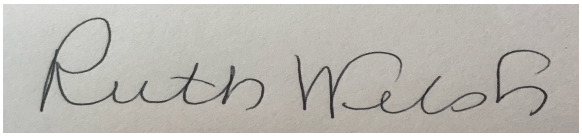
Report of Analysis

Good Samaritan Institute
900 North County Highway 22
Santa Rosa Beach, FL 32459
Attention: Doug Liles

Project Name: PFAS Biota and Soil Analyses

Lot Number:**ZD17009**

Date Completed:05/21/2024



05/21/2024 10:27 AM
Approved and released by:
Project Manager II: **Ruth Welsh**

The electronic signature above is the equivalent of a handwritten signature.

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
Good Samaritan Institute
Lot Number: ZD17009

Samples were subcontracted toPace Green Bay for sample prepartions and Pace MN for PFAS analyses.

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report. Where sampling is conducted by the client, results relate to the accuracy of the information provided, and as the samples are received.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

Pace is a TNI accredited laboratory; however, the following analyses are currently not listed on our TNI scope of accreditation: E. coli and Total coliforms SM 9223 B-2004, Solid Chemical Material: TOC Walkley-Black, Biological Tissue: All, Non-Potable Water: SGT-HEM EPA 1664B, Silica EPA 200.7, Boron, Calcium, Silicon, Strontium EPA 200.8, Bicarbonate, Carbonate, and Hydroxide Alkalinity SM 2320 B-2011, SM 9221 C E-2006 & SM 9222D-2006, Strontium SW-846 6010D, VOC SM 6200 B-2011, Fecal Coliform Colilert-18. If you have any questions regarding this report, please contact the Pace Project Manager listed on the cover page.

Sample Summary
Good Samaritan Institute
Lot Number: ZD17009

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	Catfish Livers	Aqueous	04/16/2024	

(1 sample)

Chain of Custody
and
Miscellaneous Documents

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

ZD17009

Scan QR Code for Instructions

RAW

_Title: ENV-FRM-GBAY-0035 v03_Sample Preservation Receipt Form
ctive Date: 8/16/2022

Sample Preservation Receipt Form

Client Name: Good Samaritan Insititute

Project #

ll containers needing preservation have been checked and noted below: ☐Yes ☐No ☑N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

	Glass							Plastic						Vials						Jars				General					Initial when completed:			Date/ Time:		
ice b#	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
01																									/									2.5 / 5
02																																		2.6 / 5
03																																		2.5 / 5
04																																		2.5 / 5
05																																		2.5 / 5
06																																		2.5 / 5
07																																		2.5 / 5
08																																		2.5 / 5
09																																		2.5 / 5
10																																		2.5 / 5
11																																		2.5 / 5
12																																		2.5 / 5
13																																		2.5 / 5
14																																		2.5 / 6
15																																		2.5 / 5
16																																		2.5 / 5
17																																		2.5 / 5
18																																		2.5 / 5
19																																		2.6 / 6
20																																		2.5 / 5

xceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other:

Headspace in VOA Vials (>6mm): ☐Yes ☐No ☑N/A *If yes look in headspace column

G1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
G1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
G1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
G4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
G5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
G2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
G3U	250 mL clear glass unpres					GN 1	
						GN 2	

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)C#_Title: ENV-FRM-GBAY-0014 v03_SCUR
!ffective Date: 8/17/2022

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Good Samaritan Institute

Courier: ☐ CS Logistics ☑ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other:

AFFIX WORKORDER LABEL HERE

Tracking #: 5839 9187 6874

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other

Thermometer Used SR - 139 **Type of Ice:** Wet Blue Dry None ☒ Meltwater Only

Cooler Temperature Uncorr: 3.0 /Corr: 3.0

Temp Blank Present: ☐ yes ☑ no **Biological Tissue is Frozen:** ☒ yes ☐ no

Person examining contents:
Date: 4/16/24 /Initials: JS

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Labeled By Initials:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2. No date, ID, or time 4/16/2498
Chain of Custody Relinquished:	☐Yes ☑No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume:		8.
For Analysis: ☑Yes ☐No MS/MSD:	☐Yes ☐No ☐N/A	
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: Pace Green Bay, Pace IR, Non-Pace		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: Biota		
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample lo

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Pace® Analytical Services, LLC

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Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

May 21, 2024

Ruth Welsh
Pace Analytical
106 Vantage Point Drive
Columbia, SC 29223

RE: Project: ZD17009
Pace Project No.: 10689691

Dear Ruth Welsh:

