflue	orotrideca	anoic acid	ND	1.8	0.89	ng/l							
376-06-7	Perflue	orotetrade	ecanoic acid	ND	1.8	0.89	ng/l							
PERFLUO	ROALK	YLSUL	FONIC ACIE	DS										
375-73-5	Perflue	orobutane	esulfonic acid	5.6	1.8	0.89	ng/l							
2706-91-4	Perflue	oropentar	esulfonic acid	1 6.7	1.8	0.89	ng/l							
355-46-4	Perflue	orohexan	esulfonic acid	47.1	1.8	0.89	ng/l							
375-92-8	Perflue	oroheptar	nesulfonic acid	1 1.3	1.8	0.89	ng/l	J						
1763-23-1	Perflue	prooctane	sulfonic acid	8.2	1.8	0.89	ng/l							
68259-12-1	Perflue	orononan	esulfonic acid	ND	1.8	0.89	ng/l							
335-77-3	Perflue	orodecan	esulfonic acid	ND	1.8	0.89	ng/l							
DEDELUO	DOOCT	ANECU		R										
<b>TEKTLUU</b>	DEOC	AN <b>E</b> SUI V	LFUNAMID	LO ND	26	10	n a /1							
/ 34-91-0	PFUS/	1		ND	3.0	1.8	ng/1							
PERFLUO	ROOCT	ANESU	LFONAMID	OACETIC .	ACIDS									
2355-31-9	MeFO	SAA		ND	3.6	1.8	ng/l							
2991-50-6	EtFOS	AA		ND	3.6	1.8	ng/l							
FLUOROT	ELOMI	ER SULF	ONATES											
757124-72-4	4 4:2 Fh	orotelon	her sulfonate	ND	7.1	1.8	ng/l							
27619-97-2	6:2 Flu	orotelon	ner sulfonate	164	7.1	1.8	ng/l							
							0							

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2



Client Sample ID:SB21-03 (30-34)GWLab Sample ID:FA85196-9Matrix:AQ - Ground WaterMethod:EPA 537M BY ID EProject:Pellston Airport, MI			PA 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	04/29/21 05/01/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	280	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l		
756426-58-1	56426-58-1 9Cl-PF3ONS (F-53B Major)			7.1	1.8	ng/l		
763051-92-9 11Cl-PF3OUdS (F-53B Minor			) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	81%		35-1	35%		
	13C5-	PFPeA	81%		50-1	50%		
	13C5-	PFHxA	82%		50-1	50%		
	13C4-	PFHpA	85%		50-1	50%		
	13C8-	PFOA	84%		50-1	50%		
	13C9-	PFNA	86%		50-1	50%		
	13C6-	PFDA	92%		50-1	50%		
	13C7-	PFUnDA	87%		40-1	40%		
	13C2-	PFDoDA	76%		40-1	40%		
	13C2-	PFTeDA	69%		30-1	30%		
	13C3-	PFBS	81%		50-1	50%		
	13C3-	PFHxS	81%		50-1	50%		
	13C8-	PFOS	82%		50-1	50%		
	13C8-	FOSA	93%		30-1	30%		
	d3-Me	FOSAA	92%		40-1	40%		
	d5-EtH	FOSAA	99%		40-1	40%		
	13C2-	4:2FTS	78%		50-1	50%		
	13C2-	6:2FTS	90%		50-1	50%		
	13C2-	8:2FTS	101%		50-1	50%		

78%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.9

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Report	of	Analysis
ICPUIC	UI.	1 <b>11</b> (1) <b>1</b> (1)

Client Sample ID:SB21-03 (51-55)GWLab Sample ID:FA85196-10Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI					Date Sampled:04/29/21Date Received:05/01/21Percent Solids:n/a						
Run #1 Run #2	<b>File ID</b> 3Q38015.D	<b>DF</b> 1	<b>Analyzed</b> 05/17/21 17:	<b>By</b> :50 NG	<b>Prep D</b> 05/11/2	<b>)ate</b> 21 11:00	<b>Prep Batch</b> OP85344	Analytical Batch S3Q560			
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	ne								
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCA	RBOXYLIC A	ACIDS								
375-22-4	Perfluorobutar	noic acid	7.6	3.6	1.8	ng/l					
2706-90-3	Perfluoropenta	anoic acid	10.9	1.8	0.89	ng/l					
307-24-4	Perfluorohexa	noic acid	11.7	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	anoic acid	6.0	1.8	0.89	ng/l					
335-67-1	Perfluorooctar	noic acid	9.8	1.8	0.89	ng/l					
375-95-1	Perfluoronona	noic acid	0.95	1.8	0.89	ng/l	J				
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALKYLSUI	LFONIC ACI	DS								
375-73-5	Perfluorobutar	nesulfonic acid	13.5	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	anesulfonic aci	d 17.7	1.8	0.89	ng/l					
355-46-4	Perfluorohexa	nesulfonic acid	1 100	1.8	0.89	ng/l					
375-92-8	Perfluorohepta	anesulfonic aci	d 3.9	1.8	0.89	ng/l					
1763-23-1	Perfluorooctar	nesulfonic acid	69.1	1.8	0.89	ng/l					
68259-12-1	Perfluoronona	nesulfonic acid	l ND	1.8	0.89	ng/l					
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROOCTANESU	JLFONAMID	ES								
754-91-6	PFOSA		ND	3.6	1.8	ng/l					
PERFLUO	ROOCTANESU	JLFONAMID	OACETIC	ACIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOMER SUL	FONATES									
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fluorotelo	mer sulfonate	22.1	7.1	1.8	ng/l					
						-					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 2

SGS

Client Sample ID:SB21-03 (51-55)GWLab Sample ID:FA85196-10Matrix:AQ - Ground WaterMethod:EPA 537M BY ID EProject:Pellston Airport, MI			PA 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	04/29/21 05/01/21 n/a	
CAS No.	Comp	ound	Result	RL	MDL	Units	Q		
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l			
NEXT GEN	ERAT	ION PFAS ANALYTES	5						
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l			
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l			
756426-58-1	426-58-1 9Cl-PF3ONS (F-53B Major)			7.1	1.8	ng/l			
763051-92-9 11Cl-PF3OUdS (F-53B Minor			) ND	7.1	1.8	ng/l			
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	Lim	its			
	13C4-	PFBA	66%		35-1	35%			
	13C5-	PFPeA	67%		50-1	50%			
	13C5-	PFHxA	66%		50-1	50%			
	13C4-	PFHpA	70%						
	13C8-	PFOA	72%		50-1	50%			
	13C9-	PFNA	72%		50-150%				
	13C6-	PFDA	75%						
	13C7-	PFUnDA	71%		40-1				
	13C2-	PFDoDA	66%		40-1	40%			
	13C2-	PFTeDA	62%		30-1	30%			
	13C3-	PFBS	66%		50-1	50%			
	13C3-	PFHxS	65%		50-1	50%			
	13C8-	PFOS	67%		50-1	50%			
	13C8-	FOSA	78%		30-1	30%			
	d3-Me	FOSAA	77%		40-1	40%			
	d5-EtF	FOSAA	80%		40-1	40%			
	13C2-	4:2FTS	65%		50-1	50%			
	13C2-	6:2FTS	70%		50-1	50%			
	13C2-6:2F1S 13C2-8:2FTS				50-1	50%			

61%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report o	f Ana	lysis
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Client Sample ID:SB21-03 (61-65)GWLab Sample ID:FA85196-11Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI					Date Sampled:04/30/21Date Received:05/01/21Percent Solids:n/a						
Run #1 Run #2	<b>File ID</b> 3Q38016.D	<b>DF</b> 1	<b>Analyzed</b> 05/17/21 18:	<b>By</b> 06 NG	<b>Prep D</b> 05/11/2	<b>Pate</b> 21 11:00	Prep Batch OP85344	Analytical Batch S3Q560			
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me								
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCA	RBOXYLIC A	ACIDS								
375-22-4	Perfluorobutar	noic acid	6.2	3.6	1.8	ng/l					
2706-90-3	Perfluoropenta	anoic acid	10.4	1.8	0.89	ng/l					
307-24-4	Perfluorohexa	noic acid	10.7	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	anoic acid	5.3	1.8	0.89	ng/l					
335-67-1	Perfluorooctar	noic acid	8.2	1.8	0.89	ng/l					
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l					
335-76-2	Perfluorodecar	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALKYLSUI	LFONIC ACI	DS								
375-73-5	Perfluorobutar	nesulfonic acid	7.1	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	anesulfonic aci	d 11.7	1.8	0.89	ng/l					
355-46-4	Perfluorohexa	nesulfonic acid	1 70.9	1.8	0.89	ng/l					
375-92-8	Perfluorohepta	anesulfonic aci	d 4.1	1.8	0.89	ng/l					
1763-23-1	Perfluorooctar	nesulfonic acid	67.1	1.8	0.89	ng/l					
68259-12-1	Perfluoronona	nesulfonic acid	i ND	1.8	0.89	ng/l					
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROOCTANESU	JLFONAMID	ES								
754-91-6	PFOSA		ND	3.6	1.8	ng/l					
PERFLUO	ROOCTANESU	JLFONAMID	OACETIC	ACIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOMER SUL	FONATES									
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fluorotelo	mer sulfonate	26.3	7.1	1.8	ng/l					
						-					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 2

SGS

Client Sample ID:SB21-03 (61-65)GWLab Sample ID:FA85196-11Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI		PA 537 MOI	D		Date Date Perce	Date Sampled:04/30Date Received:05/01Percent Solids:n/a		
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l		
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9 11Cl-PF3OUdS (F-53B Minor)		) ND	7.1	1.8	ng/l			
CAS No.	o. ID Standard Recoveries		Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	77%		35-1	35%		
	13C5-	PFPeA	77%		50-1			
	13C5-	PFHxA	77%		50-1	50%		
	13C4-	PFHpA	81%		50-1	50%		
	13C8-	PFOA	83%		50-1			
	13C9-	PFNA	83%		50-1			
	13C6-	PFDA	85%		50-1			
	13C7-	PFUnDA	80%		40-1			
	13C2-	PFDoDA	72%		40-1	40%		
	13C2-	PFTeDA	69%		30-1	30%		
	13C3-	PFBS	76%		50-1	50%		
	13C3-	PFHxS	76%		50-1	50%		
	13C8-	PFOS	76%		50-1	50%		
	13C8-	FOSA	88%		30-1	30%		
	d3-Me	FOSAA	88%		40-1	40%		
	d5-EtH	FOSAA	88%		40-1	40%		
	13C2-	4:2FTS	75%		50-1	50%		
	13C2-	6:2FTS	81%		50-1	50%		
	81%		50-1	50%				

71%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound





Report o	f Ana	lysis
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Client Samj Lab Sample Matrix: Method: Project:	ple ID: SB21-0 e ID: FA8519 AQ - G EPA 53 Pellstor	EPA 537 MO	D	Date Sampled:04/30/21Date Received:05/01/21Percent Solids:n/a					
D //1	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch	
Run #1 Run #2	3Q38017.D	1	05/17/21 18:	23 NG	05/11/2	21 11:00	OP85344	\$3Q560	
	Initial Volume	Final Volu	ne						
Run #1 Run #2	280 ml	1.0 ml							
CAS No.	Compound		Result	RL	MDL	Units	Q		
PERFLUO	ROALKYLCAI	RBOXYLIC A	ACIDS						
375-22-4	Perfluorobutan	oic acid	2.4	3.6	1.8	ng/l	J		
2706-90-3	Perfluoropenta	noic acid	2.6	1.8	0.89	ng/l			
307-24-4	Perfluorohexa	noic acid	2.4	1.8	0.89	ng/l			
375-85-9	Perfluorohepta	noic acid	1.5	1.8	0.89	ng/l	J		
335-67-1	Perfluorooctan	oic acid	2.6	1.8	0.89	ng/l			
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l			
335-76-2	Perfluorodecar	noic acid	ND	1.8	0.89	ng/l			
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l			
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l			
72629-94-8	Perfluorotrideo	canoic acid	ND	1.8	0.89	ng/l			
376-06-7	Perfluorotetrac	lecanoic acid	ND	1.8	0.89	ng/l			
PERFLUO	ROALKYLSUL	FONIC ACI	DS						
375-73-5	Perfluorobutan	esulfonic acid	2.5	1.8	0.89	ng/l			
2706-91-4	Perfluoropenta	nesulfonic aci	d 3.1	1.8	0.89	ng/l			
355-46-4	Perfluorohexa	nesulfonic acid	14.3	1.8	0.89	ng/l			
375-92-8	Perfluorohepta	nesulfonic aci	d ND	1.8	0.89	ng/l			
1763-23-1	Perfluorooctan	esulfonic acid	15.2	1.8	0.89	ng/l			
68259-12-1	Perfluoronona	nesulfonic acid	l ND	1.8	0.89	ng/l			
335-77-3	Perfluorodecar	nesulfonic acid	ND	1.8	0.89	ng/l			
PERFLUO	ROOCTANESU	JLFONAMID	ES						
754-91-6	PFOSA		ND	3.6	1.8	ng/l			
PERFLUO	ROOCTANESU	JLFONAMID	OACETIC A	ACIDS					
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l			
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l			
FLUOROT	ELOMER SUL	FONATES							
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l			
27619-97-2	6:2 Fluorotelo	mer sulfonate	4.3	7.1	1.8	ng/l	J		
						C			

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.12 4

Client Sample ID:SB21-03 (81-85)GWLab Sample ID:FA85196-12Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI		PA 537 MO	D		Date Date Perce	Sampled: Received: ent Solids:	04/30/21 05/01/21 n/a			
CAS No.	Comp	ound	Result	RL	MDL	Units	Q			
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l				
NEXT GEN	ERAT	ION PFAS ANALYTES	5							
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l				
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l				
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l				
763051-92-9 11Cl-PF3OUdS (F-53B Minor)		) ND	7.1	1.8	ng/l					
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	mits				
	13C4-	PFBA	82%		35-1	35%				
	13C5-	PFPeA	82%		50-1	50%				
	13C5-	PFHxA	83%		50-1	50%				
	13C4-	PFHpA	87%		50-1	50%				
	13C8-	PFOA	89%		50-1	50%				
	13C9-	PFNA	88%		50-1	50%				
	13C6-	PFDA	89%		50-1	50%				
	13C7-	PFUnDA	83%		40-1	40%				
	13C2-	PFDoDA	75%		40-1					
	13C2-	PFTeDA	70%		30-1	30%				
	13C3-	PFBS	82%		50-1	50%				
	13C3-	PFHxS	82%		50-1	50%				
	13C8-	PFOS	80%		50-1	50%				
	13C8-	FOSA	91%		30-1	30%				
	d3-Me	FOSAA	89%		40-1	40%				
	d5-EtH	FOSAA	88%		40-1	40%				
	13C2-	4:2FTS	81%		50-1	50%				
	13C2-	6:2FTS	82%		50-1	50%				
13C2-8:2FTS			82%		50-1	50%				

76%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound



Report	of	Analysis	
<b>M</b> CPUIT	<b>UI</b>	<b>1 1 1 1 1 1 1 1 1 1</b>	

Client Samj Lab Sample Matrix: Method: Project:	ple ID: FIELD BLANK 01 P ID: FA85196-13 AQ - Field Blank Wate EPA 537M BY ID El Pellston Airport, MI	er PA 537 MOD		Date Sampled:04/30/21Date Received:05/01/21Percent Solids:n/a					
Run #1 Run #2	File ID         DF         A           3Q37974.D         1         0.	<b>nalyzed</b> 5/15/21 04:39	<b>By</b> NG	<b>Prep Da</b> 05/11/22	nte   11:00	<b>Prep Batch</b> OP85344	Analytical Batch S3Q559		
Run #1 Run #2	Initial VolumeFinal Volume280 ml1.0 ml	e							
CAS No.	Compound	Result	RL	MDL	Units	Q			
PERFLUO	ROALKYLCARBOXYLIC A	CIDS							
375-22-4	Perfluorobutanoic acid	ND	3.6	1.8	ng/l				
2706-90-3	Perfluoropentanoic acid	ND	1.8	0.89	ng/l				
307-24-4	Perfluorohexanoic acid	ND	1.8	0.89	ng/l				
375-85-9	Perfluoroheptanoic acid	ND	1.8	0.89	ng/l				
335-67-1	Perfluorooctanoic acid	ND	1.8	0.89	ng/l				
375-95-1	Perfluorononanoic acid	ND	1.8	0.89	ng/l				
335-76-2	Perfluorodecanoic acid	ND	1.8	0.89	ng/l				
2058-94-8	Perfluoroundecanoic acid	ND	1.8	0.89	ng/l				
307-55-1	Perfluorododecanoic acid	ND	1.8	0.89	ng/l				
72629-94-8	Perfluorotridecanoic acid	ND	1.8	0.89	ng/l				
376-06-7	Perfluorotetradecanoic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROALKYLSULFONIC ACID	S							
375-73-5	Perfluorobutanesulfonic acid	ND	1.8	0.89	ng/l				
2706-91-4	Perfluoropentanesulfonic acid	ND	1.8	0.89	ng/l				
355-46-4	Perfluorohexanesulfonic acid	ND	1.8	0.89	ng/l				
375-92-8	Perfluoroheptanesulfonic acid	ND	1.8	0.89	ng/l				
1763-23-1	Perfluorooctanesulfonic acid	ND	1.8	0.89	ng/l				
68259-12-1	Perfluorononanesulfonic acid	ND	1.8	0.89	ng/l				
335-77-3	Perfluorodecanesulfonic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROOCTANESULEONAMIDE	S							
754-91-6	PFOSA	ND	3.6	1.8	ng/l				
DEDELUCY			IDC						
<b>PERFLUO</b>	KUUUTANESULFUNAMIDU Maeoga a	ND	2 C	1.0	m c /1				
2001 50 6		ND	3.0 2.6	1.8	ng/1				
2991-30-0	ΕιΓυδΑΑ	ND	3.0	1.8	ng/1				
FLUOROT	ELOMER SULFONATES								
757124-72-4	4:2 Fluorotelomer sulfonate	ND	7.1	1.8	ng/l				
27619-97-2	6:2 Fluorotelomer sulfonate	ND	7.1	1.8	ng/l				

ND = Not detected MDL = Method Detection Limit

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E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.13 4

Client Sample ID:FIELD BLANK 01Lab Sample ID:FA85196-13Matrix:AQ - Field Blank WateMethod:EPA 537M BY ID E1Project:Pellston Airport, MI		r PA 537 MOD			Date Date Perc	Sampled: Received: ent Solids:	04/30/21 05/01/21 n/a		
CAS No.	Comp	oound	Result	RL	MDL	Units	Q		
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l			
NEXT GEN	ERAT	ION PFAS ANALYTES	3						
13252-13-6	HFPO	D-DA (GenX)	ND	3.6	18	no/l			
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l			
756426-58-1	9CI-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l			
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l			
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its			
	13C4-	PFBA	102%		35-1	35%			
	13C5-	PFPeA	101%		50-1	50%			
	13C5-	PFHxA	102%		50-1	50%			
	13C4-	PFHpA	104%		50-1	50%			
	13C8-	PFOA	103%		50-1				
	13C9-	PFNA	99%		50-150%				
	13C6-	PFDA	98%		50-1	50%			
	13C7-	PFUnDA	97%		40-1				
	13C2-	PFDoDA	98%		40-1				
	13C2-	PFTeDA	104%		30-1				
	13C3-	PFBS	100%		50-1	50%			
	13C3-	PFHxS	97%		50-1	50%			
	13C8-	PFOS	86%		50-1	50%			
	13C8-	FOSA	104%		30-1	30%			
	d3-MeFOSAA d5-EtFOSAA		101%		40-1	40%			
			111%		40-1	40%			
	13C2-	4:2FTS	98%		50-1	50%			
	13C2-	6:2FTS	86%		50-1	50%			
	13C2-	8:2FTS	91%		50-1	50%			
13C3-HFPO-DA			94%		50-1	50%			

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound






Misc. Forms

Orlando, FL

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody



## **Parameter Certification Exceptions**

Job Number:	FA85196
Account:	LIMNMIAA LimnoTech
Project:	Pellston Airport, MI

The following parameters included in this report are exceptions to NELAC certification. The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
4:2 Fluorotelomer sulfonate	757124-72-4	EPA 537M BY ID	AQ	Certified by SOP MS014
6:2 Fluorotelomer sulfonate	27619-97-2	EPA 537M BY ID	AQ	Certified by SOP MS014
8:2 Fluorotelomer sulfonate	39108-34-4	EPA 537M BY ID	AQ	Certified by SOP MS014
ADONA	919005-14-4	EPA 537M BY ID	AQ	Certified by SOP MS014
11Cl-PF3OUdS (F-53B Minor)	763051-92-9	EPA 537M BY ID	AQ	Certified by SOP MS014
9Cl-PF3ONS (F-53B Major)	756426-58-1	EPA 537M BY ID	AQ	Certified by SOP MS014
EtFOSAA	2991-50-6	EPA 537M BY ID	AQ	Certified by SOP MS014
HFPO-DA (GenX)	13252-13-6	EPA 537M BY ID	AQ	Certified by SOP MS014
MeFOSAA	2355-31-9	EPA 537M BY ID	AQ	Certified by SOP MS014
PFOSA	754-91-6	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorobutanoic acid	375-22-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorodecanesulfonic acid	335-77-3	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroheptanesulfonic acid	375-92-8	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorononanesulfonic acid	68259-12-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorooctanesulfonic acid	1763-23-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorooctanoic acid	335-67-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoropentanesulfonic acid	2706-91-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoropentanoic acid	2706-90-3	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	EPA 537M BY ID	AQ	Certified by SOP MS014