Enclosed are the analytical results for sample(s) received by the laboratory on April 16, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Green Bay
- Pace Analytical Services - Minneapolis

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carolynne Trout

Carolynne Trout
carolynne.trout@pacelabs.com
1(612)607-6351
Project Manager

Enclosures

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: ZD17009
Pace Project No.: 10689691

Pace Analytical Services, LLC - Minneapolis MN
1700 Elm Street SE, Minneapolis, MN 55414
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
DoD Certification via A2LA #: 2926.01
EPA Region 8 Tribal Water Systems+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
GMP+ Certification #: GMP050884
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
ISO/IEC 17025 Certification via A2LA #: 2926.01
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: AI-03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Approval: via MN 027-053-137
Minnesota Petrofund Registration #: 1240
Mississippi Certification #: MN00064
Missouri Certification #: 10100
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification (A2LA) #: R-036
North Dakota Certification (MN) #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification (1700) #: CL101
Oklahoma Certification #: 9507
Oregon Primary Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Vermont Certification #: VT-027053137
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DEP Certification #: 382
West Virginia DW Certification #: 9952 C
Wisconsin Certification #: 999407970
Wyoming UST Certification via A2LA #: 2926.01
USDA Permit #: P330-19-00208

Pace Analytical Services Green Bay
1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
Texas Certification #: T104704529-21-8
Virginia VELAP Certification ID: 11873
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-21-00008
Federal Fish & Wildlife Permit #: 51774A

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: ZD17009
Pace Project No.: 10689691

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10689691001	**Catfish livers**	Tissue	04/16/24 00:00	04/16/24 09:35

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: ZD17009
Pace Project No.: 10689691

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10689691001	**Catfish livers**	Pace SOP	CWN	1	PASI-G
		EPA 1633 DRAFT	NBH	55	PASI-M

PASI-G = Pace Analytical Services - Green Bay
PASI-M = Pace Analytical Services - Minneapolis

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SUMMARY OF DETECTION

Project: ZD17009
Pace Project No.: 10689691

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
10689691001	**Catfish livers**					
Pace SOP	Grind Date	04/23/2024 08:16			04/23/24 08:16	
EPA 1633 DRAFT	PFBS	0.43J	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFDA	6.9	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFDS	0.18J	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFHpS	0.61	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFPeA	0.29J	ug/kg	0.94	05/17/24 13:30	
EPA 1633 DRAFT	PFDoA	0.62	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFHpA	0.45J	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFHxS	1.2	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFNA	16.2	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFOS	66.1	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFOA	0.96	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFTeDA	0.27J	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFTrDA	0.51	ug/kg	0.47	05/17/24 13:30	
EPA 1633 DRAFT	PFUnA	2.0	ug/kg	0.47	05/17/24 13:30	

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Minneapolis, MN 55414
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PROJECT NARRATIVE

Project: ZD17009
Pace Project No.: 10689691

Method: **Pace SOP**
Description: Grinding
Client: Pace West Columbia,South Carolina
Date: May 21, 2024

General Information:
1 sample was analyzed for Pace SOP by Pace Analytical Services Green Bay. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: ZD17009
Pace Project No.: 10689691

Method: **EPA 1633 DRAFT**
Description: EPA 1633 DRAFT Tissue
Client: Pace West Columbia,South Carolina
Date: May 21, 2024

General Information:
1 sample was analyzed for EPA 1633 DRAFT by Pace Analytical Services Minneapolis. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 1633 DRAFT with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: 945130

S0: Surrogate recovery outside laboratory control limits.

- BLANK (Lab ID: 4945295)
  - 13C4-PFBA (S)
- BLANK (Lab ID: 4945299)
  - 13C4-PFBA (S)
- Catfish livers (Lab ID: 10689691001)
  - 13C24:2FTS (S)
  - 13C26:2FTS (S)
  - 13C28:2FTS (S)
- LCS (Lab ID: 4945296)
  - 13C4-PFBA (S)
- SRM (Lab ID: 4945298)
  - 13C4-PFBA (S)

S3: Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.

- BLANK (Lab ID: 4945299)
  - 13C26:2FTS (S)

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

PROJECT NARRATIVE

Project: ZD17009
Pace Project No.: 10689691

Method: **EPA 1633 DRAFT**
Description: EPA 1633 DRAFT Tissue
Client: Pace West Columbia,South Carolina
Date: May 21, 2024

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: 945130

L1: Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.

- LCS (Lab ID: 4945296)
  - 11Cl-PF3OUdS
  - 9Cl-PF3ONS

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

- LCS (Lab ID: 4945296)
  - 3:3 FTCA

R1: RPD value was outside control limits.

- LCSD (Lab ID: 4945297)
  - 3:3 FTCA
  - PFHpS
  - PFMPA

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: ZD17009
Pace Project No.: 10689691

Sample: Catfish livers **Lab ID: 10689691001** Collected: 04/16/24 00:00 Received: 04/16/24 09:35 Matrix: Tissue

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Grinding	Analytical Method: Pace SOP Pace Analytical Services - Green Bay								
Grind Date	**04/23/2024 08:16**				1		04/23/24 08:16		
EPA 1633 DRAFT Tissue	Analytical Method: EPA 1633 DRAFT Preparation Method: EPA 1633 DRAFT Initial Volume/Weight: 2.121 g Final Volume/Weight: 5 mL Pace Analytical Services - Minneapolis								
11Cl-PF3OUdS	**<0.55**	ug/kg	1.9	0.55	1	05/15/24 15:15	05/17/24 13:30	763051-92-9	L1
3:3 FTCA	**<1.1**	ug/kg	2.4	1.1	1	05/15/24 15:15	05/17/24 13:30	356-02-5	L2
4:2 FTS	**<0.28**	ug/kg	1.9	0.28	1	05/15/24 15:15	05/17/24 13:30	757124-72-4	
5:3 FTCA	**<1.9**	ug/kg	11.8	1.9	1	05/15/24 15:15	05/17/24 13:30	914637-49-3	
6:2 FTS	**<0.34**	ug/kg	1.9	0.34	1	05/15/24 15:15	05/17/24 13:30	27619-97-2	
7:3 FTCA	**<2.4**	ug/kg	11.8	2.4	1	05/15/24 15:15	05/17/24 13:30	812-70-4	
8:2 FTS	**<0.42**	ug/kg	1.9	0.42	1	05/15/24 15:15	05/17/24 13:30	39108-34-4	
9Cl-PF3ONS	**<0.40**	ug/kg	1.9	0.40	1	05/15/24 15:15	05/17/24 13:30	756426-58-1	L1
ADONA	**<0.36**	ug/kg	1.9	0.36	1	05/15/24 15:15	05/17/24 13:30	919005-14-4	
HFPO-DA	**<0.38**	ug/kg	1.9	0.38	1	05/15/24 15:15	05/17/24 13:30	13252-13-6	
NEtFOSAA	**<0.062**	ug/kg	0.47	0.062	1	05/15/24 15:15	05/17/24 13:30	2991-50-6	
NFDHA	**<0.14**	ug/kg	0.94	0.14	1	05/15/24 15:15	05/17/24 13:30	151772-58-6	
NMeFOSAA	**<0.17**	ug/kg	0.47	0.17	1	05/15/24 15:15	05/17/24 13:30	2355-31-9	
PFBS	**0.43J**	ug/kg	0.47	0.055	1	05/15/24 15:15	05/17/24 13:30	375-73-5	
PFDA	**6.9**	ug/kg	0.47	0.093	1	05/15/24 15:15	05/17/24 13:30	335-76-2	
PFHxA	**<0.058**	ug/kg	0.47	0.058	1	05/15/24 15:15	05/17/24 13:30	307-24-4	
PFBA	**<0.59**	ug/kg	1.9	0.59	1	05/15/24 15:15	05/17/24 13:30	375-22-4	
PFDS	**0.18J**	ug/kg	0.47	0.11	1	05/15/24 15:15	05/17/24 13:30	335-77-3	
PFEESA	**<0.14**	ug/kg	0.94	0.14	1	05/15/24 15:15	05/17/24 13:30	113507-82-7	
PFHpS	**0.61**	ug/kg	0.47	0.078	1	05/15/24 15:15	05/17/24 13:30	375-92-8	
PFMBA	**<0.15**	ug/kg	0.94	0.15	1	05/15/24 15:15	05/17/24 13:30	863090-89-5	
PFMPA	**<0.15**	ug/kg	0.94	0.15	1	05/15/24 15:15	05/17/24 13:30	377-73-1	
PFNS	**<0.11**	ug/kg	0.47	0.11	1	05/15/24 15:15	05/17/24 13:30	68259-12-1	
PFOSA	**<0.068**	ug/kg	0.47	0.068	1	05/15/24 15:15	05/17/24 13:30	754-91-6	
PFPeA	**0.29J**	ug/kg	0.94	0.17	1	05/15/24 15:15	05/17/24 13:30	2706-90-3	
PFPeS	**<0.094**	ug/kg	0.47	0.094	1	05/15/24 15:15	05/17/24 13:30	2706-91-4	
PFDoA	**0.62**	ug/kg	0.47	0.074	1	05/15/24 15:15	05/17/24 13:30	307-55-1	
PFHpA	**0.45J**	ug/kg	0.47	0.096	1	05/15/24 15:15	05/17/24 13:30	375-85-9	
PFHxS	**1.2**	ug/kg	0.47	0.10	1	05/15/24 15:15	05/17/24 13:30	355-46-4	
PFNA	**16.2**	ug/kg	0.47	0.084	1	05/15/24 15:15	05/17/24 13:30	375-95-1	
PFOS	**66.1**	ug/kg	0.47	0.11	1	05/15/24 15:15	05/17/24 13:30	1763-23-1	
PFOA	**0.96**	ug/kg	0.47	0.062	1	05/15/24 15:15	05/17/24 13:30	335-67-1	
PFTeDA	**0.27J**	ug/kg	0.47	0.071	1	05/15/24 15:15	05/17/24 13:30	376-06-7	
PFTrDA	**0.51**	ug/kg	0.47	0.12	1	05/15/24 15:15	05/17/24 13:30	72629-94-8	
PFUnA	**2.0**	ug/kg	0.47	0.086	1	05/15/24 15:15	05/17/24 13:30	2058-94-8	
Surrogates									
13C2-PFDoA (S)	52	%.	20-150		1	05/15/24 15:15	05/17/24 13:30		
13C3HFPO-DA (S)	68	%.	20-150		1	05/15/24 15:15	05/17/24 13:30		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: ZD17009
Pace Project No.: 10689691