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FA85196

Client / Reporting Information         Project Information         Analytical Information         Matrix of the second s					TEL_40	7-425-67	00 FAX:	407-42	25-07	707				[	SGS - OF	RLAND	O Qu	ote #		SKIFF	#		
Ompary Name:         Link No TE CA         Project Name:           Street:	11.1	Client / Reporting Information		-	-	Proje	ct Infor	mati	ion								An	alytic	al Inf	ormatie	on		Matrix Code
iddress:       SDL Aus DRIVE       Street       GW-Ans Area	ompany I	lame: LIMNOTECH		Project N	ame:									100			111	1				11	Water
DV:         Attack         State:         MI         Zip:         4800         City         State         Wit: W         <	dress:	5DI AUS DRIVE		Street																			GW - Ground Water
Open Content's Cort Bell         Email:         Sol (I/d)         Project # PLN PFAS (PhASE & TANEXIG Phase)         Sol (Sol (Phase & TANEXIG Phase)         Sol (Phase & TANEXIG Phase & TANEXIG Phase)         Sol (Phase & TANEXIG Phase)         Sol (Phase & TANEXIG Phase & T	ty: An	NARROR State: MI Zip: 48	108	City				-	-	Sta	ite	-		-									WW - Water
32011       Dettaction       Specified inplusion       Fax#       Sole-Staction       Sole-Staction <td< td=""><td>oject Co</td><td>ntact: Sect Regi Email: 1.101</td><td></td><td>Project #</td><td>01110</td><td>TAS</td><td>1944.51</td><td></td><td>111</td><td>LICKY</td><td>21</td><td>A.474</td><td>1100</td><td>-</td><td>38</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Water</td></td<>	oject Co	ntact: Sect Regi Email: 1.101		Project #	01110	TAS	1944.51		111	LICKY	21	A.474	1100	-	38								Water
C (73.4)       3.3.21/2.00       Client Purchase Order #       Client Purch	none #:	Scoll Bear Speller lim	no, com	Fax #	PLN PLAS (PHIBSE 2 LOVER IGHTION)						-	OF								SO - Soil SL- Sludge			
ampler 1:       Clear Turnerson Order #       If and any service of the servi	(	734) 332-1200		Olivert Du							-	12								OI - Oil			
SGS Diando mappe #         COLLECTION         COLLECTION         COLLECTION         COLLECTION         SQL_Collection	ampler(s ampler 1	BLEHA Sampler 2:		Client Pu	rcnase U	raer #									Ë								AIR - Air
3000 ample#         Field ID / Point of Collection         Date         Take         Stress         Stres         Stres         Stress </td <td>000</td> <td>A 1.00</td> <td>-</td> <td>COLLECTION</td> <td></td> <td>-</td> <td></td> <td></td> <td>NERI</td> <td>NFORM</td> <td>ATION</td> <td>T</td> <td>3 ~</td> <td>F</td> <td>S</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOL - Other Sol</td>	000	A 1.00	-	COLLECTION		-			NERI	NFORM	ATION	T	3 ~	F	S								SOL - Other Sol
ample #       Field 10 / Point of Collection       Date       Two       Two <td>SGS Driando</td> <td></td> <td></td> <td></td> <td>SAMPLED</td> <td></td> <td>TOTAL #</td> <td>Ψ</td> <td>ų</td> <td>Ŧ</td> <td>8</td> <td>5</td> <td>VATEF</td> <td>ы</td> <td>A-L</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	SGS Driando				SAMPLED		TOTAL #	Ψ	ų	Ŧ	8	5	VATEF	ы	A-L								
1       DUP-GW-A       H[28]AI       —       LTI       GW       X	ample #	Field ID / Point of Collection	DATE	TIME	BY:	MATRIX	BOTTLES	E G	2 9	Na(	ŶŦ	H28	AN LID	- W			-	-		-	_	-	LAB USE ONLY
2       DOV- 26/25       IV/21/24       IV/21/24       X </td <td>1</td> <td>DUP-GW-A</td> <td>4/28/21</td> <td>_</td> <td>171</td> <td>GW</td> <td>x</td> <td>H</td> <td>X</td> <td>-</td> <td></td> <td>+</td> <td>+</td> <td>+</td> <td>X</td> <td></td> <td>-</td> <td>-</td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td></td>	1	DUP-GW-A	4/28/21	_	171	GW	x	H	X	-		+	+	+	X		-	-		-	-	-	
> MICLO - OL       MILT/AL 1510       D11       GW       A	2	DOP-GW-B	4/27/21	1510	LIC	GW	1			-		-		+	×	-	-	-			-	-	-
7       MOJO - OA       IT/I/I       1025       CIT       GW       A       A       INTRU. SSE SWE W         5       MOJO - O3       H/JA/JA       OQ D       LT       GW       A       X       INTRU. SSE SWE W         7       MOJO - O3       H/JA/JA       IOQ D       LT       GW       A       X       INTRU. SSE SWE W         7       MOJO - O3       H/JA/JA       IQ D       CT       GW       A       X       INTRU. SSE SWE W         7       MOJO - O3       H/JA/JA       IQ D       LT       GW       A       X       INTRU. SSE SWE W         7       MOJO - O3       H/JA/JA       IQ D       LT       GW       A       X       INTRU. SSE SWE W       INTRU. SSE SWE W         7       MOJO - O3       H/JA/JA       IQ D       LT       GW       A       X       INTRU. SSE SWE W       INTRU W       INTRU. SSE SWE W	2	MW20-81	UI1TIN	1.510	171	Gul	1	Hť,	$\frac{1}{\sqrt{2}}$	-		+	+	H	<del>\$</del>		-				+	1	
0       M(U) 20 - 03       1/10/14       0/1/2       1/10/14	-2-	MW20-02	4/28/21	0910	Liti	Gul	2	H.	X			-	-	++	X	-		NITTAL	100m		X	X	
1       1	1	MI 120-04	41.28/21	1055	LTI	GNU	2		X					+	X		-	ABEL	VERIF	GATION	108	TA	
2       SDURCE WATER A       4/38/al       14/40       LTI       GW       2       X	1	MW20-05	4/28/21	1205	LTI	GW	2		x					Ħ	X						-	7	
1       SBA1-03 (30-34) CAW       4/a/a1       1420       LT1       GW       2       X       <	8	SOURCE WATER A	4/28/21	1420	LTI	GW	2		X					T	X								
(U       SB 21-03 (S1-SS) GW       4/3×1/4       17L5       LT1       GW       2       X	à	5B21-03 (30-34) GW	4/29/21	1420	LTI	GW	2		X						X					1			1
Image: Signed state of the	10	5821-03 (57-55) GW	4/29/21	1715	LTI	GW	2		X						X		1			1			
Image: Constraint of the second se	1	SB21-03(61-65)GW	4/30/21	1010	471	GW	2		x						×		N.					1	1
Turnaround Time (Business days)       Data Deliverable Information       Comments / Remarks         (10 Day (Business)       Approved By: / Date:       COMMERCIAL "A" (RESULTS ONLY)	12	5B21-03 (81-85) GW	4/30/21	1245	LTI	GW	2		×						X								1.
(10 Day (Business)       Approved By: / Date:       COMMERCIAL "A" (RESULTS ONLY)         7 Day       COMMERCIAL "B" (RESULTS PLUS QC)         5 Day       REDT1 (EPA LEVEL 3)         3 Day RUSH       FULLT1 (EPA LEVEL 4)         0 ther       EDD'S         0 ther       Sample Custody must be documented below each time samples change possession, including courier delivery.         Relinguished by Sampler/Affiliation       Date Time:         Received By/Affiliation       Pate Time:         4       WHAT	-	Turnaround Time (Business days)		14		Da	ata Deliv	verat	ble	Infor	mat	tion						1	Cor	nment	s / Rem	arks	
7 Day     COMMERCIAL B (RESULTS FLOS GC)       5 Day     REDTI (EPA LEVEL 3)       3 Day RUSH     FULLT1 (EPA LEVEL 3)       1 Day RUSH     EDD'S       Other     EDD'S       Relinquished by Sampler (Affiliation     Date Time:       Ymmu     U KKOS (ECH       1 Day RUSH     Image: Custody must be documented below each time samples change possession, including courier delivery.       Relinquished by Sampler (Affiliation     Date Time:       Ymmu     U KKOS (ECH       U KKOS (ECH     U KKOS (ECH	(	10 Day (Business) Approved	I By: / Date:			MMERC	AL "A"	(RESI		S ONI	LY)	~											
3 Day RUSH		7 Day				MMERC		(RESU   3)	ULI	5 PLU	15 Q	0)					_			_			
2 Day RUSH     EDD'S       1 Day RUSH     EDD'S       Other     Sample Custody must be documented below each time samples change possession, including courier delivery.       Relinquished by Sampler/Affiliation     Date Time:       With UL WL05 ECH     U 3 FX       With UL WL05 ECH     2		3 Day RUSH				LT1 (E	PALEVE	L 4)															
1 Day RUSH Other Rush T/A Data Available VIA Email or Lablink Relinguished by Sampler/Affiliation THUL U 4005 ECH 1/3 0/2 Received By/Affiliation THUL U 4005 ECH 1/3 0/2 Received By/Affiliation THUL U 4005 ECH 1/3 0/2 A THUR AND TH		2 Day RUSH				o's		,															
Other Rush T/A Data Available VIA Email or Lablink         Analysis         Relinguished below each time samples change possession, including courier delivery.           Relinguished by Sampler/Affiliation         Date Time: 1/3/2         Received By/Affiliation         Relinguished By/Affiliation         Date Time: 1/3/2         Received By/Affiliation           TML         U MOS FECH         1/3/2         Received By/Affiliation         Date Time: 1/3/2         Received By/Affiliation		1 Day RUSH																_					
Rusin I/A Data Available VIA Email of Labilink       Sample Custody must be documented below each time samples change possession, including courier delivery.       Relinquished by Sampler/Affiliation       Provide By/Affiliation     Date Time: 1/3/2/2       Received By/Affiliation       Provide By/Affiliation     Date Time: 1/3/2/2       Received By/Affiliation       Provide By/Affiliation     Date Time: 1/3/2/2       Affiliation       Provide By/Affiliation     Date Time: 1/3/2/2       Received By/Affiliation       Provide By/Affiliation     Date Time: 1/3/2/2       Provide By/Affiliation     Date Time: 1/3/2/2		Other																					
Relinguished by Sampler/Affiliation Date Time: Received By/Affiliation FX Belinquished By/Affiliation Belinquished By/Affiliation Date Time: Received By/Affiliation FX Belinquished By/Affiliation Belinquished By/Affiliatio	11.00	Rush 1/A Data Available VIA Email or Lab San	nple Custod	y must be	documer	nted be	low each	time	sam	nples	char	nge p	osse	ssion	, including	courier	delive	ry.				-	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Relinquis	shed by Sampler/Affiliation Date Time: Re	ceived By/A	ffiliation	FX				R	Relinq	uish	ed B	y/Affil	liation	1		맫	Time	:	Receive	By/Aff	liation	1
Relinquished by/Affiliation Date Time: Received By/Affiliation Relinquished By/Affiliation	111	1630 2			11		_	-	3	Poling	uich	od P		liatio			1	1101		4 /	UNIT NOT	liatio	1

FA85196: Chain of Custody Page 1 of 3

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	000			4	405 Vinela TEL. 40	nd Road, 17-425-67	Suite C-15 00 FAX:	0rlar 407-4	ndo, Fl 425-07	32811 07				S	GS - ORLA	ANDO	Quote	#	SKIFF #		
1. 11	Client / Reporting	Information		1		Proje	ct Info	rmat	ion	1		_				-	Analyt	ical Ir	formation		Matrix Code
Company	Name: LIMNOTECH	-		Project N	ame:																DW - Drinking Water
ddress:	501 Avis DRIVE			Street	1																GW - Ground Water
ity: A	VN ARBOR State:	MI Zip:	48108	City						Stat	e			1							WW - Water
Project Co	Scott Berl	Email: chella	limas.com	Project #	PLN PEAS/PHASE & THURSTIGHTAN						110		8						Water		
hone #:	(734) 337 - 1000	Spont	In the Cort	Fax #	#							-12	0						SO - Soil SL- Sludge		
Sampler(s	s) Name(s) (Printed)			Client Pu	Purchase Order #						-	_	-1	5						OI - Oil	
Sampler 1	: BLEHA Sample	r 2:	_	COLLECTION	-	-	_	CONTA	INFR IN	FORMA	TION		-		2						AIR - Air
SGS							TOTAL					ZNIA	Ш.		윈						SOL - Other Sol
Orlando Sample #	Field ID / Poin	t of Collection	DATE	TIME	SAMPLED BY:	MATRIX	OF BOTTLES	DTHER	ICI ICI	HOP	IN03	12S04	DI WAT		ž	1.1					
13	FIELD BLANK 01	-	4/30/21	1320	LTI	WW	2		×					X							
				12 1		1															
				1.00											-						
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						-		+	-	+	+	+		-		-	-	-			-
1.1							-		-		+			-		-	-	+			
12.5										H	-							1			1
	Turnaround Time	( Business da	ys)			Da	ta Deli	veral	ble l	nforr	nati	ion				-		Co	omments /	Remark	s
(	10 Day (Business)	App	proved By: / Date:		CON	MERC	IAL "A"	(RES	ULTS	ONL	Y)										
	7 Day					IMERC	IAL "B"	(RES	ULTS	PLUS	s QC	;)			-						
	3 Day RUSH					) 1 (EF		L3)							1.1						
	2 Day RUSH					)'S	ALEVE	L 4)								-	-	-			
	1 Day RUSH																				
	Other	_																			
	Rush T/A Data Avai	lable VIA Email o	r Lablink Sample Custod	y must be	documen	ited bel	ow each	time	sam	ples c	hand	ge po	ssessi	on, ir	cluding cou	urier de	livery.				
Relinquis	LIMNOTECH	Date Time: 4/30/2( 1630	Received By/A	ffiliation	FX	-			Re 3	əlinqu	ishe	d By/	Affiliati	ion X			Date Tim	er	Received E	ty/Affiliatic	in
	had by/Affiliation	Date Time:	Dessived Dull	Gille fless	- 1	-			De	lineur		1.0.4	A 66111 - 41	1			Dede Tim	-	Destinati	Affiliatio	

FA85196: Chain of Custody Page 2 of 3

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#### SGS Sample Receipt Summary

Job Number: FA85196			Client: LIMNOTECH			Project: PLN PFAS						
ate / Time Received: 5/1/2	021 9:4	0:00 AN	I	Deliver	y Method: FX	Airbill #'s:						
Therm ID: IR 1;				Therm	nerm CF: -1.8; # of Coolers: 1							
Cooler Temps (Raw Meas	ured) °(	C: Coo	ler 1: (2	2.2);								
Cooler Temps (Corre	cted) °(	C: Coo	ler 1: ((	).4);								
Cooler Information	<u> </u>	or or	N		Sample Information		Y or	r N	N/A			
1. Custody Seals Present					1. Sample labels presen	t on bottles						
2. Custody Seals Intact					2. Samples preserved p	roperly						
3. Temp criteria achieved					3. Sufficient volume/con	tainers recvd for analysis:						
4. Cooler temp verification	<u> </u> [	<u>R Gun</u>			4. Condition of sample		Intact					
5. Cooler media	lc	:e (Bag)			5. Sample recvd within I	ΗT	$\checkmark$					
					6. Dates/Times/IDs on 0	COC match Sample Label	$\checkmark$					
rip Blank Information	<u>Y</u>	or	N	N/A	7. VOCs have headspace	ce						
1. Trip Blank present / cooler	C			$\checkmark$	8. Bottles received for u	nspecified tests		<b>~</b>				
2. Trip Blank listed on COC	Г	7		$\checkmark$	9. Compositing instruction	ons clear						
			_		10. Voa Soil Kits/Jars re	ceived past 48hrs?						
		v or	5	<u>N/A</u>	11. % Solids Jar receive	ed?						
3. Type Of TB Received	E				12. Residual Chlorine P	resent?			$\checkmark$			
Misc. Information												
Number of Encores: 25-G	Gram		5-Grar	n	Number of 5035 Field Kits:	Number of L	ab Filtered I	Metals:				
Test Strip Lot #s:	pH C	)-3	230	315	pH 10-12 219813A	Other: (Spe	cify)	-				
Residual Chlorine Test Strip	Lot #:											
Comments												
M001 - · ·				_								
lev. Date 05/24/17 Techni	ician: <u>P</u>	EFERH		Date	: <u>5/1/2021 9:40:00 AM</u>	Reviewer:		Date:				

FA85196: Chain of Custody Page 3 of 3



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**Section 6** 

MS Semi-volatiles

**Orlando, FL** 

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

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The QC reported here applies to the following samples:

Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85344-MB	<b>File ID</b> 3Q37972.D	<b>DF</b> 1	<b>Analyzed</b> 05/15/21	<b>By</b> NG	<b>Prep Date</b> 05/11/21	Prep Batch OP85344	<b>Analytical Batch</b> S3Q559
The QC repor	ted here applies to	o the follo	wing samples:		]	Method: EPA 5	37M BY ID

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0020	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0020	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0020	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	98%	35-135%
13C5-PFPeA	98%	50-150%
13C5-PFHxA	99%	50-150%
13C4-PFHpA	101%	50-150%

Limits



6.1.1 6

Page 1 of 2

Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85344-MB	<b>File ID</b> 3Q37972.D	<b>DF</b> 1	<b>Analyzed</b> 05/15/21	<b>By</b> NG	<b>Prep Date</b> 05/11/21	<b>Prep Batch</b> OP85344	<b>Analytical Batch</b> S3Q559
The QC repor	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M BY ID

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

CAS No.	ID Standard Recoveries	Limits		
	13C8-PFOA	99%	50-150%	
	13C9-PFNA	97%	50-150%	
	13C6-PFDA	95%	50-150%	
	13C7-PFUnDA	89%	40-140%	
	13C2-PFDoDA	87%	40-140%	
	13C2-PFTeDA	85%	30-130%	
	13C3-PFBS	96%	50-150%	
	13C3-PFHxS	93%	50-150%	
	13C8-PFOS	87%	50-150%	
	13C8-FOSA	96%	30-130%	
	d3-MeFOSAA	93%	40-140%	
	d5-EtFOSAA	97%	40-140%	
	13C2-4:2FTS	95%	50-150%	
	13C2-6:2FTS	84%	50-150%	
	13C2-8:2FTS	86%	50-150%	
	13C3-HFPO-DA	90%	50-150%	



Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85474-MB	<b>File ID</b> 3Q38325.D	<b>DF</b> 1	<b>Analyzed</b> 05/22/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	<b>Prep Batch</b> OP85474	Analytical Batch S3Q563
The QC repor	ted here applies to	o the follo		Method: EPA 5	37M BY ID		

FA85196-8

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0020	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0020	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0020	ug/l	
757124-72-4	44:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	100%	35-135%
13C5-PFPeA	100%	50-150%
13C5-PFHxA	101%	50-150%
13C4-PFHpA	101%	50-150%

Limits



6.1.2 **6** 

Page 1 of 2

Job Number:	PA85196							
Account:	LIMNMIAA LimnoTech							
Project:	Pellston Airport, MI							
Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b> 05/19/21	<b>Prep Batch</b>	Analytical Batch	
OP85474-MB	3Q38325.D	1	05/22/21	NG		OP85474	S3Q563	
The QC reported here applies to the following samples: Method: EPA 537M BY ID							37M BY ID	

FA85196-8

CAS No.	ID Standard Recoveries	Limits	
	13C8-PFOA	105%	50-150%
	13C9-PFNA	105%	50-150%
	13C6-PFDA	104%	50-150%
	13C7-PFUnDA	98%	40-140%
	13C2-PFDoDA	93%	40-140%
	13C2-PFTeDA	91%	30-130%
	13C3-PFBS	98%	50-150%
	13C3-PFHxS	96%	50-150%
	13C8-PFOS	98%	50-150%
	13C8-FOSA	110%	30-130%
	d3-MeFOSAA	110%	40-140%
	d5-EtFOSAA	110%	40-140%
	13C2-4:2FTS	100%	50-150%
	13C2-6:2FTS	102%	50-150%
	13C2-8:2FTS	99%	50-150%
	13C3-HFPO-DA	101%	50-150%



Page 2 of 2

Job Number:	FA85196								
Account:	LIMNMIAA LimnoTech								
Project:	Pellston Airport, MI								
Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 05/14/21	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>		
S3Q559-IBLK	3Q37920.D	1		NG	n/a	n/a	S3Q559		
The QC reported here applies to the following samples:       Method: EPA 537M QSM5.3 B-1							37M QSM5.3 B-15		

The QC reported here applies to the following samples:

FA85196-1, FA85196-5, FA85196-6, FA85196-13

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	011Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	89%	50-150%
13C5-PFPeA	88%	50-150%
13C5-PFHxA	89%	50-150%
13C4-PFHpA	92%	50-150%

Limits



Page 1 of 2

Job Number:	FA85196								
Account:	LIMNMIAA LimnoTech								
Project:	Pellston Airport, MI								
Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 05/14/21	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	Analytical Batch		
S3Q559-IBLK	3Q37920.D	1		NG	n/a	n/a	S3Q559		
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15		

FA85196-1, FA85196-5, FA85196-6, FA85196-13

#### CAS No. **ID Standard Recoveries** Limits 13C8-PFOA 93% 50-150% 13C9-PFNA 95% 50-150% 13C6-PFDA 98% 50-150% 13C7-PFUnDA 99% 50-150% 13C2-PFDoDA 98% 50-150% 13C2-PFTeDA 99% 50-150% 13C3-PFBS 87% 50-150% 13C3-PFHxS 89% 50-150% 13C8-PFOS 91% 50-150% 13C8-FOSA 110% 50-150% d3-MeFOSA 106% 50-150% d3-MeFOSAA 105% 50-150% d5-EtFOSAA 108% 50-150% 13C2-4:2FTS 50-150% 85% 13C2-6:2FTS 91% 50-150% 92% 13C2-8:2FTS 50-150% 13C3-HFPO-DA 88% 50-150%



Page 2 of 2

6.1.3 **೧** 

48 of 64



Job Number:	FA85196								
Account:	LIMNMIAA LimnoTech								
Project:	Pellston Airport, MI								
Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 05/17/21	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	Analytical Batch		
S3Q560-IBLK	3Q37996.D	1		NG	n/a	n/a	S3Q560		
The QC report	ted here applies to	o the follo	owing samples:			Method: EPA 5	37M QSM5.3 B-15		

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	
757124-72-4	44:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	4ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	19Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	77%	50-150%
13C5-PFPeA	77%	50-150%
13C5-PFHxA	78%	50-150%
13C4-PFHpA	79%	50-150%

Limits



Page 1 of 2

Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	mnoTech , MI					
Sample S3Q560-IBLK	<b>File ID</b> 3Q37996.D	<b>DF</b> 1	<b>Analyzed</b> 05/17/21	<b>By</b> NG	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch S3Q560
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12

CAS No.	<b>ID Standard Recoveries</b>	Limits	
	13C8-PFOA	78%	50-150%
	13C9-PFNA	78%	50-150%
	13C6-PFDA	81%	50-150%
	13C7-PFUnDA	81%	50-150%
	13C2-PFDoDA	79%	50-150%
	13C2-PFTeDA	80%	50-150%
	13C3-PFBS	77%	50-150%
	13C3-PFHxS	79%	50-150%
	13C8-PFOS	77%	50-150%
	13C8-FOSA	86%	50-150%
	d3-MeFOSA	75%	50-150%
	d3-MeFOSAA	81%	50-150%
	d5-EtFOSAA	84%	50-150%
	13C2-4:2FTS	72%	50-150%
	13C2-6:2FTS	73%	50-150%
	13C2-8:2FTS	70%	50-150%
	13C3-HFPO-DA	75%	50-150%



Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample S3Q563-IBLK	<b>File ID</b> 3Q38243.D	<b>DF</b> 1	<b>Analyzed</b> 05/21/21	<b>By</b> NG	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch S3Q563
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15

FA85196-8

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	
757124-72-4	44:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	86%	50-150%
13C5-PFPeA	86%	50-150%
13C5-PFHxA	86%	50-150%
13C4-PFHpA	86%	50-150%

Limits



Page 1 of 2

Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample S3Q563-IBLK	<b>File ID</b> 3Q38243.D	<b>DF</b> 1	<b>Analyzed</b> 05/21/21	<b>By</b> NG	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch S3Q563
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15

FA85196-8

CAS No.	<b>ID Standard Recoveries</b>		Limits
	13C8-PFOA	89%	50-150%
	13C9-PFNA	88%	50-150%
	13C6-PFDA	89%	50-150%
	13C7-PFUnDA	88%	50-150%
	13C2-PFDoDA	90%	50-150%
	13C2-PFTeDA	89%	50-150%
	13C3-PFBS	87%	50-150%
	13C3-PFHxS	87%	50-150%
	13C8-PFOS	87%	50-150%
	13C8-FOSA	98%	50-150%
	d3-MeFOSA	99%	50-150%
	d3-MeFOSAA	91%	50-150%
	d5-EtFOSAA	92%	50-150%
	13C2-4:2FTS	81%	50-150%
	13C2-6:2FTS	85%	50-150%
	13C2-8:2FTS	84%	50-150%
	13C3-HFPO-DA	89%	50-150%





Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85344-BS	<b>File ID</b> 3Q37971.D	<b>DF</b> 1	<b>Analyzed</b> 05/15/21	<b>By</b> NG	<b>Prep Date</b> 05/11/21	<b>Prep Batch</b> OP85344	<b>Analytical Batch</b> S3Q559
The QC repor	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M BY ID

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0765	96	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0794	99	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0774	97	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0783	98	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0776	97	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0791	99	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0769	96	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0767	96	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0783	98	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0763	95	60-140
376-06-7	Perfluorotetradecanoic acid	0.08	0.0778	97	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0796	100	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0821	103	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0788	99	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0865	108	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0801	100	70-130
68259-12-1	Perfluorononanesulfonic acid	0.08	0.0827	103	65-130
335-77-3	Perfluorodecanesulfonic acid	0.08	0.0770	96	60-130
754-91-6	PFOSA	0.08	0.0804	101	70-130
2355-31-9	MeFOSAA	0.08	0.0792	99	70-130
2991-50-6	EtFOSAA	0.08	0.0781	98	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.0827	103	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0824	103	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0820	103	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0797	100	70-130
919005-14-4	ADONA	0.08	0.0803	100	60-140
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0683	85	60-140
763051-92-9	011Cl-PF3OUdS (F-53B Minor)	0.08	0.0743	93	60-140

CAS No.	<b>ID Standard Recoveries</b>	BSP	Limits
	13C4-PFBA	99%	35-135%
	13C5-PFPeA	98%	50-150%
	13C5-PFHxA	98%	50-150%
	13C4-PFHpA	99%	50-150%

\* = Outside of Control Limits.



FA85196

Page 1 of 2

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Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85344-BS	<b>File ID</b> 3Q37971.D	<b>DF</b> 1	<b>Analyzed</b> 05/15/21	<b>By</b> NG	<b>Prep Date</b> 05/11/21	<b>Prep Batch</b> OP85344	Analytical Batch S3Q559
The QC repor	ted here applies to	o the follo	owing samples:			Method: EPA 5	37M BY ID

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

CAS No.	<b>ID Standard Recoveries</b>	BSP	Limits
	13C8-PFOA	98%	50-150%
	13C9-PFNA	91%	50-150%
	13C6-PFDA	87%	50-150%
	13C7-PFUnDA	87%	40-140%
	13C2-PFDoDA	88%	40-140%
	13C2-PFTeDA	91%	30-130%
	13C3-PFBS	97%	50-150%
	13C3-PFHxS	94%	50-150%
	13C8-PFOS	80%	50-150%
	13C8-FOSA	92%	30-130%
	d3-MeFOSAA	92%	40-140%
	d5-EtFOSAA	96%	40-140%
	13C2-4:2FTS	100%	50-150%
	13C2-6:2FTS	88%	50-150%
	13C2-8:2FTS	88%	50-150%
	13C3-HFPO-DA	90%	50-150%





Page 2 of 2

6.2.1 6

Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85474-BS	<b>File ID</b> 3Q38324.D	<b>DF</b> 1	<b>Analyzed</b> 05/22/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	<b>Prep Batch</b> OP85474	Analytical Batch S3Q563
The QC repor	ted here applies to	o the follo	owing samples:			Method: EPA 5	37M BY ID

FA85196-8

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	%	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0719	90	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0703	88	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0718	90	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0691	86	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0692	87	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0695	87	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0697	87	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0712	89	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0705	88	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0491	61	60-140
376-06-7	Perfluorotetradecanoic acid	0.08	0.0701	88	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0700	88	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0711	89	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0713	89	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0737	92	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0690	86	70-130
68259-12-1	Perfluorononanesulfonic acid	0.08	0.0734	92	65-130
335-77-3	Perfluorodecanesulfonic acid	0.08	0.0709	89	60-130
754-91-6	PFOSA	0.08	0.0694	87	70-130
2355-31-9	MeFOSAA	0.08	0.0743	93	70-130
2991-50-6	EtFOSAA	0.08	0.0696	87	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.0728	91	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0747	93	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0738	92	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0710	89	70-130
919005-14-4	ADONA	0.08	0.0711	89	60-140
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0627	78	60-140
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.08	0.0644	81	60-140

CAS No.	<b>ID Standard Recoveries</b>	BSP	Limits
	13C4-PFBA	36%	35-135%
	13C5-PFPeA	36%*	50-150%
	13C5-PFHxA	36%*	50-150%
	13C4-PFHpA	37%*	50-150%

\* = Outside of Control Limits.