Sample: Catfish livers **Lab ID: 10689691001** Collected: 04/16/24 00:00 Received: 04/16/24 09:35 Matrix: Tissue

Results reported on a "wet-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
EPA 1633 DRAFT Tissue	Analytical Method: EPA 1633 DRAFT Preparation Method: EPA 1633 DRAFT Initial Volume/Weight: 2.121 g Final Volume/Weight: 5 mL Pace Analytical Services - Minneapolis								
Surrogates									
13C3-PFBS (S)	75	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	375-73-5	
13C3-PFHxS (S)	77	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	355-46-4	
13C4-PFBA (S)	70	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	375-22-4	
13C4-PFHpA (S)	70	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	375-85-9	
13C5-PFHxA (S)	74	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	307-24-4	
13C5-PFPeA (S)	79	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	2706-90-3	
13C6-PFDA (S)	71	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	335-76-2	
13C8-PFOA (S)	74	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	335-67-1	
13C8-PFOS (S)	58	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	1763-23-1	
13C8-PFOSA (S)	35	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	754-91-6	
13C9-PFNA (S)	71	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	375-95-1	
d3-MeFOSAA (S)	37	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	2355-31-9	
d5-EtFOSAA (S)	43	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	2991-50-6	
13C2-PFTA (S)	21	%.	20-150		1	05/15/24 15:15	05/17/24 13:30		
13C7-PFUdA (S)	73	%.	20-150		1	05/15/24 15:15	05/17/24 13:30	2058-94-8	
13C24:2FTS (S)	166	%.	20-150		1	05/15/24 15:15	05/17/24 13:30		S0
13C26:2FTS (S)	237	%.	20-150		1	05/15/24 15:15	05/17/24 13:30		S0
13C28:2FTS (S)	245	%.	20-150		1	05/15/24 15:15	05/17/24 13:30		S0

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: ZD17009
Pace Project No.: 10689691

QC Batch: 945130
QC Batch Method: EPA 1633 DRAFT
Analysis Method: EPA 1633 DRAFT
Analysis Description: EPA 1633 DRAFT Tissue
Laboratory: Pace Analytical Services - Minneapolis

Associated Lab Samples: 10689691001

METHOD BLANK: 4945295 Matrix: Tissue
Associated Lab Samples: 10689691001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11Cl-PF3OUdS	ug/kg	<0.56	2.0	0.56	05/17/24 09:04	
3:3 FTCA	ug/kg	<1.1	2.4	1.1	05/17/24 09:04	
4:2 FTS	ug/kg	<0.29	2.0	0.29	05/17/24 09:04	
5:3 FTCA	ug/kg	<1.9	12.2	1.9	05/17/24 09:04	
6:2 FTS	ug/kg	<0.35	2.0	0.35	05/17/24 09:04	
7:3 FTCA	ug/kg	<2.5	12.2	2.5	05/17/24 09:04	
8:2 FTS	ug/kg	<0.43	2.0	0.43	05/17/24 09:04	
9Cl-PF3ONS	ug/kg	<0.41	2.0	0.41	05/17/24 09:04	
ADONA	ug/kg	<0.37	2.0	0.37	05/17/24 09:04	
HFPO-DA	ug/kg	<0.40	2.0	0.40	05/17/24 09:04	
NEtFOSAA	ug/kg	<0.065	0.49	0.065	05/17/24 09:04	
NFDHA	ug/kg	<0.14	0.98	0.14	05/17/24 09:04	
NMeFOSAA	ug/kg	<0.18	0.49	0.18	05/17/24 09:04	
PFBA	ug/kg	<0.61	2.0	0.61	05/17/24 09:04	
PFBS	ug/kg	<0.056	0.49	0.056	05/17/24 09:04	
PFDA	ug/kg	<0.097	0.49	0.097	05/17/24 09:04	
PFDoA	ug/kg	<0.077	0.49	0.077	05/17/24 09:04	
PFDS	ug/kg	<0.11	0.49	0.11	05/17/24 09:04	
PFEESA	ug/kg	<0.14	0.98	0.14	05/17/24 09:04	
PFHpA	ug/kg	<0.099	0.49	0.099	05/17/24 09:04	
PFHpS	ug/kg	<0.081	0.49	0.081	05/17/24 09:04	
PFHxA	ug/kg	<0.060	0.49	0.060	05/17/24 09:04	
PFHxS	ug/kg	<0.10	0.49	0.10	05/17/24 09:04	
PFMBA	ug/kg	<0.16	0.98	0.16	05/17/24 09:04	
PFMPA	ug/kg	<0.15	0.98	0.15	05/17/24 09:04	
PFNA	ug/kg	<0.087	0.49	0.087	05/17/24 09:04	
PFNS	ug/kg	<0.12	0.49	0.12	05/17/24 09:04	
PFOA	ug/kg	<0.064	0.49	0.064	05/17/24 09:04	
PFOS	ug/kg	<0.11	0.49	0.11	05/17/24 09:04	
PFOSA	ug/kg	<0.070	0.49	0.070	05/17/24 09:04	
PFPeA	ug/kg	<0.18	0.98	0.18	05/17/24 09:04	
PFPeS	ug/kg	<0.097	0.49	0.097	05/17/24 09:04	
PFTeDA	ug/kg	<0.073	0.49	0.073	05/17/24 09:04	
PFTrDA	ug/kg	<0.13	0.49	0.13	05/17/24 09:04	
PFUnA	ug/kg	<0.089	0.49	0.089	05/17/24 09:04	
13C2-PFDoA (S)	%.	84	20-150		05/17/24 09:04	
13C2-PFTA (S)	%.	27	20-150		05/17/24 09:04	
13C24:2FTS (S)	%.	50	20-150		05/17/24 09:04	
13C26:2FTS (S)	%.	93	20-150		05/17/24 09:04	
13C28:2FTS (S)	%.	107	20-150		05/17/24 09:04	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: ZD17009
Pace Project No.: 10689691

METHOD BLANK: 4945295 Matrix: Tissue
Associated Lab Samples: 10689691001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
13C3-PFBS (S)	%.	56	20-150		05/17/24 09:04	
13C3-PFHxS (S)	%.	73	20-150		05/17/24 09:04	
13C3HFPO-DA (S)	%.	47	20-150		05/17/24 09:04	
13C4-PFBA (S)	%.	9	20-150		05/17/24 09:04	S0
13C4-PFHpA (S)	%.	54	20-150		05/17/24 09:04	
13C5-PFHxA (S)	%.	48	20-150		05/17/24 09:04	
13C5-PFPeA (S)	%.	33	20-150		05/17/24 09:04	
13C6-PFDA (S)	%.	73	20-150		05/17/24 09:04	
13C7-PFUdA (S)	%.	84	20-150		05/17/24 09:04	
13C8-PFOA (S)	%.	62	20-150		05/17/24 09:04	
13C8-PFOS (S)	%.	83	20-150		05/17/24 09:04	
13C8-PFOSA (S)	%.	90	20-150		05/17/24 09:04	
13C9-PFNA (S)	%.	69	20-150		05/17/24 09:04	
d3-MeFOSAA (S)	%.	79	20-150		05/17/24 09:04	
d5-EtFOSAA (S)	%.	91	20-150		05/17/24 09:04	