6.2.2

Job Number: Account: Project:	FA85196 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85474-BS	<b>File ID</b> 3Q38324.D	<b>DF</b> 1	<b>Analyzed</b> 05/22/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	<b>Prep Batch</b> OP85474	Analytical Batch S3Q563
The QC repor	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M BY ID

FA85196-8

CAS No.	<b>ID Standard Recoveries</b>	BSP	Limits
	13C8-PFOA	38%*	50-150%
	13C9-PFNA	39%*	50-150%
	13C6-PFDA	38%*	50-150%
	13C7-PFUnDA	37%*	40-140%
	13C2-PFDoDA	38%*	40-140%
	13C2-PFTeDA	62%	30-130%
	13C3-PFBS	36%*	50-150%
	13C3-PFHxS	36%*	50-150%
	13C8-PFOS	37%*	50-150%
	13C8-FOSA	39%	30-130%
	d3-MeFOSAA	40%	40-140%
	d5-EtFOSAA	40%	40-140%
	13C2-4:2FTS	36%*	50-150%
	13C2-6:2FTS	38%*	50-150%
	13C2-8:2FTS	39%*	50-150%
	13C3-HFPO-DA	37%*	50-150%



6.2.2



Account: Project:	LIMNMIAA LimnoTech Pellston Airport, MI									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
OP85344-MS	3Q37976.D	5	05/15/21	NG	05/11/21	OP85344	S3Q559			
FA85196-1	3Q38020.D	1	05/17/21	NG	05/11/21	OP85344	S3Q560			
FA85196-1	3Q37975.D	5	05/15/21	NG	05/11/21	OP85344	S3Q559			

The QC reported here applies to the following samples:

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

		FA85196	<b>j-1</b>	Spike	MS		MS	
CAS No.	Compound	ug/l	Q	ug/l	ug/	1	%	Limits
375-22-4	Perfluorobutanoic acid	ND		0.0714	0.0	684	96	70-130
2706-90-3	Perfluoropentanoic acid	ND		0.0714	0.0	696	97	70-130
307-24-4	Perfluorohexanoic acid	ND		0.0714	0.0	692	97	70-130
375-85-9	Perfluoroheptanoic acid	ND		0.0714	0.0	680	95	70-130
335-67-1	Perfluorooctanoic acid	0.0018		0.0714	0.0	726	99	70-130
375-95-1	Perfluorononanoic acid	ND		0.0714	0.0	677	95	70-130
335-76-2	Perfluorodecanoic acid	ND		0.0714	0.0	664	93	70-130
2058-94-8	Perfluoroundecanoic acid	ND		0.0714	0.0	699	98	70-130
307-55-1	Perfluorododecanoic acid	ND		0.0714	0.0	709	99	70-130
72629-94-8	Perfluorotridecanoic acid	ND		0.0714	0.0	703	98	60-140
376-06-7	Perfluorotetradecanoic acid	ND		0.0714	0.0	703	98	70-130
375-73-5	Perfluorobutanesulfonic acid	0.0029		0.0714	0.0	708	95	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.0063		0.0714	0.0	760	98	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0844		0.0714	0.1	38	75	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.0109		0.0714	0.0	890	109	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.402 b		0.0714	0.5	94	269* a	70-130
68259-12-1	Perfluorononanesulfonic acid	ND		0.0714	0.0	707	99	65-130
335-77-3	Perfluorodecanesulfonic acid	ND		0.0714	0.0	650	91	60-130
754-91-6	PFOSA	ND		0.0714	0.0	686	96	70-130
2355-31-9	MeFOSAA	ND		0.0714	0.0	687	96	70-130
2991-50-6	EtFOSAA	ND		0.0714	0.0	711	100	70-130
757124-72-4	44:2 Fluorotelomer sulfonate	ND		0.0714	0.0	728	102	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	ND		0.0714	0.0	715	100	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	ND		0.0714	0.0	732	102	70-130
13252-13-6	HFPO-DA (GenX)	ND		0.0714	0.0	711	100	70-130
919005-14-4	ADONA	ND		0.0714	0.0	671	94	60-140
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		0.0714	0.0	580	81	60-140
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND		0.0714	0.0	636	89	60-140
CAS No.	ID Standard Recoveries	MS		FA8519	6-1	FA8	5196-1	Limits
	13C4-PFBA	87%		75%		84%		35-135%
	13C5-PFPeA	87%		74%		84%		50-150%
	13C5-PFHxA	87%		75%		83%		50-150%
	13C4-PFHpA	91%		77%		87%		50-150%
	Ľ							

\* = Outside of Control Limits.

Method: EPA 537M BY ID

6.3.1 6

57 of 64

Account: Project:	LIMNMIAA LimnoTech Pellston Airport, MI									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
OP85344-MS	3Q37976.D	5	05/15/21	NG	05/11/21	OP85344	S3Q559			
FA85196-1	3Q38020.D	1	05/17/21	NG	05/11/21	OP85344	S3Q560			
FA85196-1	3Q37975.D	5	05/15/21	NG	05/11/21	OP85344	S3Q559			

#### The QC reported here applies to the following samples:

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

CAS No. ID Standard Recoveries	MS	FA85196-1	FA85196-1	Limits
13C8-PFOA	91%	77%	87%	50-150%
13C9-PFNA	92%	73%	84%	50-150%
13C6-PFDA	89%	73%	83%	50-150%
13C7-PFUnDA	81%	70%	77%	40-140%
13C2-PFDoDA	76%	64%	71%	40-140%
13C2-PFTeDA	73%	62%	70%	30-130%
13C3-PFBS	91%	75%	86%	50-150%
13C3-PFHxS	89%	71%	83%	50-150%
13C8-PFOS	80%	64%	77%	50-150%
13C8-FOSA	90%	64%	75%	30-130%
d3-MeFOSAA	91%	72%	88%	40-140%
d5-EtFOSAA	89%	75%	87%	40-140%
13C2-4:2FTS	92%	72%	83%	50-150%
13C2-6:2FTS	98%	73%	85%	50-150%
13C2-8:2FTS	89%	71%	77%	50-150%
13C3-HFPO-DA	81%	69%	77%	50-150%

(a) Outside control limits due to high level in sample relative to spike amount.

(b) Result is from Run #2.



Page 2 of 2

Method: EPA 537M BY ID



Account: Project:	LIMNMIAA LimnoTech Pellston Airport, MI									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
OP85474-MS	3Q38332.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563			
FA85474-1 <sup>a</sup>	3Q38331.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563			

#### The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA85196-8

	FA85474-1		Spike M		MS MS		S	
CAS No.	Compound	ug/l	Q	ug/l	ug/	1	%	Limits
375-22-4	Perfluorobutanoic acid	0.0075		0.0714	0.0	704	88	70-130
2706-90-3	Perfluoropentanoic acid	0.0067		0.0714	0.0	693	88	70-130
307-24-4	Perfluorohexanoic acid	0.0143		0.0714	0.0	764	87	70-130
375-85-9	Perfluoroheptanoic acid	0.0023		0.0714	0.0	660	89	70-130
335-67-1	Perfluorooctanoic acid	0.0070		0.0714	0.0	675	85	70-130
375-95-1	Perfluorononanoic acid	0.0012		0.0714	0.0	641	88	70-130
335-76-2	Perfluorodecanoic acid	0.0012		0.0714	0.0	655	90	70-130
2058-94-8	Perfluoroundecanoic acid	ND		0.0714	0.0	647	91	70-130
307-55-1	Perfluorododecanoic acid	ND		0.0714	0.0	637	89	70-130
72629-94-8	Perfluorotridecanoic acid	ND		0.0714	0.0	758	106	60-140
376-06-7	Perfluorotetradecanoic acid	ND		0.0714	0.0	629	88	70-130
375-73-5	Perfluorobutanesulfonic acid	0.347		0.0714	0.3	47	0* <sup>b</sup>	70-130
2706-91-4	Perfluoropentanesulfonic acid	ND		0.0714	0.0	682	95	70-130
355-46-4	Perfluorohexanesulfonic acid	0.0171		0.0714	0.0	802	88	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.0016		0.0714	0.0	697	95	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.0645		0.0714	0.1	23	82	70-130
68259-12-1	Perfluorononanesulfonic acid	ND		0.0714	0.0	650	91	65-130
335-77-3	Perfluorodecanesulfonic acid	ND		0.0714	0.0	611	86	60-130
754-91-6	PFOSA	ND		0.0714	0.0	652	91	70-130
2355-31-9	MeFOSAA	0.0026		0.0714	0.0	695	94	70-130
2991-50-6	EtFOSAA	ND		0.0714	0.0	653	91	70-130
757124-72-4	44:2 Fluorotelomer sulfonate	ND		0.0714	0.0	662	93	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.0021		0.0714	0.0	687	93	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	ND		0.0714	0.0	691	97	70-130
13252-13-6	HFPO-DA (GenX)	ND		0.0714	0.0	673	94	70-130
919005-14-4	ADONA	ND		0.0714	0.0	616	86	60-140
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		0.0714	0.0	600	84	60-140
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND		0.0714	0.0	569	80	60-140
CAS No.	ID Standard Recoveries	MS		FA8547	4-1	Lim	its	
	13C4-PFBA	75%		68%		35-1	35%	
	13C5-PFPeA	78%		71%		50-1	50%	
	13C5-PFHxA	82%		74%		50-1	50%	
	13C4-PFHpA	86%		79%		50-1	50%	

\* = Outside of Control Limits.



Account: Project:	LIMNMIAA LimnoTech Pellston Airport, MI									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
OP85474-MS	3Q38332.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563			
FA85474-1 <sup>a</sup>	3Q38331.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563			

The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA85196-8

CAS No. ID Standard Recoveries IV.	15	FA85474-1	Limits
13C8-PFOA 93	3%	84%	50-150%
13C9-PFNA 9'	7%	88%	50-150%
13C6-PFDA 94	4%	85%	50-150%
13C7-PFUnDA 83	3%	89%	40-140%
13C2-PFDoDA 80	6%	90%	40-140%
13C2-PFTeDA 69	9%	60%	30-130%
13C3-PFBS 8:	1%	67%	50-150%
13C3-PFHxS 88	8%	80%	50-150%
13C8-PFOS 90	0%	80%	50-150%
13C8-FOSA 80	6%	83%	30-130%
d3-MeFOSAA 1	10%	103%	40-140%
d5-EtFOSAA 11	38%	137%	40-140%
13C2-4:2FTS 94	4%	81%	50-150%
13C2-6:2FTS 10	07%	95%	50-150%
13C2-8:2FTS 1	10%	96%	50-150%
13C3-HFPO-DA 80	0%	74%	50-150%

(a) Associated BS ID recovery standard outside control limits. Insufficient sample to re-extract.

(b) Outside control limits due to high level in sample relative to spike amount.



### **Duplicate Summary**

Job Number: Account: Project:	PA85196 LIMNMIAA LimnoTech Pellston Airport, MI									
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch			
OP85344-DUP	3Q38010.D	1.12	05/17/21	NG	05/11/21	OP85344	S3Q560			
FA85196-2 <sup>a</sup>	3Q38009.D	1.12	05/17/21	NG	05/11/21	OP85344	S3Q560			

#### The QC reported here applies to the following samples:

FA85196-11, FA85196-12, FA85196-13

Method: EPA 537M BY ID

FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10,

		FA8519	6-2	DUP			
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0068		0.0070		3	30
2706-90-3	Perfluoropentanoic acid	0.0104		0.0104		0	30
307-24-4	Perfluorohexanoic acid	0.0112		0.0113		1	30
375-85-9	Perfluoroheptanoic acid	0.0057		0.0058		2	30
335-67-1	Perfluorooctanoic acid	0.0088		0.0089		1	30
375-95-1	Perfluorononanoic acid	ND		ND		nc	30
335-76-2	Perfluorodecanoic acid	ND		ND		nc	30
2058-94-8	Perfluoroundecanoic acid	ND		ND		nc	30
307-55-1	Perfluorododecanoic acid	ND		ND		nc	30
72629-94-8	Perfluorotridecanoic acid	ND		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	ND		ND		nc	30
375-73-5	Perfluorobutanesulfonic acid	0.0126		0.0138		9	30
2706-91-4	Perfluoropentanesulfonic acid	0.0170		0.0175		3	30
355-46-4	Perfluorohexanesulfonic acid	0.0904		0.0958		6	30
375-92-8	Perfluoroheptanesulfonic acid	0.0035		0.0036		3	30
1763-23-1	Perfluorooctanesulfonic acid	0.0636		0.0653		3	30
68259-12-1	Perfluorononanesulfonic acid	ND		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	ND		ND		nc	30
754-91-6	PFOSA	ND		ND		nc	30
2355-31-9	MeFOSAA	ND		ND		nc	30
2991-50-6	EtFOSAA	ND		ND		nc	30
757124-72-4	44:2 Fluorotelomer sulfonate	ND		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	0.0223		0.0224		0	30
39108-34-4	8:2 Fluorotelomer sulfonate	ND		ND		nc	30
13252-13-6	HFPO-DA (GenX)	ND		ND		nc	30
919005-14-4	4ADONA	ND		ND		nc	30
756426-58-2	19Cl-PF3ONS (F-53B Major)	ND		ND		nc	30
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND		ND		nc	30
CAS No.	ID Standard Recoveries	DUP		FA85196	-2	Limits	
	13C4-PFBA	77%		81%		35-1359	%
	13C5-PFPeA	78%		81%		50-150	%
	13C5-PFHxA	78%		81%		50-150	%
	13C4-PFHpA	83%		85%		50-150	%
	r						

\* = Outside of Control Limits.



### **Duplicate Summary**

FA85196 LIMNMIAA LimnoTech Pellston Airport, MI							
File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
3Q38010.D	1.12	05/17/21	NG	05/11/21	OP85344	S3Q560	
3Q38009.D	1.12	05/17/21	NG	05/11/21	OP85344	S3Q560	
	FA85196 LIMNMIAA Lir Pellston Airport, <b>File ID</b> 3Q38010.D 3Q38009.D	FA85196LIMNMIAA LimnoTechPellston Airport, MISQ38010.D1.123Q38009.D1.12	FA85196       LIMNMIAA LimnoTech         Pellston Airport, MI       DF       Analyzed         3Q38010.D       1.12       05/17/21         3Q38009.D       1.12       05/17/21	FA85196       LIMNMIAA LimnoTech         Pellston Airport, MI       DF       Analyzed       By         3Q38010.D       1.12       05/17/21       NG         3Q38009.D       1.12       05/17/21       NG	FA85196       LIMNMIAA LimnoTech         Pellston Airport, MI       MI         File ID       DF       Analyzed       By       Prep Date         3Q38010.D       1.12       05/17/21       NG       05/11/21         3Q38009.D       1.12       05/17/21       NG       05/11/21	FA85196       LIMNMIAA LimnoTech         Pellston Airport, MI       MI       Prep Date       Prep Batch         3Q38010.D       1.12       05/17/21       NG       05/11/21       OP85344         3Q38009.D       1.12       05/17/21       NG       05/11/21       OP85344	

# FA85196-1, FA85196-2, FA85196-3, FA85196-4, FA85196-5, FA85196-6, FA85196-7, FA85196-9, FA85196-10, FA85196-11, FA85196-12, FA85196-13

CAS No.	<b>ID Standard Recoveries</b>	DUP	FA85196-2	Limits
	13C8-PFOA	87%	89%	50-150%
	13C9-PFNA	88%	90%	50-150%
	13C6-PFDA	88%	92%	50-150%
	13C7-PFUnDA	83%	89%	40-140%
	13C2-PFDoDA	72%	79%	40-140%
	13C2-PFTeDA	67%	74%	30-130%
	13C3-PFBS	77%	80%	50-150%
	13C3-PFHxS	79%	83%	50-150%
	13C8-PFOS	82%	85%	50-150%
	13C8-FOSA	82%	82%	30-130%
	d3-MeFOSAA	93%	92%	40-140%
	d5-EtFOSAA	90%	93%	40-140%
	13C2-4:2FTS	75%	79%	50-150%
	13C2-6:2FTS	84%	87%	50-150%
	13C2-8:2FTS	83%	86%	50-150%
	13C3-HFPO-DA	73%	75%	50-150%

The QC reported here applies to the following samples:

(a) Dilution due to sample clogging SPE cartridge, only partial volume was extracted.



Page 2 of 2

Method: EPA 537M BY ID

SGS

#### **Duplicate Summary** Job Number: FA85196

Account: Project:	LIMNMIAA LimnoTech Pellston Airport, MI										
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch				
OP85474-DUP	3Q38339.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563				
FA85499-1 <sup>a</sup>	3Q38338.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563				

#### The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA85196-8

		FA85499	)-1	DUP			
CAS No.	Compound	ug/l	Q	ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0396		0.0387		2	30
2706-90-3	Perfluoropentanoic acid	0.0570		0.0545		4	30
307-24-4	Perfluorohexanoic acid	0.0703		0.0673		4	30
375-85-9	Perfluoroheptanoic acid	0.0456		0.0449		2	30
335-67-1	Perfluorooctanoic acid	0.134		0.127		5	30
375-95-1	Perfluorononanoic acid	0.0311		0.0302		3	30
335-76-2	Perfluorodecanoic acid	0.0560		0.0526		6	30
2058-94-8	Perfluoroundecanoic acid	0.0038		0.0034		11	30
307-55-1	Perfluorododecanoic acid	0.0122		0.0091		29	30
72629-94-8	Perfluorotridecanoic acid	ND		ND		nc	30
376-06-7	Perfluorotetradecanoic acid	0.0018		0.0011	J	48*	30
375-73-5	Perfluorobutanesulfonic acid	0.0071		0.0061		15	30
2706-91-4	Perfluoropentanesulfonic acid	0.0036		0.0031		15	30
355-46-4	Perfluorohexanesulfonic acid	0.0193		0.0179		8	30
375-92-8	Perfluoroheptanesulfonic acid	ND		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	0.0091		0.0085		7	30
68259-12-1	Perfluorononanesulfonic acid	ND		ND		nc	30
335-77-3	Perfluorodecanesulfonic acid	ND		ND		nc	30
754-91-6	PFOSA	ND		ND		nc	30
2355-31-9	MeFOSAA	ND		ND		nc	30
2991-50-6	EtFOSAA	ND		ND		nc	30
757124-72-4	44:2 Fluorotelomer sulfonate	ND		ND		nc	30
27619-97-2	6:2 Fluorotelomer sulfonate	ND		ND		nc	30
39108-34-4	8:2 Fluorotelomer sulfonate	ND		ND		nc	30
13252-13-6	HFPO-DA (GenX)	ND		ND		nc	30
919005-14-4	4ADONA	ND		ND		nc	30
756426-58-	19Cl-PF3ONS (F-53B Major)	ND		ND		nc	30
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND		ND		nc	30
CAS No.	ID Standard Recoveries	DUP		FA85499	9-1	Limits	
	13C4-PFBA	69%		69%		35-1359	%
	13C5-PFPeA	65%		66%		50-1509	%
	13C5-PFHxA	69%		69%		50-1509	%
	13C4-PFHpA	69%		69%		50-1509	%

\* = Outside of Control Limits.

SGS

#### Duplicate Summary Job Number: FA85196

Account: Project:	LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85474-DUP	3Q38339.D	1	05/22/21	NG	05/19/21	OP85474	S3Q563
FA85499-1 <sup>a</sup>	3Q38338.D	1	05/22/21	NG	05/19/21	OP85474	\$3Q563

#### The QC reported here applies to the following samples:

Method: EPA 537M BY ID

FA85196-8

CAS No.	<b>ID Standard Recoveries</b>	DUP	FA85499-1	Limits
	13C8-PFOA	78%	78%	50-150%
	13C9-PFNA	81%	83%	50-150%
	13C6-PFDA	73%	71%	50-150%
	13C7-PFUnDA	77%	62%	40-140%
	13C2-PFDoDA	80%	49%	40-140%
	13C2-PFTeDA	66%	30%	30-130%
	13C3-PFBS	70%	68%	50-150%
	13C3-PFHxS	71%	71%	50-150%
	13C8-PFOS	72%	71%	50-150%
	13C8-FOSA	63%	47%	30-130%
	d3-MeFOSAA	86%	78%	40-140%
	d5-EtFOSAA	102%	91%	40-140%
	13C2-4:2FTS	72%	75%	50-150%
	13C2-6:2FTS	81%	86%	50-150%
	13C2-8:2FTS	78%	81%	50-150%
	13C3-HFPO-DA	66%	65%	50-150%

(a) Associated BS ID recovery standard outside control limits. Insufficient sample to re-extract.

Page 2 of 2





### **Orlando, FL**

The results set forth herein are provided by SGS North America Inc.

### Technical Report for

LimnoTech

Pellston Airport, MI

SGS Job Number: FA85396



Sampling Dates: 05/03/21 - 05/07/21

Report to:

LimnoTech 501 Avis Drive Ann Arbor, MI 48108 sbell@limno.com

ATTN: Scott Bell

Total number of pages in report: 45



Norme Farme

Norm Farmer Technical Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, UT, VT, WA, WV This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

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1 of 45

#### 05/28/21

e-Hardcopy 2.0 Automated Report

# **Table of Contents**

# N ယ 4 S 6

	-11	
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Section 2: Case Narrative/Conformance Summary
Section 3: Summary of Hits       5         Section 4: Sample Results       8
Section 4: Sample Results
<b>4.1:</b> FA85396-1: FIELD BLANK 02
<b>4.2:</b> FA85396-2: SB21-03 (106-110)GW
<b>4.3:</b> FA85396-3: SB21-04 (31-35)GW
<b>4.4:</b> FA85396-4: SB21-04 (51-55)GW
<b>4.5:</b> FA85396-5: SB21-04 (61-65)GW
<b>4.6:</b> FA85396-6: SB21-04 (81-85)GW
<b>4.7:</b> FA85396-7: SB21-04 (106-110)GW
<b>4.8:</b> FA85396-8: SB21-02 (16-20)GW
<b>4.9:</b> FA85396-9: SB21-02 (31-35)GW
<b>4.10:</b> FA85396-10: SB21-02 (46-50)GW
<b>4.11:</b> FA85396-11: DUP-GW-C
Section 5: Misc. Forms
<b>5.1:</b> Certification Exceptions
5.2: Chain of Custody
Section 6: MS Semi-volatiles - QC Data Summaries
6.1: Method Blank Summary
6.2: Blank Spike Summary
6.3: Matrix Spike/Matrix Spike Duplicate Summary 44



# Sample Summary

LimnoTech

Pellston Airport, MI

Sample Number	Collected Date	Time By	Received	Matr Code	ix Type	Client Sample ID
This report co Organics ND	ontains resu	lts reported as = Not detecte	S ND = Nc of above the	ot dete e MDI	cted. The following app L	olies:
FA85396-1	05/05/21	11:15 OB	05/08/21	AQ	Field Blank Water	FIELD BLANK 02
FA85396-2	05/03/21	13:20 OB	05/08/21	AQ	Ground Water	SB21-03 (106-110)GW
FA85396-3	05/04/21	11:25 OB	05/08/21	AQ	Ground Water	SB21-04 (31-35)GW
FA85396-4	05/04/21	17:30 OB	05/08/21	AQ	Ground Water	SB21-04 (51-55)GW
FA85396-5	05/05/21	10:40 OB	05/08/21	AQ	Ground Water	SB21-04 (61-65)GW
FA85396-6	05/05/21	14:25 OB	05/08/21	AQ	Ground Water	SB21-04 (81-85)GW
FA85396-7	05/05/21	08:20 OB	05/08/21	AQ	Ground Water	SB21-04 (106-110)GW
FA85396-8	05/06/21	17:25 OB	05/08/21	AQ	Ground Water	SB21-02 (16-20)GW
FA85396-9	05/07/21	09:55 OB	05/08/21	AQ	Ground Water	SB21-02 (31-35)GW
FA85396-10	05/07/21	12:28 OB	05/08/21	AQ	Ground Water	SB21-02 (46-50)GW
FA85396-11	05/07/21	00:00 OB	05/08/21	AQ	Ground Water	DUP-GW-C







#### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	LimnoTech	Job No:	FA85396
Site:	Pellston Airport, MI	Report Date	5/28/2021 12:37:01

10 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were collected on between 05/03/2021 and 05/07/2021 and were received at SGS North America Inc - Orlando on 05/08/2021 properly preserved, at 0.2 Deg. C and intact. These Samples received an SGS Orlando job number of FA85396. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

#### MS Semi-volatiles By Method EPA 537M BY ID

Matrix: AQBatch ID: OP85440All samples were extracted within the recommended method holding time.All samples were analyzed within the recommended method holding time.Sample(s)FA85389-2MS, FA85389-2MSD were used as the QC samples indicated.All method blanks for this batch meet method specific criteria.Sample(s)FA85396-2 have surrogates outside control limits.FA85396-2 for d3-MeFOSAA: Outside control limits.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Ariel Hartney, Client Services (signature on file)

# Summary of Hits

Job Number:	FA85396
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	05/03/21 thru 05/07/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA85396-1	FIELD BLANK 02	2				
No hits reported i	n this sample.					
FA85396-2	SB21-03 (106-110)GW					
Perfluorobutanoic	acid	1.8 J	3.6	1.8	ng/l	EPA 537M BY ID
FA85396-3	A85396-3 SB21-04 (31-35)GW					
Perfluorobutanoic Perfluoropentanoi Perfluorohexanoic Perfluoroheptanoi Perfluorooctanoic Perfluorobutanesu Perfluoropentanes Perfluorohexanesu Perfluoroheptanesu Perfluorooctanesu	acid ac acid c acid acid acid alfonic acid sulfonic acid sulfonic acid sulfonic acid sulfonic acid	2.8 J 2.4 5.2 2.9 10.3 10.4 15.6 145 9.3 43.4	3.6 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8	$ \begin{array}{c} 1.8\\ 0.89\\$	ng/l ng/l ng/l ng/l ng/l ng/l ng/l ng/l	EPA 537M BY ID EPA 537M BY ID
FA85396-4	SB21-04 (51-55)GV	W	2.6	1.0		EDA 527M DV ID
Perfluoropentanoi	c acid	15.5 27.1	3.6 1.8	1.8 0.89	ng/l	EPA 537M BY ID EPA 537M BY ID
Perfluorohexanoio	e acid	38.0	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic Perfluorononanoic Perfluorodecanoic Perfluorobutanesu Perfluoropentanes	acid c acid c acid c acid ulfonic acid sulfonic acid	4.1 2.3 12.1 36.0	1.8 1.8 1.8 1.8 1.8 1.8	0.89 0.89 0.89 0.89 0.89 0.89	ng/l ng/l ng/l ng/l ng/l	EPA 537M BY ID EPA 537M BY ID
Perfluorohexanesulfonic acid Perfluoroheptanesulfonic acid Perfluorooctanesulfonic acid PFOSA 6:2 Fluorotelomer sulfonate		784 8.3 353 7.6 4.3 J	8.9 1.8 1.8 3.6 7.1	4.5 0.89 0.89 1.8 1.8	ng/l ng/l ng/l ng/l ng/l	EPA 537M BY ID EPA 537M BY ID EPA 537M BY ID EPA 537M BY ID EPA 537M BY ID
8:2 Fluorotelomer sulfonate       4.6 J       7.1       1.8       ng/I       EPA 537M BY ID         FA85396-5       SB21-04 (61-65)GW						
Perfluorobutanoic Perfluoropentanoi Perfluorohexanoic Perfluoroheptanoi	acid ac acid c acid c acid c acid	12.0 20.2 28.8 30.2	3.6 1.8 1.8 1.8	1.8 0.89 0.89 0.89	ng/l ng/l ng/l ng/l	EPA 537M BY ID EPA 537M BY ID EPA 537M BY ID EPA 537M BY ID

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## Summary of Hits

Job Number:	FA85396
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	05/03/21 thru 05/07/21

Lab Sample ID Client Samp Analyte	ole ID Result/ Qual	RL	MDL	Units	Method	
Perfluorooctanoic acid	85.6	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorononanoic acid	3.4	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorodecanoic acid	2.4	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorobutanesulfonic acid	6.9	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluoropentanesulfonic acid	13.5	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorohexanesulfonic acid	350	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluoroheptanesulfonic acid	8.6	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorooctanesulfonic acid	322	1.8	0.89	ng/l	EPA 537M BY ID	
PFOSA	6.6	3.6	1.8	ng/l	EPA 537M BY ID	
6:2 Fluorotelomer sulfonate	4.2 J	7.1	1.8	ng/l	EPA 537M BY ID	
8:2 Fluorotelomer sulfonate	6.6 J	7.1	1.8	ng/l	EPA 537M BY ID	
FA85396-6 SB21-04 (81-85)GW						
Perfluorohexanesulfonic acid	1.5 J	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorooctanesulfonic acid	6.0	1.8	0.89	ng/l	EPA 537M BY ID	
FA85396-7 SB21-04 (10	SB21-04 (106-110)GW					
Perfluorobutanoic acid	191	3.6	18	no/l	FPA 537M BY ID	
Perfluorooctanesulfonic acid	2.2	1.8	0.89	ng/l	EPA 537M BY ID	
FA85396-8 SB21-02 (16	-20)GW					
Perfluorobutanoic acid	341	3.6	18	ng/l	FPA 537M BY ID	
Perfluoropentanoic acid	0.90 I	1.8	0.89	$\frac{ng}{l}$	EPA 537M BY ID	
Perfluorobutanesulfonic acid	121	1.8	0.89	ng/1	EPA 537M BY ID	
Perfluorohexanesulfonic acid	2.8	1.8	0.89	ng/l	EPA 537M BY ID	
FA85396-9 SB21-02 (31-35)GW						
Perfluorobutanoic acid	351	3.6	18	no/l	EPA 537M BY ID	
Perfluoropentanoic acid	3.8	1.8	0.89	ng/1	EPA 537M BY ID	
Perfluorohexanoic acid	13.5	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluoroheptanoic acid	5.6	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorooctanoic acid	33.4	1.8	0.89	ng/1	EPA 537M BY ID	
Perfluorononanoic acid	0.97 J	1.8	0.89	ng/1	EPA 537M BY ID	
Perfluorobutanesulfonic acid	3.2	1.8	0.89	ng/1	EPA 537M BY ID	
Perfluoropentanesulfonic acid	5.0	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorohexanesulfonic acid	172	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluoroheptanesulfonic acid	11.3	1.8	0.89	ng/l	EPA 537M BY ID	
Perfluorooctanesulfonic acid	321	1.8	0.89	ng/l	EPA 537M BY ID	
PFOSA	170	3.6	1.8	ng/l	EPA 537M BY ID	

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FA85396

## Summary of Hits

Job Number:	FA85396				
Account:	LimnoTech				
Project:	Pellston Airport, MI				
Collected:	05/03/21 thru 05/07/21				

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA85396-10	SB21-02 (46-50)GV	W				
Perfluorobutanoic acid		5.1	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	2.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	12.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid	4.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoio	e acid	35.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorononanoi	c acid	0.97 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	4.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	6.2	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanesulfonic acid		196	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptanesulfonic acid		13.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	452	3.6	1.8	ng/l	EPA 537M BY ID
PFOSA		370	7.1	3.6	ng/l	EPA 537M BY ID
FA85396-11	DUP-GW-C					
Perfluorobutanoio	c acid	5.1	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentanoic acid		2.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoic acid		13.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptanoic acid		4.2	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic acid		36.2	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorononanoic acid		1.1 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanesulfonic acid		4.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentanesulfonic acid		6.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanesulfonic acid		205	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptanesulfonic acid		14.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanesulfonic acid		472	3.6	1.8	ng/l	EPA 537M BY ID
PFOSA		379	7.1	3.6	ng/l	EPA 537M BY ID









Orlando, FL

Section 4

Sample Results

Report of Analysis



4


Report	of	Analysis	
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Client Samj Lab Sample Matrix: Method: Project:	ple ID: F e ID: F A E F	FIELD 1 FA8539 AQ - Fie EPA 537 Pellston	BLANK 02 6-1 eld Blank Wa 7M BY ID – I Airport, MI	ter EPA 537 MO	D		Date Date Perc	Sampled: 05 Received: 05 ent Solids: n/	5/05/21 5/08/21 a
Run #1 Run #2	<b>File ID</b> 3Q38480.	.D	<b>DF</b> 1	Analyzed 05/24/21 14:4	<b>By</b> 49 MV	<b>Prep D</b> 05/17/2	<b>Pate</b> 21 08:30	Prep Batch OP85440	Analytical Batch S3Q565
Run #1 Run #2	<b>Initial Vo</b> 280 ml	olume	<b>Final Volu</b> 1.0 ml	me					
CAS No.	Compor	ınd		Result	RL	MDL	Units	Q	
PERFLUO	ROALKY	LCAR	BOXYLIC A	ACIDS					
375-22-4	Perfluor	obutanc	oic acid	ND	3.6	1.8	ng/l		
2706-90-3	Perfluor	opentan	oic acid	ND	1.8	0.89	ng/l		
307-24-4	Perfluor	ohexan	bic acid	ND	1.8	0.89	ng/l		
375-85-9	Perfluor	oheptan	oic acid	ND	1.8	0.89	ng/l		
335-67-1	Perfluor	ooctanc	ic acid	ND	1.8	0.89	ng/l		
375-95-1	Perfluor	ononan	oic acid	ND	1.8	0.89	ng/l		
335-76-2	Perfluor	odecano	bic acid	ND	1.8	0.89	ng/l		
2058-94-8	Perfluor	oundeca	anoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluor	ododeca	anoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluor	otrideca	noic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluor	otetrade	ecanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKY	LSULI	FONIC ACI	DS					
375-73-5	Perfluor	obutane	sulfonic acid	ND	1.8	0.89	ng/l		
2706-91-4	Perfluor	opentan	esulfonic aci	d ND	1.8	0.89	ng/l		
355-46-4	Perfluor	ohexan	esulfonic acid	I ND	1.8	0.89	ng/l		
375-92-8	Perfluor	oheptan	esulfonic aci	d ND	1.8	0.89	ng/l		
1763-23-1	Perfluor	ooctane	sulfonic acid	ND	1.8	0.89	ng/l		
68259-12-1	Perfluor	ononan	esulfonic acid	1 ND	1.8	0.89	ng/l		
335-77-3	Perfluor	odecane	esulfonic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROOCTA	NESU	LFONAMID	ES					
754-91-6	PFOSA			ND	3.6	1.8	ng/l		
PERFLUO	ROOCTA	NESU	FONAMID	OACETIC A	CIDS				
2355_31_0	MeFOS			ND	3.6	1.8	no/l		
2991-50-6	EtFOSA	A		ND	3.6	1.8	ng/1		
							U		
FLUOROT	ELOME	R SULF	ONATES						
757124-72-4	4:2 Fluo	rotelon	er sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluo	rotelon	er sulfonate	ND	7.1	1.8	ng/l		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.1 **4** 

Client Samp Lab Sample Matrix: Method: Project:	ole ID: ID:	FIELD BLANK 02 FA85396-1 AQ - Field Blank Wate EPA 537M BY ID EI Pellston Airport, MI	er PA 537 MO	D		Date Date Perce	Sampled: Received: ent Solids:	05/05/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	2-13-0 HFPO-DA (GellA) )5-14-4 ADONA 26 58 1 QCI PE3ONS (E 53B Major)			7.1	1.8	ng/l		
756426-58-1	26-58-1 9Cl-PF3ONS (F-53B Major)			7.1	1.8	ng/l		
763051-92-9	1-92-9 11Cl-PF3OUdS (F-53B Minor) ND			7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	96%		35-1	35%		
	13C5-	PFPeA	97%		50-1	50%		
	13C5-	PFHxA	98%					
	13C4-	PFHpA	99%		50-1	50%		
	13C8-	PFOA	103%		50-1	50%		
	13C9-	PFNA	101%		50-1	50%		
	13C6-	PFDA	97%		50-1	50%		
	13C7-	PFUnDA	92%		40-1	40%		
	13C2-	PFDoDA	88%		40-1	40%		
	13C2-	PFTeDA	94%		30-1	30%		
	13C3-	PFBS	93%		50-1	50%		
	13C3-	PFHxS	92%		50-1	50%		
	13C8-	PFOS	90%		50-1	50%		
	13C8-	FOSA	104%		30-1	30%		
	d3-Me	FOSAA	107%		40-1	40%		
	d5-EtH	FOSAA	109%		40-1	40%		
	13C2-	4:2FTS	95%		50-1	50%		
	13C2-	6:2FTS	97%		50-1	50%		
	13C2-	8:2FTS	91%		50-1	50%		
	13C3-	HFPO-DA	96%		50-1	50%		

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.1 4

Client Sam Lab Sample Matrix: Method: Project:	ple ID: SB21-03 e ID: FA8539 AQ - G1 EPA 53 Pellston	3 (106-110)GV 6-2 cound Water 7M BY ID E Airport, MI	N EPA 537 MOD	1		Date Date Perc	Sampled: 05 Received: 05 ent Solids: n/	5/03/21 5/08/21 a
	File ID	DF A	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	3Q38481.D	1 (	05/24/21 15:06	5 MV	05/17/2	21 08:30	OP85440	S3Q565
Run #2	3Q38566.D	5 (	05/25/21 17:22	2 MV	05/17/2	21 08:30	OP85440	S3Q566
	Initial Volume	Final Volun	ne					
Run #1	280 ml	1.0 ml						
Run #2	280 ml	1.0 ml						
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCAR	BOXYLIC A	CIDS					
375-22-4	Perfluorobutance	oic acid	1.8	3.6	1.8	ng/l	J	
2706-90-3	Perfluoropentar	noic acid	ND	1.8	0.89	ng/l		
307-24-4	Perfluorohexan	oic acid	ND	1.8	0.89	ng/l		
375-85-9	Perfluoroheptar	noic acid	ND	1.8	0.89	ng/l		
335-67-1	Perfluorooctano	bic acid	ND	1.8	0.89	ng/l		
375-95-1	Perfluorononan	oic acid	ND	1.8	0.89	ng/l		
335-76-2	Perfluorodecan	oic acid	ND	1.8	0.89	ng/l		
2058-94-8	Perfluoroundec	anoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorododec	anoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotrideca	anoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetrade	ecanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKVI SIILI	FONIC ACIT	)S					
375-73-5	Perfluorobutane	esulfonic acid	ND	18	0.89	ng/l		
2706-91-4	Perfluoropentar	esulfonic ació	1 ND	1.0	0.89	ng/1		
355-46-4	Perfluorohexan	esulfonic acid	ND	1.8	0.89	ng/1		
375-92-8	Perfluorohentar	esulfonic acid	1 ND	1.0	0.89	ng/1		
1763-23-1	Perfluorooctane	esulfonic acid	ND	1.0	0.89	$\frac{ng}{l}$		
68259-12-1	Perfluorononan	esulfonic acid	ND	1.0	0.89	$\frac{ng}{l}$		
335-77-3	Perfluorodecan	esulfonic acid	ND	1.8	0.89	ng/l		
			50					
<b>PERFLUO</b> 754-91-6	PFOSA	LFUNAMID	LS ND	36	1.8	no/l		
, 57-71-0	11 00/1			5.0	1.0	115/1		
PERFLUO	ROOCTANESU	LFONAMID	OACETIC AC	CIDS				
2355-31-9	MeFOSAA		ND <sup>a</sup>	18	8.9	ng/l		
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l		
FLUOROT	ELOMER SULF	ONATES						
757124-72-4	4 4:2 Fluorotelon	ner sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelon	ner sulfonate	ND	7.1	1.8	ng/l		
						0		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

 $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$ 

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.2 4

Client Samp Lab Sample Matrix: Method: Project:	le ID: ID:	SB21-03 (106-110)GW FA85396-2 AQ - Ground Water EPA 537M BY ID EH Pellston Airport, MI	PA 537 MO	D			Date Date Perce	Sampled: Received: ent Solids:	05/03/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	Μ	IDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.	8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5						
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.	8	ng/l		
919005-14-4	ADON	NA	ND	7.1	1.	8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Maior)	ND	7.1	1.	8	ng/l		
763051-92-9	92-9 11Cl-PF3OUdS (F-53B Min		) ND	7.1	1.	8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2		Lim	its		
	13C4-	PFBA	100%	103%		35-1	35%		
	13C5-	PFPeA	104%	107%		50-1	50%		
	13C5-	PFHxA	104%	107%		50-1	50%		
	13C4-	PFHpA	106%	108%		50-1	50%		
	13C8-	PFOA	118%	114%		50-1	50%		
	13C9-	PFNA	117%	116%		50-1	50%		
	13C6-	PFDA	117%	108%		50-1	50%		
	13C7-	PFUnDA	110%	104%		40-1	40%		
	13C2-	PFDoDA	104%	98%		40-1	40%		
	13C2-	PFTeDA	95%	93%		30-1	30%		
	13C3-	PFBS	99%	101%		50-1	50%		
	13C3-	PFHxS	102%	103%		50-1	50%		
	13C8-	PFOS	104%	102%		50-1	50%		
	13C8-	FOSA	127%	129%		30-1	30%		
	d3-Me	FOSAA	147% <sup>b</sup>	126%		40-1	40%		
	d5-EtH	FOSAA	137%	129%		40-1	40%		
	13C2-	4:2FTS	105%	101%		50-1	50%		
	13C2-	6:2FTS	115%	110%		50-1	50%		
	13C2-	8:2FTS	111%	103%		50-1	50%		
	13C3-	HFPO-DA	97%	99%		50-1	50%		

(a) Result is from Run# 2

(b) Outside control limits.

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.2



<b>NEPULUI</b> AHAIVSIS	Report	of	Ana	lvsis
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Client Samj Lab Sample Matrix: Method: Project:	ple ID: SB21-04 e ID: FA8539 AQ - G EPA 53 Pellston	4 (31-35)GW 96-3 round Water 7M BY ID E A Airport, MI	PA 537 MOD			Date Date Perc	Sampled: 05 Received: 05 ent Solids: n/	5/04/21 5/08/21 a
Run #1 Run #2	<b>File ID</b> 3Q38482.D	<b>DF</b> A 1 0	<b>Analyzed</b> 5/24/21 15:22	By 2 MV	<b>Prep D</b> 05/17/2	<b>ate</b> 21 08:30	Prep Batch OP85440	<b>Analytical Batch</b> S3Q565
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volum</b> 1.0 ml	e					
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCAR	BOXYLIC A	CIDS					
375-22-4	Perfluorobutan	oic acid	2.8	3.6	1.8	ng/l	J	
2706-90-3	Perfluoropenta	noic acid	2.4	1.8	0.89	ng/l		
307-24-4	Perfluorohexan	oic acid	5.2	1.8	0.89	ng/l		
375-85-9	Perfluorohepta	noic acid	2.9	1.8	0.89	ng/l		
335-67-1	Perfluorooctan	oic acid	10.3	1.8	0.89	ng/l		
375-95-1	Perfluorononan	oic acid	ND	1.8	0.89	ng/l		
335-76-2	Perfluorodecan	oic acid	ND	1.8	0.89	ng/l		
2058-94-8	Perfluoroundec	anoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorododec	anoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotridec	anoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetrad	ecanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKYLSUL	FONIC ACID	S					
375-73-5	Perfluorobutan	esulfonic acid	10.4	1.8	0.89	ng/l		
2706-91-4	Perfluoropenta	nesulfonic acid	15.6	1.8	0.89	ng/l		
355-46-4	Perfluorohexan	esulfonic acid	145	1.8	0.89	ng/l		
375-92-8	Perfluorohepta	nesulfonic acid	9.3	1.8	0.89	ng/l		
1763-23-1	Perfluorooctan	esulfonic acid	43.4	1.8	0.89	ng/l		
68259-12-1	Perfluorononan	nesulfonic acid	ND	1.8	0.89	ng/l		
335-77-3	Perfluorodecan	esulfonic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROOCTANESU	LFONAMIDE	S					
754-91-6	PFOSA		ND	3.6	1.8	ng/l		
PERFLUO	ROOCTANESU	LEONAMIDO	ACETIC A	TIDS				
2355_31_9	MeFOSAA		ND	3.6	18	no/l		
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/1		
	24 05/11			2.0	1.0			
FLUOROT	ELOMER SUL	FONATES						
757124-72-4	4:2 Fluorotelor	ner sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelor	ner sulfonate	ND	7.1	1.8	ng/l		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



4.3

4

SGS

Client Samp Lab Sample Matrix: Method: Project:	le ID: ID:	SB21-04 (31-35)GW FA85396-3 AQ - Ground Water EPA 537M BY ID EF Pellston Airport, MI	PA 537 MOE	)		Date Date Perce	Sampled: Received: ent Solids:	05/04/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERATI	ON PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	JA	ND	7.1	.1 1.8			
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	7.1 1.8			
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1 1.8		ng/l		
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	Limi	ts		
	13C4-	PFBA	87%		35-1	35%		
	13C5-	PFPeA	88%		50-1	50%		
	13C5-	PFHxA	88%		50-1	50%		
	13C4-	PFHpA	89%					
	13C8-	PFOA	95%		50-1	50%		
	13C9-	PFNA	95%		50-1	50%		
	13C6-	PFDA	90%		50-1			
	13C7-	PFUnDA	86%		40-14	40%		
	13C2-	PFDoDA	80%		40-14	40%		
	13C2-	PFTeDA	77%		30-1	30%		
	13C3-	PFBS	84%		50-1	50%		
	13C3-	PFHxS	85%		50-1	50%		
	13C8-	PFOS	83%		50-1	50%		
	13C8-	FOSA	100%		30-1	30%		
	d3-Me	FOSAA	105%		40-14	40%		
	d5-EtF	FOSAA	103%		40-14	40%		
	13C2-	4:2FTS	87%		50-1	50%		
	13C2-	6:2FTS	90%		50-1	50%		
	13C2-	8:2FTS	86%		50-1	50%		

84%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2



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## **Report of Analysis**

Client Samj Lab Sample Matrix: Method: Project:	ple ID: SB21-( e ID: FA853 AQ - C EPA 5 Pellsto	04 (51-55)GW 96-4 Ground Water 37M BY ID I n Airport, MI	EPA 537 MC	D		Date Date Perc	Sampled: Received: ent Solids:	05/04/21 05/08/21 n/a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch
Run #1	3Q38483.D	1	05/24/21 15:	39 MV	05/17/2	21 08:30	OP85440	S3Q565
Run #2	3Q38567.D	5	05/25/21 17:	38 MV	05/17/2	21 08:30	OP85440	\$3Q566
	Initial Volume	Final Volu	ne					
Run #1	280 ml	1.0 ml						
Run #2	280 ml	1.0 ml						
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCA	RBOXYLIC A	CIDS					
375-22-4	Perfluorobutar	noic acid	15.5	3.6	1.8	ng/l		
2706-90-3	Perfluoropenta	anoic acid	27.1	1.8	0.89	ng/l		
307-24-4	Perfluorohexa	noic acid	38.0	1.8	0.89	ng/l		
375-85-9	Perfluorohepta	anoic acid	40.1	1.8	0.89	ng/l		
335-67-1	Perfluorooctar	noic acid	102	1.8	0.89	ng/l		
375-95-1	Perfluoronona	noic acid	4.1	1.8	0.89	ng/l		
335-76-2	Perfluorodeca	noic acid	2.3	1.8	0.89	ng/l		
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKYLSUI	LFONIC ACII	DS					
375-73-5	Perfluorobuta	nesulfonic acid	12.1	1.8	0.89	ng/l		
2706-91-4	Perfluoropenta	anesulfonic aci	d 36.0	1.8	0.89	ng/l		
355-46-4	Perfluorohexa	nesulfonic acid	784 <sup>a</sup>	8.9	4.5	ng/l		
375-92-8	Perfluorohepta	anesulfonic aci	d 8.3	1.8	0.89	ng/1		
1763-23-1	Perfluorooctar	nesulfonic acid	353	1.8	0.89	ng/1		
68259-12-1	Perfluoronona	nesulfonic acid	I ND	1.8	0.89	ng/l		
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROOCTANESI	ULFONAMID	ES					
754-91-6	PFOSA		7.6	3.6	1.8	ng/l		
PERFLUO	ROOCTANESI		OACETIC	ACIDS				
2355_31_0	MeFOSAA		ND	3.6	1.8	no/l		
2991_50_6	FtFOSA A		ND	3.6	1.8	ng/1		
2771-50-0				5.0	1.0	115/1		
FLUOROT	ELOMER SUL	FONATES						
757124-72-4	4:2 Fluorotelo	omer sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelo	mer sulfonate	4.3	7.1	1.8	ng/l	J	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.4 **4** 

Client Samj Lab Sample Matrix: Method: Project:	ple ID: D:	SB21-04 (51-55)GW FA85396-4 AQ - Ground Water EPA 537M BY ID EI Pellston Airport, MI	PA 537 MC	D		Date Date Perce	Sampled: Received: ent Solids:	05/04/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	4.6	7.1	1.8	ng/l	J	
NEXT GEN	ERAT	ION PFAS ANALYTE	S					
13252-13-6	HFPO	D-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADO	NA	ND	7.1	1.8	ng/l		
756426-58-1	9C1-P	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	) 11Cl-l	PF3OUdS (F-53B Minor	:) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lin	iits		
	13C4-	PFBA	72%	81%	35-1	35%		
	13C5-	PFPeA	74%	84%	50-1	50%		
	13C5-	PFHxA	73%	83%	50-1	50%		
	13C4-	PFHpA	72%	84%	50-1	50%		
	13C8-	PFOA	76%	88%	50-1	50%		
	13C9-	PFNA	77%	84%	50-1	50%		
	13C6-	PFDA	76%	82%	50-1	50%		
	13C7-	PFUnDA	74%	77%	40-1	40%		
	13C2-	PFDoDA	70%	74%	40-1	40%		
	13C2-	PFTeDA	67%	71%	30-1	30%		
	13C3-	PFBS	71%	82%	50-1	50%		
	13C3-	PFHxS	66%	81%	50-1	50%		
	13C8-	PFOS	68%	78%	50-1	50%		
	13C8-	FOSA	84%	95%	30-1	30%		
	d3-Me	FOSAA	95%	96%	40-1	40%		
	d5-Etl	FOSAA	94%	98%	40-1	40%		
	13C2-	4:2FTS	73%	79%	50-1	50%		
	13C2-	6:2FTS	76%	85%	50-1	50%		
	13C2-	8:2FTS	76%	78%	50-1	50%		
	13C3-	HFPO-DA	67%	80%	50-1	50%		

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 2 of 2



Client Samj Lab Sample Matrix: Method: Project:	ple ID: SB21-0 e ID: FA8539 AQ - G EPA 53 Pellstor	4 (61-65)GW 96-5 round Water 87M BY ID H 1 Airport, MI	EPA 537 MC	)D		Date Date Perc	Sampled: 05 Received: 05 ent Solids: n/	5/05/21 5/08/21 a
Run #1 Run #2	<b>File ID</b> 3Q38568.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21 17:	<b>By</b> 55 MV	<b>Prep D</b> 05/17/2	eate 21 08:30	Prep Batch OP85440	Analytical Batch S3Q566
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me					
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCAF	RBOXYLIC A	CIDS					
375-22-4	Perfluorobutan	oic acid	12.0	3.6	1.8	ng/l		
2706-90-3	Perfluoropenta	noic acid	20.2	1.8	0.89	ng/l		
307-24-4	Perfluorohexar	oic acid	28.8	1.8	0.89	ng/l		
375-85-9	Perfluorohepta	noic acid	30.2	1.8	0.89	ng/l		
335-67-1	Perfluorooctan	oic acid	85.6	1.8	0.89	ng/l		
375-95-1	Perfluorononar	noic acid	3.4	1.8	0.89	ng/l		
335-76-2	Perfluorodecar	oic acid	2.4	1.8	0.89	ng/l		
2058-94-8	Perfluorounded	canoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorododeo	canoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotridec	anoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetrad	ecanoic acid	ND	1.8	0.89	ng/l		
PERFI UOI	POAT KVI SIII	FONIC ACI	ns					
375-73-5	Perfluorobutan	esulfonic acid	69	1.8	0.89	no/l		
2706-91-4	Perfluoropenta	nesulfonic aci	d 13.5	1.8	0.89	ng/l		
355-46-4	Perfluorohexar	esulfonic acid	350	1.8	0.89	ng/l		
375-92-8	Perfluorohepta	nesulfonic aci	d 8.6	1.8	0.89	ng/l		
1763-23-1	Perfluorooctan	esulfonic acid	322	1.8	0.89	ng/l		
68259-12-1	Perfluorononar	nesulfonic acid	i ND	1.8	0.89	ng/l		
335-77-3	Perfluorodecar	esulfonic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROOCTANESU	LFONAMID	ES					
754-91-6	PFOSA		6.6	3.6	1.8	ng/l		
PERFLUO	ROOCTANESU	LFONAMID	OACETIC .	ACIDS				
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l		
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l		
FLUOROT	ELOMER SUL	FONATES						
757124-72-4	4:2 Fluorotelo	ner sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelo	ner sulfonate	4.2	7.1	1.8	ng/l	J	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound





Client Samp Lab Sample Matrix: Method: Project:	ole ID: D:	SB21-04 (61-65)GW FA85396-5 AQ - Ground Water EPA 537M BY ID EI Pellston Airport, MI	PA 537 MO	D		Date Date Perce	Sampled: Received: ent Solids:	05/05/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	6.6	7.1	1.8	ng/l	J	
NEXT GEN	ERAT	ION PFAS ANALYTE	S					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADO	NA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-P	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-l	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	64%		35-1	35%		
	13C5-	PFPeA	65%		50-1	50%		
	13C5-	PFHxA	64%		50-1	50%		
	13C4-	PFHpA	63%		50-1	50%		
	13C8-	PFOA	68%		50-1	50%		
	13C9-	PFNA	66%		50-1	50%		
	13C6-	PFDA	62%		50-1	50%		
	13C7-	PFUnDA	51%		40-1	40%		
	13C2-	PFDoDA	44%		40-1	40%		
	13C2-	PFTeDA	37%		30-1	30%		
	13C3-	PFBS	61%		50-1	50%		
	13C3-	PFHxS	59%		50-1	50%		
	13C8-	PFOS	55%		50-1	50%		
	13C8-	FOSA	69%		30-1	30%		
	d3-Me	eFOSAA	69%		40-1	40%		
	d5-Etl	FOSAA	68%		40-1	40%		
	13C2-	4:2FTS	65%		50-1	50%		
	13C2-	6:2FTS	67%		50-1	50%		
	13C2-	8:2FTS	60%		50-1	50%		
	13C3-	HFPO-DA	58%		50-1	50%		