METHOD BLANK: 4945299 Matrix: Tissue
Associated Lab Samples: 10689691001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
11Cl-PF3OUdS	ug/kg	<0.56	1.9	0.56	05/17/24 10:44	
3:3 FTCA	ug/kg	<1.1	2.4	1.1	05/17/24 10:44	
4:2 FTS	ug/kg	<0.29	1.9	0.29	05/17/24 10:44	
5:3 FTCA	ug/kg	<1.9	12.1	1.9	05/17/24 10:44	
6:2 FTS	ug/kg	<0.35	1.9	0.35	05/17/24 10:44	
7:3 FTCA	ug/kg	<2.5	12.1	2.5	05/17/24 10:44	
8:2 FTS	ug/kg	<0.43	1.9	0.43	05/17/24 10:44	
9Cl-PF3ONS	ug/kg	<0.41	1.9	0.41	05/17/24 10:44	
ADONA	ug/kg	<0.37	1.9	0.37	05/17/24 10:44	
HFPO-DA	ug/kg	<0.39	1.9	0.39	05/17/24 10:44	
NEtFOSAA	ug/kg	<0.064	0.48	0.064	05/17/24 10:44	
NFDHA	ug/kg	<0.14	0.97	0.14	05/17/24 10:44	
NMeFOSAA	ug/kg	0.18J	0.48	0.17	05/17/24 10:44	
PFBA	ug/kg	<0.61	1.9	0.61	05/17/24 10:44	
PFBS	ug/kg	<0.056	0.48	0.056	05/17/24 10:44	
PFDA	ug/kg	<0.096	0.48	0.096	05/17/24 10:44	
PFDoA	ug/kg	<0.076	0.48	0.076	05/17/24 10:44	
PFDS	ug/kg	<0.11	0.48	0.11	05/17/24 10:44	
PFEESA	ug/kg	<0.14	0.97	0.14	05/17/24 10:44	
PFHpA	ug/kg	<0.098	0.48	0.098	05/17/24 10:44	
PFHpS	ug/kg	<0.080	0.48	0.080	05/17/24 10:44	
PFHxA	ug/kg	<0.060	0.48	0.060	05/17/24 10:44	
PFHxS	ug/kg	<0.10	0.48	0.10	05/17/24 10:44	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: ZD17009
Pace Project No.: 10689691

METHOD BLANK: 4945299 Matrix: Tissue
Associated Lab Samples: 10689691001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PFMBA	ug/kg	<0.16	0.97	0.16	05/17/24 10:44	
PFMPA	ug/kg	<0.15	0.97	0.15	05/17/24 10:44	
PFNA	ug/kg	<0.086	0.48	0.086	05/17/24 10:44	
PFNS	ug/kg	<0.12	0.48	0.12	05/17/24 10:44	
PFOA	ug/kg	<0.063	0.48	0.063	05/17/24 10:44	
PFOS	ug/kg	<0.11	0.48	0.11	05/17/24 10:44	
PFOSA	ug/kg	<0.070	0.48	0.070	05/17/24 10:44	
PFPeA	ug/kg	<0.17	0.97	0.17	05/17/24 10:44	
PFPeS	ug/kg	<0.096	0.48	0.096	05/17/24 10:44	
PFTeDA	ug/kg	<0.072	0.48	0.072	05/17/24 10:44	
PFTrDA	ug/kg	<0.13	0.48	0.13	05/17/24 10:44	
PFUnA	ug/kg	0.11J	0.48	0.088	05/17/24 10:44	
13C2-PFDoA (S)	%.	69	20-150		05/17/24 10:44	
13C2-PFTA (S)	%.	22	20-150		05/17/24 10:44	
13C24:2FTS (S)	%.	103	20-150		05/17/24 10:44	
13C26:2FTS (S)	%.	151	20-150		05/17/24 10:44	S3
13C28:2FTS (S)	%.	139	20-150		05/17/24 10:44	
13C3-PFBS (S)	%.	69	20-150		05/17/24 10:44	
13C3-PFHxS (S)	%.	72	20-150		05/17/24 10:44	
13C3HFPO-DA (S)	%.	77	20-150		05/17/24 10:44	
13C4-PFBA (S)	%.	12	20-150		05/17/24 10:44	S0
13C4-PFHpA (S)	%.	75	20-150		05/17/24 10:44	
13C5-PFHxA (S)	%.	74	20-150		05/17/24 10:44	
13C5-PFPeA (S)	%.	59	20-150		05/17/24 10:44	
13C6-PFDA (S)	%.	75	20-150		05/17/24 10:44	
13C7-PFUdA (S)	%.	73	20-150		05/17/24 10:44	
13C8-PFOA (S)	%.	73	20-150		05/17/24 10:44	
13C8-PFOS (S)	%.	77	20-150		05/17/24 10:44	
13C8-PFOSA (S)	%.	80	20-150		05/17/24 10:44	
13C9-PFNA (S)	%.	75	20-150		05/17/24 10:44	
d3-MeFOSAA (S)	%.	81	20-150		05/17/24 10:44	
d5-EtFOSAA (S)	%.	85	20-150		05/17/24 10:44	