58%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.5 4

Report o	f Ana	lysis
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Client Sample ID:SB21-04 (81-85)GWLab Sample ID:FA85396-6Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI			EPA 537 MO	D	Date Sampled: 05/05/21 Date Received: 05/08/21 Percent Solids: n/a						
Run #1 Run #2	<b>File ID</b> 3Q38487.D	<b>DF</b> 1	Analyzed 05/24/21 16:4	<b>By</b> 45 MV	<b>Prep D</b> 05/17/2	<b>ate</b> 21 08:30	Prep Batch OP85440	<b>Analytical Batch</b> S3Q565			
Run #2											
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me								
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCA	<b>RBOXYLIC</b> A	ACIDS								
375-22-4	Perfluorobuta	noic acid	ND	3.6	1.8	ng/l					
2706-90-3	Perfluoropenta	anoic acid	ND	1.8	0.89	ng/l					
307-24-4	Perfluorohexa	noic acid	ND	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	anoic acid	ND	1.8	0.89	ng/l					
335-67-1	Perfluoroocta	noic acid	ND	1.8	0.89	ng/l					
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l					
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounde	ecanoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorodode	ecanoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALKYLSUI	LFONIC ACI	DS								
375-73-5	Perfluorobuta	nesulfonic acid	ND	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	anesulfonic aci	d ND	1.8	0.89	ng/l					
355-46-4	Perfluorohexa	nesulfonic acid	1 1.5	1.8	0.89	ng/l	J				
375-92-8	Perfluorohepta	anesulfonic aci	d ND	1.8	0.89	ng/l					
1763-23-1	Perfluoroocta	nesulfonic acid	6.0	1.8	0.89	ng/l					
68259-12-1	Perfluoronona	nesulfonic acid	i ND	1.8	0.89	ng/l					
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROOCTANES	ULFONAMID	ES								
754-91-6	PFOSA		ND	3.6	1.8	ng/l					
PERFLUO	ROOCTANES	ULFONAMID	OACETIC A	CIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOMER SUI	FONATES									
757124-72-4	4:2 Fluorotelo	omer sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fluorotelo	omer sulfonate	ND	7.1	1.8	ng/l					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.6 **4** 

Client Sample ID:SB21-04 (81-85)GWLab Sample ID:FA85396-6Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI			PA 537 MO	D		Date Date Perce	Date Sampled:05Date Received:05Percent Solids:n/a				
CAS No.	Comp	ound	Result	RL	MDL	Units	Q				
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l					
NEXT GEN	NEXT GENERATION PFAS ANALYTE		S								
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l					
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l					
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l					
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l					
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	Lim	its					
	13C4-	PFBA	85%		35-1	35%					
	13C5-	PFPeA	86%		50-1	50%					
	13C5-	PFHxA	86%		50-1	50%					
	13C4-	PFHpA	88%		50-1	50%					
	13C8-	PFOA	96%		50-1	50%					
	13C9-	PFNA	94%		50-1	50%					
	13C6-	PFDA	85%		50-1	50%					
	13C7-	PFUnDA	70%		40-1	40%					
	13C2-	PFDoDA	60%		40-1	40%					
	13C2-	PFTeDA	51%		30-1	30%					
	13C3-	PFBS	83%		50-1	50%					
	13C3-	PFHxS	82%		50-1	50%					
	13C8-	PFOS	79%		50-1	50%					
	13C8-	FOSA	100%		30-1	30%					
	d3-Me	FOSAA	93%		40-1	40%					
	d5-EtH	FOSAA	80%		40-1	40%					
	13C2-	4:2FTS	88%		50-1	50%					
	13C2-	6:2FTS	93%		50-1	50%					
	13C2-	8:2FTS	80%		50-1	50%					

79%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.6 4

			Report	of Aı	nalysis			Page 1 of			
Client Sam Lab Sample Matrix: Method: Project:	ple ID: SB21-0 e ID: FA853 AQ - G EPA 53 Pellstor	4 (106-110)G 96-7 fround Water 37M BY ID 1 Airport, MI	W EPA 537 MOD			Date Date Perc	Date Sampled:05/05/21Date Received:05/08/21Percent Solids:n/a				
Run #1 Run #2	<b>File ID</b> 3Q38488.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21 17:02	By 2 MV	<b>Prep D</b> 05/17/2	<b>ate</b> 21 08:30	Prep Batch OP85440	Analytical Batch S3Q565			
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me								
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCAI	RBOXYLIC	ACIDS								
375-22-4	Perfluorobutan	oic acid	1.9	3.6	1.8	ng/l	J				
2706-90-3	Perfluoropenta	noic acid	ND	1.8	0.89	ng/l					
307-24-4	Perfluorohexa	noic acid	ND	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	noic acid	ND	1.8	0.89	ng/l					
335-67-1	Perfluorooctan	oic acid	ND	1.8	0.89	ng/l					
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l					
335-76-2	Perfluorodecar	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotrideo	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetrac	lecanoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALKYLSUL	FONIC ACI	DS								
375-73-5	Perfluorobutan	esulfonic acid	l ND	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	nesulfonic aci	id ND	1.8	0.89	ng/l					
355-46-4	Perfluorohexa	nesulfonic acid	d ND	1.8	0.89	ng/l					
375-92-8	Perfluorohepta	nesulfonic aci	id ND	1.8	0.89	ng/l					
1763-23-1	Perfluorooctan	esulfonic acid	2.2	1.8	0.89	ng/l					
68259-12-1	Perfluoronona	nesulfonic aci	d ND	1.8	0.89	ng/l					
335-77-3	Perfluorodecar	nesulfonic acid	1 ND	1.8	0.89	ng/l					
PERFLUO	ROOCTANESU	LFONAMIE	DES								
754-91-6	PFOSA		ND	3.6	1.8	ng/l					
PERFLUO	ROOCTANESU	LFONAMIE	OACETIC AC	CIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOMER SUL	FONATES									
757124-72-4	4 4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fluorotelor	mer sulfonate	ND	7.1	1.8	ng/l					

#### ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

Client Samp Lab Sample Matrix: Method: Project:	Client Sample ID:SB21-04 (106-110)GWCab Sample ID:FA85396-7Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI				Date Date Perce	05/05/21 05/08/21 n/a		
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	9108-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	80%		35-1	35%		
	13C5-	PFPeA	82%		50-1	50%		
	13C5-	PFHxA	82%		50-1	50%		
	13C4-	PFHpA	84%		50-1	50%		
	13C8-	PFOA	91%		50-1	50%		
	13C9-	PFNA	93%		50-1	50%		
	13C6-	PFDA	88%		50-1	50%		
	13C7-	PFUnDA	79%		40-1	40%		
	13C2-	PFDoDA	73%		40-1	40%		
	13C2-	PFTeDA	60%		30-1	30%		
	13C3-	PFBS	78%		50-1	50%		
	13C3-	PFHxS	81%		50-1	50%		
	13C8-	PFOS	84%		50-1	50%		
	13C8-	FOSA	97%		30-1	30%		
	d3-Me	FOSAA	115%		40-1	40%		
	d5-EtH	FOSAA	100%		40-1	40%		
	13C2-	4:2FTS	83%		50-1	50%		
	13C2-	6:2FTS	89%		50-1	50%		
	13C2-	8:2FTS	85%		50-1	50%		

77%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2



Client Samj Lab Sample Matrix: Method: Project:	ple ID: SB21-0 e ID: FA853 AQ - G EPA 53 Pellstor	02 (16-20)GW 96-8 Ground Water 37M BY ID n Airport, MI	EPA 537 MOI	D		Date Date Perc	e Sampled: 0 e Received: 0 eent Solids: n	5/06/21 5/08/21 /a
Run #1 Run #2	<b>File ID</b> 3Q38489.D	<b>DF</b> 1	Analyzed 05/24/21 17:1	<b>By</b> 19 MV	<b>Prep D</b> 05/17/2	ate 21 08:30	Prep Batch OP85440	Analytical Batch S3Q565
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me					
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCAI	RBOXYLIC A	ACIDS					
375-22-4	Perfluorobutan	noic acid	3.4	3.6	1.8	ng/l	J	
2706-90-3	Perfluoropenta	noic acid	0.90	1.8	0.89	ng/l	J	
307-24-4	Perfluorohexa	noic acid	ND	1.8	0.89	ng/l		
375-85-9	Perfluorohepta	moic acid	ND	1.8	0.89	ng/l		
335-67-1	Perfluorooctan	oic acid	ND	1.8	0.89	ng/l		
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l		
335-76-2	Perfluorodecar	noic acid	ND	1.8	0.89	ng/l		
2058-94-8	Perfluorounded	canoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotrideo	canoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetrac	lecanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKYLSUL	FONIC ACI	DS					
375-73-5	Perfluorobutan	nesulfonic acid	1.2	1.8	0.89	ng/l	J	
2706-91-4	Perfluoropenta	nesulfonic aci	d ND	1.8	0.89	ng/l		
355-46-4	Perfluorohexa	nesulfonic acid	1 2.8	1.8	0.89	ng/l		
375-92-8	Perfluorohepta	nesulfonic aci	d ND	1.8	0.89	ng/l		
1763-23-1	Perfluorooctan	esulfonic acid	ND	1.8	0.89	ng/l		
68259-12-1	Perfluoronona	nesulfonic acid	i ND	1.8	0.89	ng/l		
335-77-3	Perfluorodecar	nesulfonic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROOCTANESI	ILFONAMID	ES					
754-91-6	PFOSA		ND	3.6	1.8	ng/l		
PERFLUO	ROOCTANESI	ILFONAMID	OACETIC A	CIDS				
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l		
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l		
FLUODOT	EI OMED CIT	ΕΩΝΑΤΕς						
<b>FLUUKUI</b>	LUNIEK SUL	FUNALES	ND	7 1	1 0	na/1		
27610 07 2	6.2 Fluorotelo	mer sulfonato	ND	7.1	1.0	ng/1		
~101J-J1-4	0.2 r uorotelo	mer sunonale	IND .	1.1	1.0	11 <u>2/1</u>		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.8 **4** 

Client Sample ID:SB21-02 (16-20)GWLab Sample ID:FA85396-8Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI							Date Sampled:05/06/21Date Received:05/08/21Percent Solids:n/a					
CAS No.	Comp	ound	Result	RL	MDL	Units	Q					
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l						
NEXT GEN	ERAT	ION PFAS ANALYTES	5									
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l						
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l						
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l						
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l						
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its						
	13C4-	PFBA	89%		35-1	35%						
	13C5-	PFPeA	90%		50-1	50%						
	13C5-	PFHxA	91%		50-1	50%						
	13C4-	PFHpA	92%		50-1	50%						
	13C8-	PFOA	102%		50-1	50%						
	13C9-	PFNA	102%		50-1	50%						
	13C6-	PFDA	94%		50-1	50%						
	13C7-	PFUnDA	88%		40-1	40%						
	13C2-	PFDoDA	84%		40-1	40%						
	13C2-	PFTeDA	81%		30-1	30%						
	13C3-	PFBS	87%		50-1	50%						
	13C3-	PFHxS	88%		50-1	50%						
	13C8-	PFOS	88%		50-1	50%						
	13C8-	FOSA	104%		30-1	30%						
	d3-Me	FOSAA	135%		40-1	40%						
	d5-EtH	FOSAA	92%		40-1	40%						
	13C2-	4:2FTS	90%		50-1	50%						
	13C2-	6:2FTS	96%		50-1	50%						
	13C2-	8:2FTS	92%		50-1	50%						
	13C3-	HFPO-DA	87%		50-1	50%						

Page 2 of 2

MDL = Method Detection Limit ND = Not detected

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

4.8

4



<b>NEPULUI</b> AHAIVSIS	Report	of	Ana	lvsis
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Client Sample ID: SB21-02 (31-35)GW Lab Sample ID: FA85396-9 Matrix: AQ - Ground Water Method: EPA 537M BY ID E Project: Pellston Airport, MI			EPA 537 MOD	)	Date Sampled:05/07/21Date Received:05/08/21Percent Solids:n/a						
Run #1 Run #2	<b>File ID</b> 3Q38490.D	<b>DF</b> 1	Analyzed 05/24/21 17:3:	By 5 MV	<b>Prep D</b> 05/17/2	eate 21 08:30	Prep Batch OP85440	Analytical Batch S3Q565			
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me								
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCA	RBOXYLIC A	CIDS								
375-22-4	Perfluorobuta	noic acid	3.5	3.6	1.8	ng/l	J				
2706-90-3	Perfluoropenta	anoic acid	3.8	1.8	0.89	ng/l					
307-24-4	Perfluorohexa	noic acid	13.5	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	anoic acid	5.6	1.8	0.89	ng/l					
335-67-1	Perfluorooctar	noic acid	33.4	1.8	0.89	ng/l					
375-95-1	Perfluoronona	noic acid	0.97	1.8	0.89	ng/l	J				
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l					
PERFLUOI	ROALKYLSUI	LFONIC ACI	DS								
375-73-5	Perfluorobuta	nesulfonic acid	3.2	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	anesulfonic aci	d 5.0	1.8	0.89	ng/l					
355-46-4	Perfluorohexa	nesulfonic acid	172	1.8	0.89	ng/l					
375-92-8	Perfluorohepta	anesulfonic aci	d 11.3	1.8	0.89	ng/l					
1763-23-1	Perfluorooctar	nesulfonic acid	321	1.8	0.89	ng/l					
68259-12-1	Perfluoronona	nesulfonic acid	l ND	1.8	0.89	ng/l					
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l					
PERFLUOI	ROOCTANES	JLFONAMID	ES								
754-91-6	PFOSA		170	3.6	1.8	ng/l					
PERFLUO	ROOCTANESI	JLFONAMID	OACETIC A	CIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	FLOMER SUI	FONATES									
757124_72 A	4.2 Fluorotelo	mer sulfonate	ND	7 1	18	ng/l					
27610-07-2	6.2 Fluorotelo	mer sulfonate	ND	7.1	1.0	ng/1					
21017-71-2	0.2 muorotei0	suitonale	ND	/.1	1.0	11 <u>8</u> /1					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



4.9

Client Sample ID:SB21-02 (31-35)GWLab Sample ID:FA85396-9Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, Minimized			PA 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	05/07/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1 1.8		ng/l		
NEXT GEN	ERATI	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-F	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	90%		35-1	35%		
	13C5-	PFPeA	90%		50-1	50%		
	13C5-	PFHxA	91%		50-1	50%		
	13C4-	PFHpA	91%		50-1	50%		
	13C8-	PFOA	99%		50-1	50%		
	13C9-	PFNA	99%		50-1	50%		
	13C6-	PFDA	97%		50-1	50%		
	13C7-	PFUnDA	88%		40-1	40%		
	13C2-	PFDoDA	84%		40-1	40%		
	13C2-	PFTeDA	88%		30-1	30%		
	13C3-	PFBS	88%		50-1	50%		
	13C3-	PFHxS	90%		50-1	50%		
	13C8-	PFOS	88%		50-1	50%		
	13C8-	FOSA	95%		30-1	30%		
	d3-Me	FOSAA	114%		40-1	40%		
	d5-EtF	FOSAA	95%		40-1	40%		
	13C2-	4:2FTS	90%		50-1	50%		
	13C2-	6:2FTS	93%		50-1	50%		
	13C2-	8:2FTS	91%		50-1	50%		

88%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2



Client Sam Lab Sample Matrix: Method: Project:	ple ID: SB21-0 e ID: FA853 AQ - C EPA 5 Pellsto	02 (46-50)GW 96-10 Ground Water 37M BY ID n Airport, MI	EPA 537 MOD			Date Date Perc	e Sampled: e Received: ent Solids:	05/07/21 05/08/21 n/a
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batc	h Analytical Batch
Run #1	3Q38491.D	1	05/24/21 17:52	2 MV	05/17/2	21 08:30	OP85440	S3Q565
Run #2	3Q38569.D	2	05/25/21 18:12	2 MV	05/17/2	21 08:30	OP85440	\$3Q566
	Initial Volume	Final Volu	me					
Run #1	280 ml	1.0 ml						
Run #2	280 ml	1.0 ml						
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO	ROALKYLCA	RBOXYLIC A	ACIDS					
375-22-4	Perfluorobutar	noic acid	5.1	3.6	1.8	ng/l		
2706-90-3	Perfluoropenta	anoic acid	2.3	1.8	0.89	ng/l		
307-24-4	Perfluorohexa	noic acid	12.4	1.8	0.89	ng/l		
375-85-9	Perfluorohepta	anoic acid	4.1	1.8	0.89	ng/l		
335-67-1	Perfluorooctar	noic acid	35.9	1.8	0.89	ng/l		
375-95-1	Perfluoronona	noic acid	0.97	1.8	0.89	ng/l	J	
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l		
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l		
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l		
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l		
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l		
PERFLUO	ROALKYLSII	FONIC ACI	DS					
375-73-5	Perfluorobuta	nesulfonic acid	4.6	1.8	0.89	ng/l		
2706-91-4	Perfluoropenta	anesulfonic aci	d 6.2	1.8	0.89	ng/1		
355-46-4	Perfluorohexa	nesulfonic acio	1 196	1.8	0.89	ng/1		
375-92-8	Perfluorohept	anesulfonic aci	d 13.7	1.8	0.89	ng/1		
1763-23-1	Perfluorooctar	nesulfonic acid	452 a	3.6	1.8	ng/1		
68259-12-1	Perfluoronona	nesulfonic acid	1 ND	1.8	0.89	ng/1		
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l		
DEDELUA			EC					
754-91-6	PFOSA	ULFUNAMID	370 <sup>a</sup>	7.1	3.6	ng/l		
DEDELUA	<b>ΒΟΟ</b> ΟΤΑΝΙΈΩΙ		OACETIC A	TIDE				
2355_21 0		ULFUNAMID	ND	3.6	1 8	ng/l		
2001_50 A	FIELOSAA		ND	3.6	1.0	ng/1		
2771-JU-U	EU OSAA		ND	5.0	1.0	11 <u>8</u> /1		
FLUOROT	ELOMER SUL	FONATES						
757124-72-4	4 4:2 Fluorotelo	omer sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.10 4

Client Sample ID:SB21-02 (46-50)GWLab Sample ID:FA85396-10Matrix:AQ - Ground WaterMethod:EPA 537M BY ID EProject:Pellston Airport, MI			A 537 MOE	)			Date Sampled:05/07/21Date Received:05/08/21Percent Solids:n/a				
CAS No.	Comp	ound	Result	RL	Μ	DL	Units	Q			
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.	8	ng/l				
NEXT GENERATION PFAS ANALYTES		5									
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.	8	ng/l				
919005-14-4	ADON	NA	ND	7.1	1.	8	ng/l				
756426-58-1	9Cl-Pl	F3ONS (F-53B Maior)	ND	7.1	1.	8	ng/l				
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	) ND	7.1	1.	8	ng/l				
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2		Limi	ts				
	13C4-	PFBA	80%	81%		35-13	5%				
	13C5-	PFPeA	82%	82%		50-15	60%				
	13C5-	PFHxA	82%	83%		50-15	60%				
	13C4-	PFHpA	82%	84%		50-15	60%				
	13C8-	PFOA	91%	91%		50-15	60%				
	13C9-	PFNA	92%	91%		50-15	50%				
	13C6-	PFDA	89%	88%		50-15	60%				
	13C7-	PFUnDA	83%	82%		40-14	0%				
	13C2-	PFDoDA	79%	80%		40-14	0%				
	13C2-	PFTeDA	78%	89%		30-13	80%				
	13C3-	PFBS	77%	81%		50-15	60%				
	13C3-	PFHxS	79%	79%		50-15	60%				
	13C8-	PFOS	81%	82%		50-15	60%				
	13C8-	FOSA	84%	92%		30-13	80%				
	d3-Me	FOSAA	111%	105%		40-14	0%				
	d5-EtH	FOSAA	94%	93%		40-14	0%				
	13C2-	4:2FTS	80%	79%		50-15	60%				
	13C2-	6:2FTS	87%	86%		50-15	0%				
	13C2-	8:2FTS	85%	83%		50-15	50%				

75%

76%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 2 of 2



Client Sample ID:DUP-GW-CLab Sample ID:FA85396-11Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI			W-C 6-11 cound Water 7M BY ID H Airport, MI	EPA 537 MOD			Date Sampled:05/07/21Date Received:05/08/21Percent Solids:n/a					
	File ID		DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch			
Run #1	3Q3849	92.D	1	05/24/21 18:08	MV	05/17/2	1 08:30	OP85440	S3Q565			
Run #2	3Q3857	/2.D	Z	05/25/21 19:01	IVI V	05/17/2	1 08:30	OP85440	S3Q500			
	Initial	Volume	Final Volur	ne								
Run #1	280 ml		1.0 ml									
Run #2	280 ml		1.0 ml									
CAS No.	Comp	ound		Result	RL	MDL	Units	Q				
PERFLUO	ROALK	YLCAR	BOXYLIC A	CIDS								
375-22-4	Perflu	orobutano	oic acid	5.1	3.6	1.8	ng/l					
2706-90-3	Perflu	oropentar	noic acid	2.3	1.8	0.89	ng/l					
307-24-4	Perflu	orohexan	oic acid	13.1	1.8	0.89	ng/l					
375-85-9	Perflu	oroheptar	noic acid	4.2	1.8	0.89	ng/l					
335-67-1	Perflu	orooctand	oic acid	36.2	1.8	0.89	ng/l					
375-95-1	Perflu	orononan	oic acid	1.1	1.8	0.89	ng/l	J				
335-76-2	Perflu	orodecan	oic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perflu	oroundec	anoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perflu	orododec	anoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perflu	orotrideca	anoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perflu	orotetrad	ecanoic acid	ND	1.8	0.89	ng/l					
PFRFI UO	RUVIK		FONIC ACII	15								
375-73-5	Perflu	orobutane	sulfonic acid	49	18	0.89	ng/l					
2706-91-4	Perflu	oropentar	esulfonic aci	1.5 1.66	1.8	0.89	ng/1					
355-46-4	Perflu	orohexan	esulfonic acid	205	1.8	0.89	ng/1					
375-92-8	Perflu	orohentar	esulfonic aci	d 14.9	1.8	0.89	ng/l					
1763-23-1	Perflu	orooctane	esulfonic acid	472 a	3.6	1.8	ng/l					
68259-12-1	Perflu	orononan	esulfonic acid	I ND	1.8	0.89	ng/l					
335-77-3	Perflu	orodecan	esulfonic acid	ND	1.8	0.89	ng/l					
DEDELIO	роост	ANEST		FS								
754_91_6	PEUd	ANESU.	LIUNAMID	270 a	71	3.6	ng/l					
754-91-0	1105	<b>n</b>		519	/.1	5.0	ng/ i					
PERFLUO	ROOCI	ANESU	LFONAMID	OACETIC AC	CIDS							
2355-31-9	MeFO	SAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOS	SAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOM	ER SULI	FONATES									
757124-72-4	4 4:2 Fl	uorotelon	ner sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fl	uorotelon	ner sulfonate	ND	7.1	1.8	ng/l					
							-					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

Client Sample ID:DUP-GW-CLab Sample ID:FA85396-11Matrix:AQ - Ground WaterMethod:EPA 537M BY ID EIProject:Pellston Airport, MI			A 537 MO	D		Date Date Perce	Sampled: Received: ent Solids:	05/07/21 05/08/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	9108-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES						
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	84%	93%	35-1	35%		
	13C5-	PFPeA	86%	94%	50-1	50%		
	13C5-	PFHxA	86%	94%	50-1	50%		
	13C4-	PFHpA	86%	94%	50-1	50%		
	13C8-	PFOA	94%	102%	50-1	50%		
	13C9-	PFNA	93%	101%	50-1	50%		
	13C6-	PFDA	90%	98%	50-1	50%		
	13C7-	PFUnDA	84%	90%	40-1	40%		
	13C2-	PFDoDA	79%	85%	40-1	40%		
	13C2-	PFTeDA	84%	91%	30-1	30%		
	13C3-	PFBS	82%	91%	50-1	50%		
	13C3-	PFHxS	82%	89%	50-1	50%		
	13C8-	PFOS	80%	89%	50-1	50%		
	13C8-	FOSA	79%	95%	30-1	30%		
	d3-Me	FOSAA	113%	117%	40-1	40%		
	d5-EtH	FOSAA	95%	106%	40-1	40%		
	13C2-	4:2FTS	84%	91%	50-1	50%		
	13C2-	6:2FTS	89%	98%	50-1	50%		
	13C2-	8·2FTS	85%	92%	50-1	50%		

87%

78%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 2 of 2



SGS



**Section 5** 

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody



# **Parameter Certification Exceptions**

Job Number:	FA85396
Account:	LIMNMIAA LimnoTech
Project:	Pellston Airport, MI

The following parameters included in this report are exceptions to NELAC certification. The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
4:2 Fluorotelomer sulfonate	757124-72-4	EPA 537M BY ID	AQ	Certified by SOP MS014
6:2 Fluorotelomer sulfonate	27619-97-2	EPA 537M BY ID	AQ	Certified by SOP MS014
8:2 Fluorotelomer sulfonate	39108-34-4	EPA 537M BY ID	AQ	Certified by SOP MS014
ADONA	919005-14-4	EPA 537M BY ID	AQ	Certified by SOP MS014
11Cl-PF3OUdS (F-53B Minor)	763051-92-9	EPA 537M BY ID	AQ	Certified by SOP MS014
9Cl-PF3ONS (F-53B Major)	756426-58-1	EPA 537M BY ID	AQ	Certified by SOP MS014
EtFOSAA	2991-50-6	EPA 537M BY ID	AQ	Certified by SOP MS014
HFPO-DA (GenX)	13252-13-6	EPA 537M BY ID	AQ	Certified by SOP MS014
MeFOSAA	2355-31-9	EPA 537M BY ID	AQ	Certified by SOP MS014
PFOSA	754-91-6	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorobutanoic acid	375-22-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorodecanesulfonic acid	335-77-3	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroheptanesulfonic acid	375-92-8	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorononanesulfonic acid	68259-12-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorooctanesulfonic acid	1763-23-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorooctanoic acid	335-67-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoropentanesulfonic acid	2706-91-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoropentanoic acid	2706-90-3	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	EPA 537M BY ID	AQ	Certified by SOP MS014