LABORATORY CONTROL SAMPLE & LCSD: 4945296 4945297

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
11Cl-PF3OUdS	ug/kg	19.5	33.4	25.3	171	116	40-150	27	30	L1
3:3 FTCA	ug/kg	25.8	10	22.1	39	76	40-150	76	30	L2,R1
4:2 FTS	ug/kg	19.4	22.0	24.9	113	114	40-150	13	30	
5:3 FTCA	ug/kg	129	129	161	100	111	40-150	22	30	
6:2 FTS	ug/kg	19.6	22.0	25.0	112	113	40-150	13	30	
7:3 FTCA	ug/kg	129	149	167	115	115	40-150	11	30	
8:2 FTS	ug/kg	19.9	23.0	26.5	116	118	40-150	14	30	
9Cl-PF3ONS	ug/kg	19.4	34.2	27.7	177	127	40-150	21	30	L1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: ZD17009
Pace Project No.: 10689691

LABORATORY CONTROL SAMPLE & LCSD: 4945296 4945297

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
ADONA	ug/kg	19.5	23.7	25.7	122	117	40-150	8	30	
HFPO-DA	ug/kg	20.7	23.0	25.8	111	111	40-150	11	30	
NEtFOSAA	ug/kg	5.2	5.2	6.4	101	110	40-150	20	30	
NFDHA	ug/kg	10.3	11.2	13.3	108	114	40-150	17	30	
NMeFOSAA	ug/kg	5.2	5.5	6.8	106	117	40-150	21	30	
PFBA	ug/kg	20.7	20.5	26.0	99	112	40-150	23	30	
PFBS	ug/kg	4.6	4.9	5.7	106	110	40-150	15	30	
PFDA	ug/kg	5.2	5.6	6.7	108	115	40-150	17	30	
PFDoA	ug/kg	5.2	5.6	6.7	108	116	40-150	18	30	
PFDS	ug/kg	5	5.5	6.1	111	109	40-150	10	30	
PFEESA	ug/kg	9.2	11.1	12.0	121	116	40-150	7	30	
PFHpA	ug/kg	5.2	5.9	6.7	114	115	40-150	13	30	
PFHpS	ug/kg	4.9	4.6	6.3	93	114	40-150	32	30	R1
PFHxA	ug/kg	5.2	5.8	6.7	112	116	40-150	15	30	
PFHxS	ug/kg	4.7	4.8	5.9	102	111	40-150	20	30	
PFMBA	ug/kg	10.3	10.7	11.4	104	98	40-150	6	30	
PFMPA	ug/kg	10.3	6.5	11.9	63	103	40-150	58	30	R1
PFNA	ug/kg	5.2	5.7	6.8	110	116	40-150	17	30	
PFNS	ug/kg	5	5.6	6.1	112	109	40-150	9	30	
PFOA	ug/kg	5.2	5.6	6.5	108	111	40-150	14	30	
PFOS	ug/kg	4.8	4.8	5.8	99	107	40-150	19	30	
PFOSA	ug/kg	5.2	5.6	6.6	108	113	40-150	16	30	
PFPeA	ug/kg	10.3	11.3	13.3	110	114	40-150	16	30	
PFPeS	ug/kg	4.9	4.9	6.1	101	112	40-150	22	30	
PFTeDA	ug/kg	5.2	5.9	6.7	114	115	40-150	13	30	
PFTrDA	ug/kg	5.2	3.8	4.2	74	72	40-150	8	30	
PFUnA	ug/kg	5.2	5.4	6.6	104	114	40-150	20	30	
13C2-PFDoA (S)	%.				68	69	20-150			
13C2-PFTA (S)	%.				25	21	20-150			
13C24:2FTS (S)	%.				46	82	20-150			
13C26:2FTS (S)	%.				77	122	20-150			
13C28:2FTS (S)	%.				88	118	20-150			
13C3-PFBS (S)	%.				54	71	20-150			
13C3-PFHxS (S)	%.				61	71	20-150			
13C3HFPO-DA (S)	%.				48	68	20-150			
13C4-PFBA (S)	%.				15	59	20-150			S0
13C4-PFHpA (S)	%.				50	69	20-150			
13C5-PFHxA (S)	%.				47	68	20-150			
13C5-PFPeA (S)	%.				40	68	20-150			
13C6-PFDA (S)	%.				57	73	20-150			
13C7-PFUdA (S)	%.				67	73	20-150			
13C8-PFOA (S)	%.				52	71	20-150			
13C8-PFOS (S)	%.				66	73	20-150			
13C8-PFOSA (S)	%.				70	88	20-150			
13C9-PFNA (S)	%.				55	71	20-150			
d3-MeFOSAA (S)	%.				62	74	20-150			
d5-EtFOSAA (S)	%.				73	84	20-150			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: ZD17009
Pace Project No.: 10689691