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32 of 45

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ty: An	IAI ADDOD State: M/ Zip:	isins	City		-			5	tate			-	88								WW - Water
roject Contact: Comment Project				-	2.1.1							-	<u>u</u>								SW - Surface Water
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1	FIELD BLANK 02	5/5/21	1115	LTT	WW	2	>						x	_					1.1	1	
2	SB21-03 (106-110) GW	5/3/21	1320	IT	GW	2	)	1					×				_				1
3	5B21-04 (31-35)GU	5/4/21	1125	LTT	GW	2	>						X								
4	5B21-04 (57-55) GW	5/4/21	1730	LTT	GW	2	×		1				×		_	-	-	_	-		
5	SB21-04 (61-65) GW	5/5/21	1040	LTI	GW	2	3	1	-				×						AN	1/	
b	SB21-04 (81-85) GW	5/5/21	1425	LTI	CIW	2	>						×		1945	TALAS	SESSA	AENT_	1	K	
1	SB21-04(106-110) GW	5/5/21	1820	LT	aw	2	>	<					X		LA	BEL VE	Parica		101		
8	SB21-02 (16-20) GW	5/6/21	1725	LTT	CNW	2	X				-12.	1	X						_		
9	SB21-02 (31-35) GW	5/7/21	0955	LTI	GW	2	>		-		-	-	X	_		-	-	1			
10	5B21-02 (46-50) GW	5/7/21	1228	LTI	GW	2	>	<	_				×		-		-	-	-		
11	SIDUP-GW-C	5/7/21		LTI	GW	2	2						X				_	1	-		
					_			Ц								_		1			
	Turnaround Time ( Business day	s)			Da	ita Deliv	/erab	le Inf	orma	ition	100	-			-	1	Comr	nents	Rem	arks	
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	5 Day				T1 (FF		3)	LIGI		40)				-						-	
	3 Day RUSH				LT1 (E)	PALEVE	L4)														
	2 Day RUSH				's	_															
	1 Day RUSH													_							
	Other												1								
152	Rush T/A Data Available VIA Email or	Lablink Sample Custod	y must be	documer	ted be	low each	time s	ample	s cha	ingel	osses	sion,	including co	ourier de	livery.				-	_	
Relingeris	thed by Sampler/Affiliation Date Time:	Received By/A	filiation					Relin	quis	hed E	y/Affilia	ation			Date Ti	me:	Re	coved	By/Affi	liation	1
17	1 / Limorar 0/1/21 1330	2	TX					3			17				210	2	4	put	10		
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FA85396: Chain of Custody Page 1 of 2

SGS

#### SGS Sample Receipt Summary

Job Number: FA853	96	_	Client	LIMNOT	ECH	Project: PLN			
Date / Time Received: 5/8/2021 10:10:00 AM			Delivery	Method: FX	Airbill #'s: 5061 4506 4490				
Therm ID: IR 1; Ther			Therm C	<b>:F:</b> -1.8;	<b>rs</b> : 1				
Cooler Temps (Raw Measu	red) °C:	Cool	er 1: (2.	0);					
Cooler Temps (Correc	ted) °C:	Cool	er 1: (0.:	2);					
Cooler Information	Y	or	N		Sample Information		Y or	N	N/A
1. Custody Seals Present	$\checkmark$				1. Sample labels presen	it on bottles	✓		
2. Custody Seals Intact	$\checkmark$				2. Samples preserved p	roperly			
3. Temp criteria achieved	$\checkmark$				3. Sufficient volume/con	tainers recvd for analysis:			
4. Cooler temp verification	<u>IR C</u>	<u>Sun</u>			4. Condition of sample		Intact		
5. Cooler media	lce	(Bag)			5. Sample recvd within h	ΗT	$\checkmark$		
					6. Dates/Times/IDs on 0	COC match Sample Label	$\checkmark$		
<b>Frip Blank Information</b>	Y	or	<u>N</u> .	N/A	7. VOCs have headspace	ce			$\checkmark$
1. Trip Blank present / cooler				$\checkmark$	8. Bottles received for u	nspecified tests		$\checkmark$	
2. Trip Blank listed on COC				$\checkmark$	9. Compositing instruction	ons clear			
	w	or	e	NI/A	10. Voa Soil Kits/Jars re	ceived past 48hrs?			$\checkmark$
		01	<u> </u>		11. % Solids Jar receive	ed?			$\checkmark$
3. Type Of TB Received					12. Residual Chlorine P	resent?			$\checkmark$
Misc. Information									
Number of Encores: 25-Gra	am		5-Gram		Number of 5035 Field Kits:	Number of La	ab Filtered M	etals:	
Test Strip Lot #s:	pH 0-3		2303	15	pH 10-12 219813A	Other: (Spec	cify)	-	
Residual Chlorine Test Strip L	_ot #:								
Comments									
SM001 Rev. Date 05/24/17 Technic	ian: <u>PE</u> T	ERH		Date:	5/8/2021 10:10:00 AM	Reviewer:		Date:	

FA85396: Chain of Custody Page 2 of 2









MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



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### **Method Blank Summary**

Job Number:	PA85590										
Account:	LIMNMIAA LimnoTech										
Project:	Pellston Airport, MI										
Sample OP85440-MB	<b>File ID</b> 3Q38478.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	By MV	<b>Prep Date</b> 05/17/21	<b>Prep Batch</b> OP85440	Analytical Batch S3Q565				

#### The QC reported here applies to the following samples:

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-5, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0020	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0020	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0020	ug/l	
757124-72-4	14:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0020	ug/l	
919005-14-4	4ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	19C1-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	90%	35-135%
13C5-PFPeA	90%	50-150%
13C5-PFHxA	92%	50-150%
13C4-PFHpA	91%	50-150%

Limits



Page 1 of 2

Method: EPA 537M BY ID

## **Method Blank Summary**

Job Number: Account: Project:	FA85396 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85440-MB	<b>File ID</b> 3Q38478.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	<b>By</b> MV	<b>Prep Date</b> 05/17/21	<b>Prep Batch</b> OP85440	Analytical Batch S3Q565
The QC repor	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M BY ID

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-5, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	<b>ID Standard Recoveries</b>		Limits
	13C8-PFOA	95%	50-150%
	13C9-PFNA	97%	50-150%
	13C6-PFDA	95%	50-150%
	13C7-PFUnDA	91%	40-140%
	13C2-PFDoDA	88%	40-140%
	13C2-PFTeDA	87%	30-130%
	13C3-PFBS	89%	50-150%
	13C3-PFHxS	82%	50-150%
	13C8-PFOS	88%	50-150%
	13C8-FOSA	100%	30-130%
	d3-MeFOSAA	109%	40-140%
	d5-EtFOSAA	112%	40-140%
	13C2-4:2FTS	90%	50-150%
	13C2-6:2FTS	92%	50-150%
	13C2-8:2FTS	89%	50-150%
	13C3-HFPO-DA	90%	50-150%



Job Number: Account: Project:	LIMNMIAA LimnoTech Pellston Airport, MI									
Sample S3Q565-IBLK	<b>File ID</b> 3Q38472.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	By MV	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch S3Q565			
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15			

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	
757124-72-4	44:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	86%	50-150%
13C5-PFPeA	86%	50-150%
13C5-PFHxA	88%	50-150%
13C4-PFHpA	89%	50-150%

Limits



Page 1 of 2

6.1.2 **6** 

Job Number: Account: Project:	FA85396 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample S3Q565-IBLK	<b>File ID</b> 3Q38472.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	By MV	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch S3Q565
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	ID Standard Recoveries	Limits	
	13C8-PFOA	93%	50-150%
	13C9-PFNA	93%	50-150%
	13C6-PFDA	92%	50-150%
	13C7-PFUnDA	91%	50-150%
	13C2-PFDoDA	91%	50-150%
	13C2-PFTeDA	91%	50-150%
	13C3-PFBS	84%	50-150%
	13C3-PFHxS	83%	50-150%
	13C8-PFOS	87%	50-150%
	13C8-FOSA	102%	50-150%
	d3-MeFOSA	104%	50-150%
	d3-MeFOSAA	109%	50-150%
	d5-EtFOSAA	110%	50-150%
	13C2-4:2FTS	83%	50-150%
	13C2-6:2FTS	87%	50-150%
	13C2-8:2FTS	86%	50-150%
	13C3-HFPO-DA	88%	50-150%



Page 2 of 2

Job Number:	FA85396							
Account:	LIMNMIAA LimnoTech							
Project:	Pellston Airport, MI							
Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b> 05/25/21	By	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>	
S3Q566-IBLK	3Q38545.D	1		MV	n/a	n/a	S3Q566	
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15	

FA85396-2, FA85396-4, FA85396-5, FA85396-10, FA85396-11

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

#### CAS No. ID Standard Recoveries

13C4-PFBA	90%	50-150%
13C5-PFPeA	89%	50-150%
13C5-PFHxA	90%	50-150%
13C4-PFHpA	91%	50-150%

Limits



Page 1 of 2

6.1.3 **6** 

Job Number: Account: Project:	FA85396 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample S3Q566-IBLK	<b>File ID</b> 3Q38545.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21	By MV	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch S3Q566
The QC report	ted here applies to	o the follo	wing samples:			Method: EPA 5	37M QSM5.3 B-15

Limits

FA85396-2, FA85396-4, FA85396-5, FA85396-10, FA85396-11

#### CAS No. ID Standard Recoveries

13C8-PFOA	94%	50-150%
13C9-PFNA	96%	50-150%
13C6-PFDA	95%	50-150%
13C7-PFUnDA	92%	50-150%
13C2-PFDoDA	93%	50-150%
13C2-PFTeDA	94%	50-150%
13C3-PFBS	87%	50-150%
13C3-PFHxS	87%	50-150%
13C8-PFOS	88%	50-150%
13C8-FOSA	109%	50-150%
d3-MeFOSAA	112%	50-150%
d5-EtFOSAA	117%	50-150%
13C2-4:2FTS	86%	50-150%
13C2-6:2FTS	89%	50-150%
13C2-8:2FTS	88%	50-150%



### **Blank Spike Summary**

The QC reported here applies to the following samples:

Job Number: Account: Project:	FA85396 LIMNMIAA Lin Pellston Airport,	nnoTech MI					
Sample	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	By	<b>Prep Date</b> 05/17/21	<b>Prep Batch</b>	Analytical Batch
OP85440-BS	3Q38477.D	1	05/24/21	MV		OP85440	S3Q565

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-5, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0816	102	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0786	98	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0808	101	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0787	98	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0766	96	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0774	97	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0804	101	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0803	100	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0792	99	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0793	99	60-140
376-06-7	Perfluorotetradecanoic acid	0.08	0.0778	97	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0786	98	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0801	100	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0819	102	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0839	105	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0794	99	70-130
68259-12-1	Perfluorononanesulfonic acid	0.08	0.0827	103	65-130
335-77-3	Perfluorodecanesulfonic acid	0.08	0.0736	92	60-130
754-91-6	PFOSA	0.08	0.0791	99	70-130
2355-31-9	MeFOSAA	0.08	0.0793	99	70-130
2991-50-6	EtFOSAA	0.08	0.0801	100	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.0810	101	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0812	102	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0825	103	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0816	102	70-130
919005-14-4	ADONA	0.08	0.0834	104	60-140
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0750	94	60-140
763051-92-9	011Cl-PF3OUdS (F-53B Minor)	0.08	0.0767	96	60-140

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	87%	35-135%
	13C5-PFPeA	86%	50-150%
	13C5-PFHxA	87%	50-150%
	13C4-PFHpA	87%	50-150%

\* = Outside of Control Limits.



Method: EPA 537M BY ID



# **Blank Spike Summary**

Job Number: Account: Project:	FA85396 LIMNMIAA Lir Pellston Airport,	nnoTech MI					
Sample OP85440-BS	<b>File ID</b> 3Q38477.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	By MV	<b>Prep Date</b> 05/17/21	<b>Prep Batch</b> OP85440	Analytical Batch S3Q565
The QC repor	ted here applies to	o the follo	owing samples:			Method: EPA 5	37M BY ID

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-5, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	ID Standard Recoveries	BSP	Limits
	13C8-PFOA	91%	50-150%
	13C9-PFNA	91%	50-150%
	13C6-PFDA	90%	50-150%
	13C7-PFUnDA	90%	40-140%
	13C2-PFDoDA	87%	40-140%
	13C2-PFTeDA	83%	30-130%
	13C3-PFBS	84%	50-150%
	13C3-PFHxS	82%	50-150%
	13C8-PFOS	84%	50-150%
	13C8-FOSA	92%	30-130%
	d3-MeFOSAA	108%	40-140%
	d5-EtFOSAA	107%	40-140%
	13C2-4:2FTS	91%	50-150%
	13C2-6:2FTS	90%	50-150%
	13C2-8:2FTS	91%	50-150%
	13C3-HFPO-DA	87%	50-150%

\* = Outside of Control Limits.

6.2.1 6

### Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	FA85396
Account:	LIMNMIAA LimnoTech
Project:	Pellston Airport, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85440-MS	3Q38500.D	1	05/24/21	MV	05/17/21	OP85440	S3Q565
OP85440-MSD	3Q38501.D	1	05/24/21	MV	05/17/21	OP85440	S3Q565
FA85389-2	3Q38499.D	1	05/24/21	MV	05/17/21	OP85440	S3Q565

#### The QC reported here applies to the following samples:

Method: EPA 537M BY ID

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FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-5, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No.	Compound	FA85389-2 ug/l (	2 Sj ) u	pike g/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	0.0080 U	0.	.08	0.0826	103	0.08	0.0835	104	1	70-130/30
2706-90-3	Perfluoropentanoic acid	0.0040 U	0.	.08	0.0799	100	0.08	0.0806	101	1	70-130/30
307-24-4	Perfluorohexanoic acid	0.0040 U	0.	.08	0.0818	102	0.08	0.0824	103	1	70-130/30
375-85-9	Perfluoroheptanoic acid	0.0040 U	0.	.08	0.0814	102	0.08	0.0812	102	0	70-130/30
335-67-1	Perfluorooctanoic acid	0.0040 U	0.	.08	0.0788	99	0.08	0.0785	98	0	70-130/30
375-95-1	Perfluorononanoic acid	0.0040 U	0.	.08	0.0782	98	0.08	0.0795	99	2	70-130/30
335-76-2	Perfluorodecanoic acid	0.0040 U	0.	.08	0.0816	102	0.08	0.0822	103	1	70-130/30
2058-94-8	Perfluoroundecanoic acid	0.0040 U	0.	.08	0.0816	102	0.08	0.0837	105	3	70-130/30
307-55-1	Perfluorododecanoic acid	0.0040 U	0.	.08	0.0815	102	0.08	0.0826	103	1	70-130/30
72629-94-8	Perfluorotridecanoic acid	0.0040 U	0.	.08	0.0771	96	0.08	0.0785	98	2	60-140/30
376-06-7	Perfluorotetradecanoic acid	0.0040 U	0.	.08	0.0800	100	0.08	0.0804	101	0	70-130/30
375-73-5	Perfluorobutanesulfonic acid	0.0040 U	0.	.08	0.0809	101	0.08	0.0823	103	2	70-130/30
2706-91-4	Perfluoropentanesulfonic acid	0.0040 U	0.	.08	0.0807	101	0.08	0.0833	104	3	70-130/30
355-46-4	Perfluorohexanesulfonic acid	0.0040 U	0.	.08	0.0797	100	0.08	0.0829	104	4	70-130/30
375-92-8	Perfluoroheptanesulfonic acid	0.0040 U	0.	.08	0.0881	110	0.08	0.0864	108	2	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	0.0040 U	0.	.08	0.0794	99	0.08	0.0799	100	1	70-130/30
68259-12-1	Perfluorononanesulfonic acid	0.0040 U	0.	.08	0.0833	104	0.08	0.0828	104	1	65-130/30
335-77-3	Perfluorodecanesulfonic acid	0.0040 U	0.	.08	0.0775	97	0.08	0.0759	95	2	60-130/30
754-91-6	PFOSA	0.0080 U	0.	.08	0.0830	104	0.08	0.0824	103	1	70-130/30
2355-31-9	MeFOSAA	0.0080 U	0.	.08	0.0827	103	0.08	0.0847	106	2	70-130/30
2991-50-6	EtFOSAA	0.0080 U	0.	.08	0.0811	101	0.08	0.0809	101	0	70-130/30
757124-72-4	14:2 Fluorotelomer sulfonate	0.016 U	0.	.08	0.0832	104	0.08	0.0844	106	1	70-130/30
27619-97-2	6:2 Fluorotelomer sulfonate	0.016 U	0.	.08	0.0845	106	0.08	0.0861	108	2	70-130/30
39108-34-4	8:2 Fluorotelomer sulfonate	0.016 U	0.	.08	0.0827	103	0.08	0.0832	104	1	70-130/30
13252-13-6	HFPO-DA (GenX)	0.0080 U	0.	.08	0.0826	103	0.08	0.0838	105	1	70-130/30
919005-14-4	ADONA	0.016 U	0.	.08	0.0829	104	0.08	0.0841	105	1	60-140/30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.016 U	0.	.08	0.0720	90	0.08	0.0735	92	2	60-140/30
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	0.016 U	0.	.08	0.0792	99	0.08	0.0807	101	2	60-140/30

CAS No.	ID Standard Recoveries	MS	MSD	FA85389-2	Limits
	13C4-PFBA	101%	99%		35-135%
	13C5-PFPeA	100%	99%		50-150%
	13C5-PFHxA	101%	99%	97%	50-150%
	13C4-PFHpA	100%	98%	98%	50-150%

\* = Outside of Control Limits.

FA85396
### Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	FA85396
Account:	LIMNMIAA LimnoTech
Project:	Pellston Airport, MI

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85440-MS	3Q38500.D	1	05/24/21	MV	05/17/21	OP85440	S3Q565
OP85440-MSD	3Q38501.D	1	05/24/21	MV	05/17/21	OP85440	S3Q565
FA85389-2	3Q38499.D	1	05/24/21	MV	05/17/21	OP85440	S3Q565

### The QC reported here applies to the following samples:

Method: EPA 537M BY ID

6.3.1

85396-8, FA85396-9, の

FA85396-1, FA85396-2, FA85396-3, FA85396-4, FA85396-5, FA85396-6, FA85396-7, FA85396-8, FA85396-9, FA85396-10, FA85396-11

CAS No. ID Standard Recoveries	MS	MSD	FA85389-2	Limits
13C8-PFOA	104%	104%	102%	50-150%
13C9-PFNA	104%	102%	102%	50-150%
13C6-PFDA	98%	98%	99%	50-150%
13C7-PFUnDA	97%	95%	96%	40-140%
13C2-PFDoDA	94%	91%	91%	40-140%
13C2-PFTeDA	102%	98%	98%	30-130%
13C3-PFBS	97%	95%	94%	50-150%
13C3-PFHxS	99%	96%	93%	50-150%
13C8-PFOS	94%	94%	92%	50-150%
13C8-FOSA	103%	100%		30-130%
d3-MeFOSAA	115%	109%	110%	40-140%
d5-EtFOSAA	120%	112%	113%	40-140%
13C2-4:2FTS	104%	102%		50-150%
13C2-6:2FTS	102%	99%		50-150%
13C2-8:2FTS	98%	99%		50-150%
13C3-HFPO-DA	95%	93%	92%	50-150%





### **Orlando, FL**

The results set forth herein are provided by SGS North America Inc.

# Technical Report for

LimnoTech

Pellston Airport, MI

SGS Job Number: FA85506



Sampling Dates: 05/10/21 - 05/12/21

Report to:

LimnoTech 501 Avis Drive Ann Arbor, MI 48108 sbell@limno.com

ATTN: Scott Bell

Total number of pages in report: 33



Norme Farm

Norm Farmer Technical Director

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, UT, VT, WA, WV This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

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1 of 33

05/28/21

e-Hardcopy 2.0 Automated Report

# **Table of Contents**

# 1 2 3 4 5 6

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	5
Section 4: Sample Results	7
<b>4.1:</b> FA85506-1: SB21-01 (16-20)GW	8
<b>4.2:</b> FA85506-2: SB21-01 (31-35)GW	10
<b>4.3:</b> FA85506-3: SB21-01 (46-50)GW	12
4.4: FA85506-4: FIELD BLANK 03	14
4.5: FA85506-5: EQUIPMENT BLANK A	16
4.6: FA85506-6: EQUIPMENT BLANK B	18
Section 5: Misc. Forms	20
5.1: Certification Exceptions	21
5.2: Chain of Custody	22
Section 6: MS Semi-volatiles - QC Data Summaries	24
6.1: Method Blank Summary	25
6.2: Blank Spike Summary	30
6.3: Matrix Spike/Matrix Spike Duplicate Summary	32

# Sample Summary

LimnoTech

Job No: FA

FA85506

Pellston Airport, MI

Sample Number	Collected Date	Time By	Matrix Received Code Type			Client Sample ID
This report co Organics ND	ontains resu	lts reported as = Not detecte	s ND = Nc ed above the	ot dete e MDI	cted. The following app	lies:
FA85506-1	05/10/21	15:30 OB	05/13/21	AQ	Ground Water	SB21-01 (16-20)GW
FA85506-2	05/11/21	08:50 OB	05/13/21	AQ	Ground Water	SB21-01 (31-35)GW
FA85506-3	05/11/21	11:05 OB	05/13/21	AQ	Ground Water	SB21-01 (46-50)GW
FA85506-4	05/10/21	10:30 OB	05/13/21	AQ	Field Blank Water	FIELD BLANK 03
FA85506-5	05/11/21	11:50 OB	05/13/21	AQ	Equipment Blank	EQUIPMENT BLANK A
FA85506-6	05/12/21	09:30 OB	05/13/21	AQ	Equipment Blank	EQUIPMENT BLANK B



### SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	LimnoTech	Job No:	FA85506
Site:	Pellston Airport, MI	Report Date	5/28/2021 4:10:56 PM

5 Sample(s), 0 Trip Blank(s) and 1 Field Blank(s) were collected on between 05/10/2021 and 05/12/2021 and were received at SGS North America Inc - Orlando on 05/13/2021 properly preserved, at 1.2 Deg. C and intact. These Samples received an SGS Orlando job number of FA85506. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### MS Semi-volatiles By Method EPA 537M BY ID

Matrix: AQ Batch ID: OP85473 All samples were extracted within the recommended method holding time. All samples were analyzed within the recommended method holding time. Sample(s) FA85503-2MS, FA85503-2MSD were used as the QC samples indicated. All method blanks for this batch meet method specific criteria. Sample(s) FA85506-1, FA85506-2, FA85506-5 have surrogates outside control limits. FA85506-1 for 13C2-6:2FTS: Outside control limits. FA85506-1 for d5-EtFOSAA: Outside control limits. FA85506-2 for 13C2-PFTeDA: Outside control limits. FA85506-2: Dilution required due to matrix interference (ID recovery standard failure). FA85506-5 for 13C2-PFDoDA: Outside control limits. FA85506-5 for 13C7-PFUnDA: Outside control limits. FA85506-5: Dilution required due to matrix interference (ID recovery standard failure).

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Ariel Hartney, Client Services (signature on file)



# **Summary of Hits**

Job Number:	FA85506
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	05/10/21 thru 05/12/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA85506-1	SB21-01 (16-20)G	W				
Perfluorobutanoio	c acid	35.4	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	162	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	103	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid	44.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoio	e acid	74.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorononanoi	c acid	3.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	16.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	24.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	552	18	8.9	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	34.2	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	1830	18	8.9	ng/l	EPA 537M BY ID
PFOSA		34.6	3.6	1.8	ng/l	EPA 537M BY ID
6:2 Fluorotelome	r sulfonate	808	710	180	ng/l	EPA 537M BY ID
FA85506-2	SB21-01 (31-35)GV	W				
Perfluorobutanoio	e acid	5.2	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	8.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoi	c acid	12.1	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptano	ic acid	5.8	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoio	e acid	10.7	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	26.6	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	15.4	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	63.5	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptane	sulfonic acid	1.7 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	130	1.8	0.89	ng/l	EPA 537M BY ID
FA85506-3	SB21-01 (46-50)GV	W				
Perfluorobutanoio	c acid	2.0 J	3.6	1.8	ng/l	EPA 537M BY ID
Perfluoropentano	ic acid	2.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanoic acid		2.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoroheptanoic acid		1.2 J	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanoic acid		2.0	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorobutanes	ulfonic acid	6.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluoropentane	sulfonic acid	3.9	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorohexanes	ulfonic acid	9.3	1.8	0.89	ng/l	EPA 537M BY ID
Perfluorooctanes	ulfonic acid	12.0	1.8	0.89	ng/l	EPA 537M BY ID

### FA85506-4 FIELD BLANK 03

No hits reported in this sample.



# **Summary of Hits**

Job Number:	FA85506
Account:	LimnoTech
Project:	Pellston Airport, MI
Collected:	05/10/21 thru 05/12/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

### FA85506-5 EQUIPMENT BLANK A

No hits reported in this sample.

### FA85506-6 EQUIPMENT BLANK B

No hits reported in this sample.

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Orlando, FL

Section 4

Sample Results

Report of Analysis



4



### **Report of Analysis**

Client Sample ID: SB21-01 (16-20)GW Lab Sample ID: FA85506-1 Date Sampled: 05/10/21 Matrix: AQ - Ground Water Date Received: 05/13/21 Method: EPA 537M BY ID EPA 537 MOD Percent Solids: n/a **Project:** Pellston Airport, MI File ID DF Analyzed Bv **Prep Date Prep Batch Analytical Batch** Run #1 05/25/21 07:59 NG OP85473 SO1782 Q81805.D 1 05/19/21 08:30 Run #2 Q81820.D 10 05/25/21 12:09 NG 05/19/21 08:30 OP85473 SO1782 Run #3 Q81890.D 100 05/19/21 08:30 SQ1783 05/26/21 06:50 NG OP85473 **Initial Volume Final Volume** Run #1 280 ml 1.0 ml Run #2 280 ml 1.0 ml Run #3 280 ml 1.0 ml RL CAS No. Compound Result MDL Units 0 PERFLUOROALKYLCARBOXYLIC ACIDS 375-22-4 Perfluorobutanoic acid 35.4 3.6 1.8 ng/l 2706-90-3 Perfluoropentanoic acid 162 1.8 0.89 ng/l 307-24-4 Perfluorohexanoic acid 103 1.8 0.89 ng/l 375-85-9 Perfluoroheptanoic acid 44.3 1.8 0.89 ng/l Perfluorooctanoic acid 74.8 335-67-1 1.8 0.89 ng/l 375-95-1 Perfluorononanoic acid 3.8 1.8 0.89 ng/l 335-76-2 Perfluorodecanoic acid ND 1.8 0.89 ng/l 2058-94-8 Perfluoroundecanoic acid ND 1.8 0.89 ng/l Perfluorododecanoic acid 307-55-1 ND 1.8 0.89 ng/l 72629-94-8 Perfluorotridecanoic acid ND 1.8 0.89 ng/l 376-06-7 Perfluorotetradecanoic acid ND 1.8 0.89 ng/l PERFLUOROALKYLSULFONIC ACIDS 375-73-5 Perfluorobutanesulfonic acid 16.6 1.8 0.89 ng/l 2706-91-4 Perfluoropentanesulfonic acid 24.3 1.8 0.89 ng/l Perfluorohexanesulfonic acid 355-46-4 552 a 18 8.9 ng/l 375-92-8 Perfluoroheptanesulfonic acid 34.2 1.8 0.89 ng/l Perfluorooctanesulfonic acid 8.9 1763-23-1 1830 a 18 ng/l 68259-12-1 Perfluorononanesulfonic acid ND 1.8 0.89 ng/l 335-77-3 Perfluorodecanesulfonic acid ND 1.8 0.89 ng/l PERFLUOROOCTANESULFONAMIDES 754-91-6 PFOSA 34.6 3.6 1.8 ng/l PERFLUOROOCTANESULFONAMIDOACETIC ACIDS 2355-31-9 MeFOSAA ND 3.6 1.8 ng/l 2991-50-6 **EtFOSAA** ND 3.6 1.8 ng/l

### FLUOROTELOMER SULFONATES

MDL = Method Detection Limit ND = Not detected

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

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# **Report of Analysis**

Client Sample ID:SB21-01 (16-20)GWLab Sample ID:FA85506-1Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI				D		Dat Dat Per	e Sampled: e Received: cent Solids:	05/10/21 05/13/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
757124-72-4 27619-97-2 39108-34-4	4:2 Flu 6:2 Flu 8:2 Flu	uorotelomer sulfonate uorotelomer sulfonate uorotelomer sulfonate	ND 808 <sup>b</sup> ND	7.1 710 7.1	1.8 180 1.8	ng/l ng/l ng/l		
NEXT GEN	ERATI	ON PFAS ANALYTE	S					
13252-13-6 919005-14-4 756426-58-1 763051-92-9	HFPO ADON 9C1-PH 11C1-F	-DA (GenX) VA F3ONS (F-53B Major) PF3OUdS (F-53B Minor	ND ND ND ) ND	3.6 7.1 7.1 7.1	1.8 1.8 1.8 1.8	ng/l ng/l ng/l ng/l		
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	Run	#3	Limits	
	13C4-1 13C5-1 13C5-1 13C4-1 13C8-1 13C6-1 13C6-1 13C2-1 13C2-1 13C2-1 13C3-1 13C3-1 13C8-1 13C8-1 13C8-1 13C8-1 13C8-1 13C8-1 13C2-1 13C2-1 13C2-1 13C2-1 13C2-1	PFBA PFPeA PFHxA PFHpA PFOA PFOA PFDA PFDoDA PFDoDA PFTeDA PFBS PFHxS PFOS FOSA FOSA FOSA FOSAA 4:2FTS 6:2FTS 8:2FTS	87% 87% 84% 83% 81% 78% 94% 80% 75% 42% 82% 81% 79% 77% 122% 113% 83% 144% 95%	93% 95% 92% 90% 93% 95% 89% 80% 61% 85% 92% 104% 91% 128% 86% 92% 155% c 87%	93% 92% 92% 95% 96% 95% 96% 96% 92% 95% 98% 119% 139% 142% 87% 92% 93%	6 6 6 c	35-135% 50-150% 50-150% 50-150% 50-150% 50-150% 40-140% 40-140% 30-130% 50-150% 50-150% 50-150% 50-150% 50-150% 50-150% 50-150%	

(a) Result is from Run# 2

(b) Result is from Run# 3

(c) Outside control limits.

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 2 of 2

4.1 **4**  Г

<b>Report</b> of	f Analysis
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Client Sample ID:SB21-01 (31-35)GWLab Sample ID:FA85506-2Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI					Date Sampled:05/11/21Date Received:05/13/21Percent Solids:n/a					
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch		
Run #1	Q81821.D	1	05/25/21 12:2	25 NG	05/19/2	21 08:30	OP85473	SQ1782		
Run #2 <sup>a</sup>	Q81822.D	10	05/25/21 12:4	41 NG	05/19/2	21 08:30	OP85473	SQ1782		
	Initial Volum	e Final Volu	ne							
Run #1	280 ml	1.0 ml								
Run #2	280 ml	1.0 ml								
CAS No.	Compound		Result	RL	MDL	Units	Q			
PERFLUO	ROALKYLCA	ARBOXYLIC A	CIDS							
375-22-4	Perfluorobuta	anoic acid	5.2	3.6	1.8	ng/l				
2706-90-3	Perfluoropen	tanoic acid	8.4	1.8	0.89	ng/l				
307-24-4	Perfluorohex	anoic acid	12.1	1.8	0.89	ng/l				
375-85-9	Perfluorohep	tanoic acid	5.8	1.8	0.89	ng/l				
335-67-1	Perfluoroocta	anoic acid	10.7	1.8	0.89	ng/l				
375-95-1	Perfluorononanoic acid		ND	1.8	0.89	ng/l				
335-76-2	Perfluorodec	anoic acid	ND	1.8	0.89	ng/l				
2058-94-8	Perfluoround	ecanoic acid	ND	1.8	0.89	ng/l				
307-55-1	Perfluorodod	ecanoic acid	ND	1.8	0.89	ng/l				
72629-94-8	Perfluorotrid	ecanoic acid	ND	1.8	0.89	ng/l				
376-06-7	Perfluorotetr	adecanoic acid	ND <sup>b</sup>	18	8.9	ng/l				
PERFLUO	ROALKYLSU	LFONIC ACI	DS							
375-73-5	Perfluorobuta	anesulfonic acid	26.6	1.8	0.89	ng/l				
2706-91-4	Perfluoropen	tanesulfonic aci	d 15.4	1.8	0.89	ng/l				
355-46-4	Perfluorohex	anesulfonic acid	63.5	1.8	0.89	ng/l				
375-92-8	Perfluorohep	tanesulfonic aci	d 1.7	1.8	0.89	ng/l	J			
1763-23-1	Perfluoroocta	anesulfonic acid	130	1.8	0.89	ng/l				
68259-12-1	Perfluoronon	anesulfonic acid	l ND	1.8	0.89	ng/l				
335-77-3	Perfluorodec	anesulfonic acid	ND	1.8	0.89	ng/l				
PERFLUO	ROOCTANES	SULFONAMID	FS							
754-91-6	PFOSA		ND	3.6	1.8	ng/l				
PERFLUO	ROOCTANES	SULFONAMID	OACETIC A	ACIDS						
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l				
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l				
<b>ΓΙ ΠΟΡΟ</b> Τ	FI OMED SU	I FONATES								
757124 72 A	LOWER SU	omer sulfonato	ND	7 1	18	$n\alpha/1$				
27610 07 2	6.2 Fluorotal	omer sulfonato	ND	7.1	1.0	ng/1				
21017-21-2	0.2 muorolei	onici sunonale	ND	/.1	1.0	115/1				

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.2 **4** 



### **Report of Analysis**

Client Sample ID:SB21-01 (31-35)GWLab Sample ID:FA85506-2Matrix:AQ - Ground WaterMethod:EPA 537M BY ID EFProject:Pellston Airport, MI			PA 537 MC	D		Date Date Perce	Sampled: Received: ent Solids:	05/11/21 05/13/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTE	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	JA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	undard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	85%	94%	35-1	35%		
	13C5-	PFPeA	85%	92%	50-1	50%		
	13C5-	PFHxA	87%	91%	50-1	50%		
	13C4-	PFHpA	89%	95%	50-1	50%		
	13C8-	PFOA	90%	88%	50-1	50%		
	13C9-	PFNA	96%	100%	50-1	50%		
	13C6-	PFDA	95%	91%	50-1	50%		
	13C7-	PFUnDA	77%	79%	40-1	40%		
	13C2-	PFDoDA	65%	73%	40-1	40%		
	13C2-	PFTeDA	24% <sup>c</sup>	43%	30-1	30%		
	13C3-	PFBS	80%	88%	50-1	50%		
	13C3-	PFHxS	90%	85%	50-1	50%		
	13C8-	PFOS	89%	91%	50-1	50%		
	13C8-	FOSA	88%	95%	30-1	30%		
	d3-Me	FOSAA	105%	127%	40-1	40%		
	d5-EtH	FOSAA	104%	113%	40-1	40%		
	13C2-	4:2FTS	86%	89%	50-1	50%		
	13C2-	6:2FTS	91%	92%	50-1	50%		
	13C2-	8:2FTS	91%	94%	50-1	50%		
	13C3-	HFPO-DA	88%	112%	50-1	50%		

(a) Dilution required due to matrix interference (ID recovery standard failure).

(b) Result is from Run# 2

(c) Outside control limits.

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range
- J = Indicates an estimated value
- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.2 4

Report o	f Ana	lysis
----------	-------	-------

Client Sample ID:SB21-01 (46-50)GWLab Sample ID:FA85506-3Matrix:AQ - Ground WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI						Date Sampled:05/11/21Date Received:05/13/21Percent Solids:n/a						
Run #1 Run #2	<b>File ID</b> Q81807.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21 08:31	By NG	<b>Prep D</b> 05/19/2	<b>Pate</b> 21 08:30	Prep Batch OP85473	<b>Analytical Batch</b> SQ1782				
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me									
CAS No.	Compound		Result	RL	MDL	Units	Q					
PERFLUO	ROALKYLCAI	RBOXYLIC A	ACIDS									
375-22-4	Perfluorobutar	noic acid	2.0	3.6	1.8	ng/l	J					
2706-90-3	Perfluoropenta	anoic acid	2.3	1.8	0.89	ng/l						
307-24-4	Perfluorohexa	noic acid	2.9	1.8	0.89	ng/l						
375-85-9	Perfluorohepta	anoic acid	1.2	1.8	0.89	ng/l	J					
335-67-1	Perfluorooctar	noic acid	2.0	1.8	0.89	ng/l						
375-95-1	Perfluoronona	noic acid	ND	1.8	0.89	ng/l						
335-76-2	Perfluorodeca	noic acid	ND	1.8	0.89	ng/l						
2058-94-8	Perfluorounde	canoic acid	ND	1.8	0.89	ng/l						
307-55-1	Perfluorodode	canoic acid	ND	1.8	0.89	ng/l						
72629-94-8	Perfluorotride	canoic acid	ND	1.8	0.89	ng/l						
376-06-7	Perfluorotetra	decanoic acid	ND	1.8	0.89	ng/l						
PERFLUO	ROALKYLSUI	LFONIC ACI	DS									
375-73-5	Perfluorobutar	nesulfonic acid	6.3	1.8	0.89	ng/l						
2706-91-4	Perfluoropenta	anesulfonic aci	d 3.9	1.8	0.89	ng/l						
355-46-4	Perfluorohexa	nesulfonic acid	1 9.3	1.8	0.89	ng/l						
375-92-8	Perfluorohepta	anesulfonic aci	d ND	1.8	0.89	ng/l						
1763-23-1	Perfluorooctar	nesulfonic acid	12.0	1.8	0.89	ng/l						
68259-12-1	Perfluoronona	nesulfonic acid	1 ND	1.8	0.89	ng/l						
335-77-3	Perfluorodeca	nesulfonic acid	ND	1.8	0.89	ng/l						
PERFLUO	ROOCTANESI	JLFONAMID	ES									
754-91-6	PFOSA		ND	3.6	1.8	ng/l						
PERFLUO	ROOCTANESI	JLFONAMID	OACETIC AG	CIDS								
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l						
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l						
FLUOROT	ELOMER SIII	FONATES										
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l						
27619-97-2	6:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l						
					-	0						

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.3 4

# **Report of Analysis**

Client Samp Lab Sample Matrix: Method: Project:	ole ID: ID:	SB21-01 (46-50)GW FA85506-3 AQ - Ground Water EPA 537M BY ID EP Pellston Airport, MI	A 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	05/11/21 05/13/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	39108-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l		
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its		
	13C4-	PFBA	84%		35-1	35%		
	13C5-	PFPeA	85%		50-1	50%		
	13C5-	PFHxA	86%		50-1	50%		
	13C4-	PFHpA	88%		50-1	50%		
	13C8-	PFOA	88%		50-1	50%		
	13C9-	PFNA	92%		50-1	50%		
	13C6-	PFDA	91%	50-150%				
	13C7-	PFUnDA	77%		40-1	40%		
	13C2-	PFDoDA	69%		40-1	40%		
	13C2-	PFTeDA	43%		30-1	30%		
	13C3-	PFBS	81%		50-1	50%		
	13C3-	PFHxS	87%		50-1	50%		
	13C8-	PFOS	89%		50-1	50%		
	13C8-	FOSA	87%		30-1	30%		
	d3-Me	FOSAA	100%		40-1	40%		
	d5-EtH	FOSAA	94%		40-1	40%		
	13C2-	4:2FTS	84%		50-1	50%		
	13C2-	6:2FTS	90%		50-1	50%		
	13C2-	8:2FTS	84%		50-1	50%		

86%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.3 4



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# **Report of Analysis**

Client Sample ID:FIELD BLANK 03Lab Sample ID:FA85506-4Matrix:AQ - Field Blank WaterMethod:EPA 537M BY IDProject:Pellston Airport, MI					Date Sampled:05/10/21Date Received:05/13/21Percent Solids:n/a						
	File ID	DF	Analyzed	By	Prep D	ate	Prep Batch	Analytical Batch			
Run #1 Run #2	Q81808.D	1	05/25/21 08:	47 NG	05/19/2	21 08:30	OP85473	SQ1782			
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me								
CAS No.	Compound		Result	RL	MDL	Units	Q				
PERFLUO	ROALKYLCAF	RBOXYLIC A	ACIDS								
375-22-4	Perfluorobutan	oic acid	ND	3.6	1.8	ng/l					
2706-90-3	Perfluoropenta	noic acid	ND	1.8	0.89	ng/l					
307-24-4	Perfluorohexar	noic acid	ND	1.8	0.89	ng/l					
375-85-9	Perfluorohepta	noic acid	ND	1.8	0.89	ng/l					
335-67-1	Perfluorooctan	oic acid	ND	1.8	0.89	ng/l					
375-95-1	Perfluorononar	noic acid	ND	1.8	0.89	ng/l					
335-76-2	Perfluorodecar	noic acid	ND	1.8	0.89	ng/l					
2058-94-8	Perfluorounded	canoic acid	ND	1.8	0.89	ng/l					
307-55-1	Perfluorododeo	canoic acid	ND	1.8	0.89	ng/l					
72629-94-8	Perfluorotridec	canoic acid	ND	1.8	0.89	ng/l					
376-06-7	Perfluorotetrad	lecanoic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROALKYLSUL	FONIC ACI	DS								
375-73-5	Perfluorobutan	esulfonic acid	ND	1.8	0.89	ng/l					
2706-91-4	Perfluoropenta	nesulfonic aci	d ND	1.8	0.89	ng/l					
355-46-4	Perfluorohexar	nesulfonic acid	l ND	1.8	0.89	ng/l					
375-92-8	Perfluorohepta	nesulfonic aci	d ND	1.8	0.89	ng/l					
1763-23-1	Perfluorooctan	esulfonic acid	ND	1.8	0.89	ng/l					
68259-12-1	Perfluorononar	nesulfonic acid	1 ND	1.8	0.89	ng/l					
335-77-3	Perfluorodecar	nesulfonic acid	ND	1.8	0.89	ng/l					
PERFLUO	ROOCTANESU	LFONAMID	ES								
754-91-6	PFOSA		ND	3.6	1.8	ng/l					
PERFLUO	ROOCTANESU	LFONAMID	OACETIC	ACIDS							
2355-31-9	MeFOSAA		ND	3.6	1.8	ng/l					
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l					
FLUOROT	ELOMER SUL	FONATES									
757124-72-4	4:2 Fluorotelo	mer sulfonate	ND	7.1	1.8	ng/l					
27619-97-2	6:2 Fluorotelor	mer sulfonate	ND	7.1	1.8	ng/l					

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



4.4 **4** 

# **Report of Analysis**

Client Sample ID:FIELD BLANK 03Lab Sample ID:FA85506-4Matrix:AQ - Field Blank WateMethod:EPA 537M BY ID EIProject:Pellston Airport, MI			r PA 537 MOI	)		Date Date Perce	Sampled: Received: ent Solids:	05/10/21 05/13/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GENERATION PFAS ANALYTES			5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	VA	ND	7.1	1.8	ng/l		
756426-58-1	9C1-PI	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor	) ND	7.1	1.8	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Limi	its		
	13C4-	PFBA	88%		35-1	35%		
	13C5-	PFPeA	89%		50-1	50%		
	13C5-	PFHxA	90%		50-1	50%		
	13C4-	PFHpA	89%					
	13C8-	PFOA	83%		50-1	50%		
	13C9-	PFNA	81%		50-1	50%		
	13C6-	PFDA	79%		50-1	50%		
	13C7-	PFUnDA	75%		40-1-	40%		
	13C2-	PFDoDA	75%		40-1-	40%		
	13C2-	PFTeDA	78%		30-1	30%		
	13C3-	PFBS	82%		50-1	50%		
	13C3-	PFHxS	87%		50-1	50%		
	13C8-	PFOS	74%		50-1	50%		
	13C8-	FOSA	88%		30-1	30%		
	d3-Me	FOSAA	94%		40-1-	40%		
	d5-EtF	FOSAA	93%		40-1-	40%		
	13C2-	4:2FTS	86%		50-1	50%		
	13C2-	6:2FTS	82%		50-1	50%		
	13C2-	8:2FTS	72%		50-1	50%		

93%

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2



			Report	of A	nalysis			Page 1 of 2
Client Samj Lab Sample Matrix: Method: Project:	ple ID: EQU e ID: FA85 AQ - EPA Pellst	IPMENT BLANH 5506-5 Equipment Blank 537M BY ID El ton Airport, MI	K A K PA 537 MOD			Date Date Perc	Sampled: 05 Received: 05 ent Solids: n/	5/11/21 5/13/21 ′a
Run #1 Run #2 <sup>a</sup>	<b>File ID</b> Q81809.D Q81823.D	<b>DF A</b> 1 0 10 0	<b>nalyzed</b> 5/25/21 09:02 5/25/21 12:57	<b>By</b> NG NG	<b>Prep D</b> 05/19/2 05/19/2	eate 21 08:30 21 08:30	<b>Prep Batch</b> OP85473 OP85473	Analytical Batch SQ1782 SQ1782
Run #1 Run #2	<b>Initial Volum</b> 280 ml 280 ml	<b>Final Volum</b> 1.0 ml 1.0 ml	e					
CAS No.	Compound		Result	RL	MDL	Units	Q	
PERFLUO 375-22-4 2706-90-3 307-24-4 375-85-9 335-67-1 375-95-1 335-76-2 2058-94-8 307-55-1 72629-94-8 376-06-7 PERFLUO 375-73-5 2706-91-4 375-73-5 2706-91-4 375-92-8 1763-23-1 68259-12-1	ROALKYLCA Perfluorobut Perfluorobut Perfluorohen Perfluoroben Perfluorodec Perfluorodec Perfluorodec Perfluorodec Perfluorobut Perfluorotetr ROALKYLSU Perfluorobut Perfluorobut Perfluorobut Perfluoroben Perfluoroben Perfluoroben Perfluoroben Perfluoroben Perfluoroben Perfluoroben Perfluoroben Perfluoroben	ARBOXYLIC AC anoic acid anoic acid anoic acid anoic acid anoic acid anoic acid anoic acid anoic acid acanoic acid decanoic acid decanoic acid decanoic acid adecanoic acid adecanoic acid adecanoic acid anesulfonic acid anesulfonic acid anesulfonic acid anesulfonic acid anesulfonic acid anesulfonic acid anesulfonic acid	CIDS ND ND ND ND ND ND ND ND ND ND	3.6 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8	1.8 0.89 0.89 0.89 0.89 0.89 8.9 8.9 8.9 0.89 0.8	ng/l ng/l ng/l ng/l ng/l ng/l ng/l ng/l		
555-11-5	remuorodee	anesunome aciu	ND	10	0.9	ng/1		
<b>PERFLUO</b> 754-91-6	ROOCTANES PFOSA	SULFONAMIDE	ND	3.6	1.8	ng/l		
PERFLUO 2355-31-9 2991-50-6 FLUOROT	ROOCTANES MeFOSAA EtFOSAA ELOMER SU	SULFONAMIDO	DACETIC AC ND ND	3.6 3.6	1.8 1.8	ng/l ng/l		
757124-72-4 27619-97-2	4:2 Fluorote 6:2 Fluorote	lomer sulfonate lomer sulfonate	ND ND	7.1 7.1	$\frac{1.8}{1.8}$	ng/l ng/l		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



4.5 **4** 

Client Sample ID:EQUIPMENT BLANKLab Sample ID:FA85506-5Matrix:AQ - Equipment BlankMethod:EPA 537M BY ID EFProject:Pellston Airport, MI			A A 537 MOD	)		Date Date Perce	Sampled: Received: ent Solids:	05/11/21 05/13/21 n/a
CAS No.	Comp	ound	Result	RL	MDL	Units	Q	
39108-34-4	8:2 Fl	uorotelomer sulfonate	ND	7.1	1.8	ng/l		
NEXT GEN	ERAT	ION PFAS ANALYTES	5					
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l		
919005-14-4	ADON	NA	ND	7.1	1.8	ng/l		
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l		
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	) ND <sup>b</sup>	71	18	ng/l		
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Li	mits		
	13C4-	PFBA	94%	92%	35	-135%		
	13C5-	PFPeA	96%	89%	50	-150%		
	13C5-	PFHxA	97%	91%	50	-150%		
	13C4-	PFHpA	97%	91%	50	-150%		
	13C8-	PFOA	95%	93%	50	-150%		
	13C9-	PFNA	93%	98%	50	-150%		
	13C6-	PFDA	100%	96%	50	-150%		
	13C7-	PFUnDA	8% <sup>c</sup>	84%	40	-140%		
	13C2-	PFDoDA	1% c	73%	40	-140%		
	13C2-	PFTeDA	70%	78%	30	-130%		
	13C3-	PFBS	90%	86%	50	-150%		
	13C3-	PFHxS	94%	91%	50	-150%		
	13C8-	PFOS	84%	99%	50	-150%		
	13C8-	FOSA	124%	115%	30	-130%		
	d3-Me	FOSAA	116%	119%	40	-140%		
	d5-EtH	FOSAA	96%	112%	40	-140%		
	13C2-	4:2FTS	91%	88%	50	-150%		
	13C2-	6:2FTS	93%	93%	50	-150%		
	13C2-	8:2FTS	92%	90%	50	-150%		

109%

# **Report of Analysis**

(a) Dilution required due to matrix interference (ID recovery standard failure).

96%

(b) Result is from Run# 2

(c) Outside control limits.

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2



			1		e			8
Client Sam Lab Sample Matrix: Method: Project:	ple ID: EQUIP e ID: FA8550 AQ - E EPA 53 Pellstor	MENT BLAN 06-6 quipment Blar 37M BY ID 1 Airport, MI	NK B nk EPA 537 MOI	)		Date Date Perc	Sampled: 0 Received: 0 ent Solids: n	05/12/21 05/13/21 v/a
Run #1 Run #2	<b>File ID</b> Q81810.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21 09:1	By 8 NG	<b>Prep D</b> 05/19/2	ate 21 08:30	Prep Batch OP85473	<b>Analytical Batch</b> SQ1782
Run #1 Run #2	<b>Initial Volume</b> 280 ml	<b>Final Volu</b> 1.0 ml	me					
CAS No.	Compound		Result	RL	MDL	Units	Q	
DEDELUO			CIDE					
<b>FERFLUU</b>	Derfluorobuten	oic acid	ND	3.6	18	ng/1		
2706-90-3	Perfluoropenta	noic acid	ND	1.8	0.89	ng/1		
307-24-4	Perfluorohexar	noic acid	ND	1.0	0.89	ng/1		
375-85-9	Perfluorohenta	noic acid	ND	1.0	0.89	ng/1		
335-67-1	Perfluorooctan	oic acid	ND	1.0	0.89	ng/1		
375-95-1	Perfluorononar	oic acid	ND	1.0	0.89	ng/1		
335-76-2	Perfluorodecan	oic acid	ND	1.0	0.89	$\frac{ng}{l}$		
2058-94-8	Perfluoroundeo	canoic acid	ND	1.0	0.89	ng/1		
307-55-1	Perfluorododeo	canoic acid	ND	1.0	0.89	$\frac{ng}{l}$		
72629-94-8	Perfluorotridec	anoic acid	ND	1.8	0.89	ng/1		
376-06-7	Perfluorotetrad	lecanoic acid	ND	1.8	0.89	ng/l		
						-		
PERFLUO	ROALKYLSUL	FONIC ACI	DS					
375-73-5	Perfluorobutan	esulfonic acid	ND	1.8	0.89	ng/l		
2706-91-4	Perfluoropenta	nesulfonic aci	d ND	1.8	0.89	ng/l		
355-46-4	Perfluorohexar	nesulfonic acid	I ND	1.8	0.89	ng/l		
375-92-8	Perfluorohepta	nesulfonic aci	d ND	1.8	0.89	ng/l		
1763-23-1	Perfluorooctan	esulfonic acid	ND	1.8	0.89	ng/l		
68259-12-1	Perfluorononar	nesulfonic acid	1 ND	1.8	0.89	ng/l		
335-77-3	Perfluorodecan	esulfonic acid	ND	1.8	0.89	ng/l		
DEDELIO	DOOCTANESI		TC					
754-91-6	PFOSA	LF ONAMID	ND	3.6	1.8	ng/l		
PERFLUO	ROOCTANESU	LEONAMID	OACETIC A	CIDS				
2355-31-9	MeFOSAA		ND	3.6	18	no/l		
2991-50-6	EtFOSAA		ND	3.6	1.8	ng/l		
						8-		
FLUOROT	ELOMER SUL	FONATES						
757124-72-4	4 4:2 Fluorotelor	ner sulfonate	ND	7.1	1.8	ng/l		
27619-97-2	6:2 Fluorotelor	ner sulfonate	ND	7.1	1.8	ng/l		

**Report of Analysis** 

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

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J = Indicates an estimated value

 $B = \ Indicates \ analyte \ found \ in \ associated \ method \ blank$ 

N = Indicates presumptive evidence of a compound

Page 1 of 2

4.6

4

18 of 33

SGS

Client Samp Lab Sample Matrix: Method: Project:	le ID: ID:	EQUIPMENT BLANK FA85506-6 AQ - Equipment Blank EPA 537M BY ID EP Pellston Airport, MI	B A 537 MOI	D		Date Date Perce	Sampled: Received: ent Solids:	05/12/21 05/13/21 n/a	
CAS No.	Comp	ound	Result	RL	MDL	Units	Q		
39108-34-4	108-34-4 8:2 Fluorotelomer sulfonate			7.1	1.8	ng/l			
NEXT GEN	ERAT	ION PFAS ANALYTES	5						
13252-13-6	HFPO	-DA (GenX)	ND	3.6	1.8	ng/l			
919005-14-4	ADON	JA	ND	7.1	1.8	ng/l			
756426-58-1	9Cl-Pl	F3ONS (F-53B Major)	ND	7.1	1.8	ng/l			
763051-92-9	11Cl-I	PF3OUdS (F-53B Minor)	) ND	7.1	1.8	ng/l			
CAS No.	ID Sta	andard Recoveries	Run# 1	Run# 2	Lim	its			
	13C4-	PFBA	89%		35-1	35%			
	13C5-	PFPeA	92%		50-1	50%			
	13C5-	PFHxA	93%		50-1	50%			
	13C4-	PFHpA	92%		50-1	50%			
	13C8-	PFOA	86%		50-1	50%			
	13C9-	PFNA	93%		50-1	50%			
	13C6-	PFDA	87%		50-150%				
	13C7-	PFUnDA	81%		40-1	40%			
	13C2-	PFDoDA	79%		40-1	40%			
	13C2-	PFTeDA	55%		30-1	30%			
	13C3-	PFBS	85%		50-1	50%			
	13C3-	PFHxS	89%		50-1	50%			
	13C8-	PFOS	79%		50-1	50%			
	13C8-	FOSA	114%		30-1	30%			
	d3-Me	FOSAA	109%		40-1	40%			
	d5-EtH	FOSAA	100%		40-1	40%			
	13C2-	4:2FTS	86%		50-1	50%			
	13C2-	6:2FTS	74%		50-1	50%			
	13C2-	8:2FTS	81%		50-1	50%			

93%

**Report of Analysis** 

ND = Not detected MDL = Method Detection Limit

- RL = Reporting Limit
- E = Indicates value exceeds calibration range

13C3-HFPO-DA

J = Indicates an estimated value

50-150%

- B = Indicates analyte found in associated method blank
- N = Indicates presumptive evidence of a compound

Page 2 of 2

4.6



Misc. Forms

Orlando, FL

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody



# **Parameter Certification Exceptions**

Job Number:	FA85506
Account:	LIMNMIAA LimnoTech
Project:	Pellston Airport, MI

The following parameters included in this report are exceptions to NELAC certification. The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
4:2 Fluorotelomer sulfonate	757124-72-4	EPA 537M BY ID	AQ	Certified by SOP MS014
6:2 Fluorotelomer sulfonate	27619-97-2	EPA 537M BY ID	AQ	Certified by SOP MS014
8:2 Fluorotelomer sulfonate	39108-34-4	EPA 537M BY ID	AQ	Certified by SOP MS014
ADONA	919005-14-4	EPA 537M BY ID	AQ	Certified by SOP MS014
11Cl-PF3OUdS (F-53B Minor)	763051-92-9	EPA 537M BY ID	AQ	Certified by SOP MS014
9Cl-PF3ONS (F-53B Major)	756426-58-1	EPA 537M BY ID	AQ	Certified by SOP MS014
EtFOSAA	2991-50-6	EPA 537M BY ID	AQ	Certified by SOP MS014
HFPO-DA (GenX)	13252-13-6	EPA 537M BY ID	AQ	Certified by SOP MS014
MeFOSAA	2355-31-9	EPA 537M BY ID	AQ	Certified by SOP MS014
PFOSA	754-91-6	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorobutanesulfonic acid	375-73-5	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorobutanoic acid	375-22-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorodecanesulfonic acid	335-77-3	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorodecanoic acid	335-76-2	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorododecanoic acid	307-55-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroheptanesulfonic acid	375-92-8	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroheptanoic acid	375-85-9	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorohexanesulfonic acid	355-46-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorohexanoic acid	307-24-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorononanesulfonic acid	68259-12-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorononanoic acid	375-95-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorooctanesulfonic acid	1763-23-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorooctanoic acid	335-67-1	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoropentanesulfonic acid	2706-91-4	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoropentanoic acid	2706-90-3	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorotetradecanoic acid	376-06-7	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluorotridecanoic acid	72629-94-8	EPA 537M BY ID	AQ	Certified by SOP MS014
Perfluoroundecanoic acid	2058-94-8	EPA 537M BY ID	AQ	Certified by SOP MS014

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21 of 33

			TELS M	17-423-07	00 PAA:	407-42	25-070					SGS - ORL	ANDO	Quote	Ŧ	SKIFF	Ŧ		
Client / Reporting Information	-		-	Proje	ct Infor	mati	on						3	Analyt	ical Ir	nformatio	n		Matrix Code
ompany Name: / MINIOTECH		Project N	ame:													1.0	1		DW - Drinking Water
ddress: 5701 Auss Danie		Street	et										1.10			GW - Ground			
ity: Anni Arroc State: MI Zip: 45	KIDR	City	-			-	-	State				2							WW - Water
roject Contact:		Project #	DING	EAS	DHAS	F J	T	MIT	in/	41	44.3	10							SW - Surface Water
hone #: / Tail and the	MIND-COM	Fax #	FUVI	FIN	11115	c a		JVE	SIIC	ALLER	010	0							SO - Soil SL- Sludge
(+34) 332- 1200 Sampler(s) Name(s) (Printed)		Client Pu	rchase (	order #		_		_			-	S							OI - Oil
sampler 1: BLEHA Sampler 2:		onentru				_	_		_			2							AIR - Air
SGS	-	COLLECTION					IER INF	DRMATI	ION	1×1		F						1.3	SOL - Other So
Orlando			SAMPLED		TOTAL #	THER		HOR	SO4	AOH+2	HO	2							
SB21-01 (16-20) GW	S/10/11	153D	BY:	Giul	2	0	X	Ž J	E E	20	<u> </u>	Y			-		-		LAB USE ONL
2 5B21-01 (31-35) GW	5/11/21	0850	1.17	Gul	2		1		1		-	X							
3 SB21-01 (46-50) GW	5/11/21	1105	LTT	GW	2	5	1					X						2	1
9 FIELD BLANK 03	5/10/21	1030	277	WW	2		(		1			X			INITIAL	ASSESSME	N	12	4
5 EQUIPMENT BLANK A	5/11/21	1150	LTI	WW	2	>	<		1			X			5 BEL	VERIFISATI	on C	-/	×
6 EQUIPMENT BLANKB	5/12/21	0930	LTI	WW	2	3	<					X				15.4	1 inter	1.	-
				1											-				
	-				-		_	_	11		-			_			-		
				-	-		-	_	1		-			_	_		-		
	-		-	6	-	-	-	-					-	_	-	++-	-	-	
	-	-	-	-			+	-	-		-		-		-		-	-	
Turnaround Time ( Business days	-		1	Da	ta Deliv	/erab	le In	form	ation	1					C	omments	/ Rem	arks	
Approv	ed By: / Date:	1	Co	MMERC	IAL "A"	RESU	LTS	DNLY	)										
7 Day				MMERC	IAL "B"	RESU	ILTS	PLUS	QC)			-							
5 Day				DT1 (EP	A LEVE	L 3)													
3 Day RUSH				LT1 (EF	PA LEVE	L 4)						-						-	
1 Day RUSH				55															
Other																	_		
Rush T/A Data Available VIA Email or L	ablink ample Custod	v must be	docume	nted bel	ow each	times	samp	es ch	ande	nosse	ssion	, including co	urier del	livery.	_	-	_	-	
Relinquished by Sampler/Affiliation Date Time:	Received By/A	ffiliation	TIT	, 13	100		Rel	nquis	shed	By/Affi	iliation	n	10. 10	Date Tim	e:	Received	By/Affi	iation	
- TELL / CIMNO 1201 5/12/21 1000 ;	- worth	2: (0)	per	0 51	18/121	_	3		1-	X			_	5/13	2	4 19	toff		
		FF111 41																	

FA85506: Chain of Custody Page 1 of 2

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### SGS Sample Receipt Summary

Job Number: FA8	35506		Clien	LIMNOT	ECH	Project: PLN PFAS	PHASE 2		
Date / Time Received: 5/13	3/2021 9	:40:00	AM	Delivery	Method: FX	Airbill #'s:			
Therm ID: IR 1;	Therm ID: IR 1; Therm CF:				<b>;F:</b> -1.8;	<b>rs:</b> 1			
Cooler Temps (Raw Mea	sured) '	° <b>C</b> : Co	oler 1: (3	.0);					
Cooler Temps (Corr	ected)	° <b>C</b> : Co	oler 1: (1	.2);					
Cooler Information	_	Y or	N		Sample Information		Yo	r N	N/A
1. Custody Seals Present		✓			1. Sample labels presen	t on bottles			
2. Custody Seals Intact		✓			2. Samples preserved p	roperly			
3. Temp criteria achieved		✓			3. Sufficient volume/con	tainers recvd for analysis:			
4. Cooler temp verification		IR Gun			4. Condition of sample		Intact		
5. Cooler media		lce (Bag	)		5. Sample recvd within I	ΗT			
					6. Dates/Times/IDs on 0	OC match Sample Label	$\checkmark$		
Trip Blank Information	_	Y or	N	N/A	7. VOCs have headspace	ce			$\checkmark$
1. Trip Blank present / cooler				✓	8. Bottles received for u	nspecified tests			
2. Trip Blank listed on COC				$\checkmark$	9. Compositing instruction	ons clear			$\checkmark$
		w .		NI/A	10. Voa Soil Kits/Jars re	ceived past 48hrs?			
	-	VV O	<u>r s</u>	<u>N/A</u>	11. % Solids Jar receive	ed?			✓
3. Type Of TB Received					12. Residual Chlorine P	resent?			
Misc. Information									
Number of Encores: 25-	Gram		5-Gram	1	Number of 5035 Field Kits:	Number of L	ab Filtered	Metals:	
Test Strip Lot #s:	рH	0-3	2303	15	pH 10-12 219813A	Other: (Spe	cify)	-	
Residual Chlorine Test Stri	ip Lot #:								
Comments									
SM001									
Rev. Date 05/24/17 Tech	nician:	PETERI	1	Date:	5/13/2021 9:40:00 AM	Reviewer:		Date:	

FA85506: Chain of Custody Page 2 of 2







**Section 6** 

MS Semi-volatiles

**Orlando, FL** 

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

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# Method Blank Summary

Job Number: Account: Project:	FA85506 LIMNMIAA Li Pellston Airport	mnoTech , MI					
Sample OP85473-MB	<b>File ID</b> Q81795.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	Prep Batch OP85473	<b>Analytical Batch</b> SQ1782
The QC report	ted here applies t	o the follo	-	Method: EPA 5	37M BY ID		

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0040	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0020	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0020	ug/l	
2355-31-9	MeFOSAA	ND	0.0040	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0040	0.0020	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

### CAS No. ID Standard Recoveries

13C4-PFBA	95%	35-135%
13C5-PFPeA	96%	50-150%
13C5-PFHxA	96%	50-150%
13C4-PFHpA	95%	50-150%

Limits



# Method Blank Summary

Job Number: Account: Project:	FA85506 LIMNMIAA Li Pellston Airport	mnoTech , MI					
Sample OP85473-MB	<b>File ID</b> Q81795.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	Prep Batch OP85473	<b>Analytical Batch</b> SQ1782
The QC repor	ted here applies t	o the follo	Method: EPA 537M BY ID				

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	ID Standard Recoveries	Limits		
	13C8-PFOA	91%	50-150%	
	13C9-PFNA	96%	50-150%	
	13C6-PFDA	99%	50-150%	
	13C7-PFUnDA	92%	40-140%	
	13C2-PFDoDA	86%	40-140%	
	13C2-PFTeDA	81%	30-130%	
	13C3-PFBS	89%	50-150%	
	13C3-PFHxS	95%	50-150%	
	13C8-PFOS	102%	50-150%	
	13C8-FOSA	95%	30-130%	
	d3-MeFOSAA	102%	40-140%	
	d5-EtFOSAA	98%	40-140%	
	13C2-4:2FTS	91%	50-150%	
	13C2-6:2FTS	92%	50-150%	
	13C2-8:2FTS	91%	50-150%	
	13C3-HFPO-DA	96%	50-150%	

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### **Instrument Blank**

Job Number: Account: Project:	FA85506 LIMNMIAA Li Pellston Airport	mnoTech , MI								
Sample SQ1782-IBLK	<b>File ID</b> Q81745.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	<b>By</b> NG	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch SQ1782			
The QC reported here applies to the following samples: Method: EPA 537M QSM5.3 B-15										

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0020	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.0010	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.0010	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.0010	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.0010	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.0010	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.0010	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.0010	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.0010	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.0010	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0040	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.0010	ug/l	
754-91-6	PFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0080	0.0020	ug/l	
2991-50-6	EtFOSAA	ND	0.0080	0.0020	ug/l	
757124-72-4	4:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
39108-34-4	8:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0080	0.0020	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	011Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

### CAS No. ID Standard Recoveries

13C5-PFHxA	92%	50-150%
13C4-PFHpA	93%	50-150%
13C8-PFOA	93%	50-150%
13C9-PFNA	94%	50-150%

Limits



### **Instrument Blank**

Job Number: Account: Project:	FA85506 LIMNMIAA Li Pellston Airport	mnoTech , MI								
Sample SQ1782-IBLK	<b>File ID</b> Q81745.D	<b>DF</b> 1	<b>Analyzed</b> 05/24/21	<b>By</b> NG	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	Analytical Batch SQ1782			
The QC reported here applies to the following samples: Method: EPA 537M QSM5.3 B-15										

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

### CAS No. **ID Standard Recoveries** Limits 13C6-PFDA 97% 50-150% 13C7-PFUnDA 92% 50-150% 13C2-PFDoDA 91% 50-150% 13C2-PFTeDA 88% 50-150% 13C3-PFBS 93% 50-150% 13C3-PFHxS 92% 50-150% 13C8-PFOS 95% 50-150% d3-MeFOSAA 87% 50-150% d5-EtFOSAA 87% 50-150%

Page 2 of 2

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# **Instrument Blank**

Job Numbe Account: Project:	r: FA85506 LIMNMIAA LimnoTech Pellston Airport, MI						C
<b>Sample</b> SQ1783-IBI	File ID DF   LK Q81829.D 1	<b>Analyz</b> 05/25/2	zed By 21 NG	Pre n/a	ep Date	<b>Prep Batch</b> n/a	Analytical Batch SQ1783
<b>The QC rep</b> FA85506-1	ported here applies to the foll	owing samp	les:			Method: EPA	537M QSM5.3 B-15
CAS No.	Compound	Result	RL	MDL	Units	Q	
27619-97-2	6:2 Fluorotelomer sulfonate	ND	0.0080	0.0020	ug/l		
CAS No.	ID Standard Recoveries		Limits	5			
	13C5-PFHxA 13C4-PFHpA 13C8-PFOA 13C9-PFNA 13C6-PFDA 13C7-PFUnDA 13C2-PFDoDA 13C2-PFTeDA 13C2-PFTeDA 13C3-PFBS 13C3-PFHxS 13C8-PFOS d3-MeFOSAA d5-EtFOSAA	95% 95% 96% 101% 102% 95% 93% 98% 92% 94% 103% 118% 122%	50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150 50-150	)% )% )% )% )% )% )% )% )% )%			





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### **Blank Spike Summary**

Job Number: Account: Project:	FA85506 LIMNMIAA Li Pellston Airport	mnoTech , MI					
Sample OP85473-BS	<b>File ID</b> Q81794.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	Prep Batch OP85473	<b>Analytical Batch</b> SQ1782
The QC repor	ted here applies t	o the follo	wing samples:			Method: EPA 5	37M BY ID

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.08	0.0772	97	70-130
2706-90-3	Perfluoropentanoic acid	0.08	0.0759	95	70-130
307-24-4	Perfluorohexanoic acid	0.08	0.0780	98	70-130
375-85-9	Perfluoroheptanoic acid	0.08	0.0761	95	70-130
335-67-1	Perfluorooctanoic acid	0.08	0.0834	104	70-130
375-95-1	Perfluorononanoic acid	0.08	0.0787	98	70-130
335-76-2	Perfluorodecanoic acid	0.08	0.0785	98	70-130
2058-94-8	Perfluoroundecanoic acid	0.08	0.0770	96	70-130
307-55-1	Perfluorododecanoic acid	0.08	0.0753	94	70-130
72629-94-8	Perfluorotridecanoic acid	0.08	0.0742	93	60-140
376-06-7	Perfluorotetradecanoic acid	0.08	0.0730	91	70-130
375-73-5	Perfluorobutanesulfonic acid	0.08	0.0834	104	70-130
2706-91-4	Perfluoropentanesulfonic acid	0.08	0.0764	96	70-130
355-46-4	Perfluorohexanesulfonic acid	0.08	0.0748	94	70-130
375-92-8	Perfluoroheptanesulfonic acid	0.08	0.0645	81	70-130
1763-23-1	Perfluorooctanesulfonic acid	0.08	0.0760	95	70-130
68259-12-1	Perfluorononanesulfonic acid	0.08	0.0754	94	65-130
335-77-3	Perfluorodecanesulfonic acid	0.08	0.0802	100	60-130
754-91-6	PFOSA	0.08	0.0765	96	70-130
2355-31-9	MeFOSAA	0.08	0.0701	88	70-130
2991-50-6	EtFOSAA	0.08	0.0827	103	70-130
757124-72-4	4:2 Fluorotelomer sulfonate	0.08	0.0732	92	70-130
27619-97-2	6:2 Fluorotelomer sulfonate	0.08	0.0753	94	70-130
39108-34-4	8:2 Fluorotelomer sulfonate	0.08	0.0781	98	70-130
13252-13-6	HFPO-DA (GenX)	0.08	0.0731	91	70-130
919005-14-4	ADONA	0.08	0.0745	93	60-140
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.08	0.0722	90	60-140
763051-92-9	011Cl-PF3OUdS (F-53B Minor)	0.08	0.0761	95	60-140

CAS No.	<b>ID Standard Recoveries</b>	BSP	Limits
	13C4-PFBA	93%	35-135%
	13C5-PFPeA	95%	50-150%
	13C5-PFHxA	95%	50-150%
	13C4-PFHpA	91%	50-150%

\* = Outside of Control Limits.



Page 1 of 2



# **Blank Spike Summary**

Job Number: Account: Project:	FA85506 LIMNMIAA Li Pellston Airport	mnoTech , MI					
Sample OP85473-BS	<b>File ID</b> Q81794.D	<b>DF</b> 1	<b>Analyzed</b> 05/25/21	<b>By</b> NG	<b>Prep Date</b> 05/19/21	<b>Prep Batch</b> OP85473	<b>Analytical Batch</b> SQ1782
The QC repor	ted here applies t	o the follo	wing samples:			Method: EPA 5	37M BY ID

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	<b>ID Standard Recoveries</b>	BSP	Limits
	13C8-PFOA	73%	50-150%
	13C9-PFNA	81%	50-150%
	13C6-PFDA	83%	50-150%
	13C7-PFUnDA	83%	40-140%
	13C2-PFDoDA	87%	40-140%
	13C2-PFTeDA	88%	30-130%
	13C3-PFBS	89%	50-150%
	13C3-PFHxS	86%	50-150%
	13C8-PFOS	88%	50-150%
	13C8-FOSA	77%	30-130%
	d3-MeFOSAA	90%	40-140%
	d5-EtFOSAA	83%	40-140%
	13C2-4:2FTS	94%	50-150%
	13C2-6:2FTS	67%	50-150%
	13C2-8:2FTS	77%	50-150%
	13C3-HFPO-DA	94%	50-150%

\* = Outside of Control Limits.







# Matrix Spike/Matrix Spike Duplicate Summary Job Number: FA85506

Account: Project:	LIMNMIAA Li Pellston Airport	mnoTech , MI					
Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85473-MS	Q81798.D	1	05/25/21	NG	05/19/21	OP85473	SQ1782
OP85473-MSD	Q81799.D	1	05/25/21	NG	05/19/21	OP85473	SQ1782
FA85503-2	Q81797.D	1	05/25/21	NG	05/19/21	OP85473	SQ1782

### The QC reported here applies to the following samples:

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	Compound	FA85503-2 ug/l Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	0.0083 U	0.167	0.167	100	0.167	0.166	100	1	70-130/30
2706-90-3	Perfluoropentanoic acid	0.0042 U	0.167	0.167	100	0.167	0.165	99	1	70-130/30
307-24-4	Perfluorohexanoic acid	0.0042 U	0.167	0.169	101	0.167	0.166	100	2	70-130/30
375-85-9	Perfluoroheptanoic acid	0.0042 U	0.167	0.167	100	0.167	0.167	100	0	70-130/30
335-67-1	Perfluorooctanoic acid	0.0042 U	0.167	0.178	107	0.167	0.175	105	2	70-130/30
375-95-1	Perfluorononanoic acid	0.0042 U	0.167	0.168	101	0.167	0.170	102	1	70-130/30
335-76-2	Perfluorodecanoic acid	0.0042 U	0.167	0.167	100	0.167	0.172	103	3	70-130/30
2058-94-8	Perfluoroundecanoic acid	0.0042 U	0.167	0.163	98	0.167	0.170	102	4	70-130/30
307-55-1	Perfluorododecanoic acid	0.0042 U	0.167	0.165	99	0.167	0.165	99	0	70-130/30
72629-94-8	Perfluorotridecanoic acid	0.0042 U	0.167	0.164	98	0.167	0.162	97	1	60-140/30
376-06-7	Perfluorotetradecanoic acid	0.0042 U	0.167	0.166	100	0.167	0.164	98	1	70-130/30
375-73-5	Perfluorobutanesulfonic acid	0.0042 U	0.167	0.179	107	0.167	0.175	105	2	70-130/30
2706-91-4	Perfluoropentanesulfonic acid	0.0042 U	0.167	0.177	106	0.167	0.171	103	3	70-130/30
355-46-4	Perfluorohexanesulfonic acid	0.0042 U	0.167	0.164	98	0.167	0.163	98	1	70-130/30
375-92-8	Perfluoroheptanesulfonic acid	0.0042 U	0.167	0.161	97	0.167	0.156	94	3	70-130/30
1763-23-1	Perfluorooctanesulfonic acid	0.0042 U	0.167	0.174	104	0.167	0.169	101	3	70-130/30
68259-12-1	Perfluorononanesulfonic acid	0.0042 U	0.167	0.181	109	0.167	0.174	104	4	65-130/30
335-77-3	Perfluorodecanesulfonic acid	0.0042 U	0.167	0.185	111	0.167	0.177	106	4	60-130/30
754-91-6	PFOSA	0.0083 U	0.167	0.175	105	0.167	0.172	103	2	70-130/30
2355-31-9	MeFOSAA	0.0083 U	0.167	0.154	92	0.167	0.164	98	6	70-130/30
2991-50-6	EtFOSAA	0.0083 U	0.167	0.163	98	0.167	0.173	104	6	70-130/30
757124-72-4	4:2 Fluorotelomer sulfonate	0.017 U	0.167	0.159	95	0.167	0.157	94	1	70-130/30
27619-97-2	6:2 Fluorotelomer sulfonate	0.017 U	0.167	0.161	97	0.167	0.162	97	1	70-130/30
39108-34-4	8:2 Fluorotelomer sulfonate	0.017 U	0.167	0.166	100	0.167	0.166	100	0	70-130/30
13252-13-6	HFPO-DA (GenX)	0.0083 U	0.167	0.155	93	0.167	0.157	94	1	70-130/30
919005-14-4	ADONA	0.017 U	0.167	0.162	97	0.167	0.164	98	1	60-140/30
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.017 U	0.167	0.151	91	0.167	0.155	93	3	60-140/30
763051-92-9	911Cl-PF3OUdS (F-53B Minor)	0.017 U	0.167	0.160	96	0.167	0.163	98	2	60-140/30

CAS No.	ID Standard Recoveries	MS	MSD	FA85503-2	Limits
	13C4-PFBA 13C5-PFPeA	85% 93%	84% 93%		35-135% 50-150%
	13C5-PFHxA 13C4-PFHpA	93% 94%	94% 93%	95% 93%	50-150% 50-150%

\* = Outside of Control Limits.

Method: EPA 537M BY ID

32 of 33

FA85506

### Matrix Spike/Matrix Spike Duplicate Summary

Job Number:	FA85506	
Account:	LIMNMIAA LimnoTech	
Project:	Pellston Airport, MI	

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85473-MS	Q81798.D	1	05/25/21	NG	05/19/21	OP85473	SQ1782
OP85473-MSD	Q81799.D	1	05/25/21	NG	05/19/21	OP85473	SQ1782
FA85503-2	Q81797.D	1	05/25/21	NG	05/19/21	OP85473	SQ1782

### The QC reported here applies to the following samples:

FA85506-1, FA85506-2, FA85506-3, FA85506-4, FA85506-5, FA85506-6

CAS No.	<b>ID Standard Recoveries</b>	MS	MSD	FA85503-2	Limits
	13C8-PFOA	88%	89%	88%	50-150%
	13C9-PFNA	90%	88%	89%	50-150%
	13C6-PFDA	86%	85%	87%	50-150%
	13C7-PFUnDA	83%	83%	85%	40-140%
	13C2-PFDoDA	83%	86%	86%	40-140%
	13C2-PFTeDA	86%	86%	85%	30-130%
	13C3-PFBS	88%	90%	89%	50-150%
	13C3-PFHxS	94%	93%	90%	50-150%
	13C8-PFOS	83%	86%	87%	50-150%
	13C8-FOSA	81%	86%		30-130%
	d3-MeFOSAA	91%	91%	95%	40-140%
	d5-EtFOSAA	89%	92%	95%	40-140%
	13C2-4:2FTS	95%	95%		50-150%
	13C2-6:2FTS	91%	91%		50-150%
	13C2-8:2FTS	84%	85%		50-150%
	13C3-HFPO-DA	95%	93%	94%	50-150%



Page 2 of 2



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