LABORATORY CONTROL SAMPLE: 4945298

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
11Cl-PF3OUdS	ug/kg	3.7	4.4	118	40-150	
3:3 FTCA	ug/kg	4.9	2.1J	43	40-150	
4:2 FTS	ug/kg	3.7	4.2	114	40-150	
5:3 FTCA	ug/kg	24.6	28.2	114	40-150	
6:2 FTS	ug/kg	3.7	4.4	118	40-150	
7:3 FTCA	ug/kg	24.6	28.6	116	40-150	
8:2 FTS	ug/kg	3.8	4.6	122	40-150	
9Cl-PF3ONS	ug/kg	3.7	4.8	131	40-150	
ADONA	ug/kg	3.7	4.4	119	40-150	
HFPO-DA	ug/kg	3.9	4.4	112	40-150	
NEtFOSAA	ug/kg	0.98	1.1	111	40-150	
NFDHA	ug/kg	2	2.2	113	40-150	
NMeFOSAA	ug/kg	0.98	1.2	117	40-150	
PFBA	ug/kg	3.9	3.6	92	40-150	
PFBS	ug/kg	0.87	0.96	110	40-150	
PFDA	ug/kg	0.98	1.1	116	40-150	
PFDoA	ug/kg	0.98	1.1	114	40-150	
PFDS	ug/kg	0.95	1.0	106	40-150	
PFEESA	ug/kg	1.8	1.9	106	40-150	
PFHpA	ug/kg	0.98	1.1	114	40-150	
PFHpS	ug/kg	0.94	1.0	106	40-150	
PFHxA	ug/kg	0.98	1.1	114	40-150	
PFHxS	ug/kg	0.9	1.0	115	40-150	
PFMBA	ug/kg	2	2.0	100	40-150	
PFMPA	ug/kg	2	1.2	62	40-150	
PFNA	ug/kg	0.98	1.2	119	40-150	
PFNS	ug/kg	0.95	1.1	111	40-150	
PFOA	ug/kg	0.98	1.1	115	40-150	
PFOS	ug/kg	0.91	0.95	104	40-150	
PFOSA	ug/kg	0.98	1.2	118	40-150	
PFPeA	ug/kg	2	2.3	115	40-150	
PFPeS	ug/kg	0.93	1.0	112	40-150	
PFTeDA	ug/kg	0.98	1.1	116	40-150	
PFTrDA	ug/kg	0.98	0.76	78	40-150	
PFUnA	ug/kg	0.98	1.1	113	40-150	
13C2-PFDoA (S)	%.			72	20-150	
13C2-PFTA (S)	%.			25	20-150	
13C24:2FTS (S)	%.			84	20-150	
13C26:2FTS (S)	%.			119	20-150	
13C28:2FTS (S)	%.			117	20-150	
13C3-PFBS (S)	%.			73	20-150	
13C3-PFHxS (S)	%.			76	20-150	
13C3HFPO-DA (S)	%.			66	20-150	
13C4-PFBA (S)	%.			18	20-150	S0
13C4-PFHpA (S)	%.			66	20-150	
13C5-PFHxA (S)	%.			68	20-150	
13C5-PFPeA (S)	%.			62	20-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: ZD17009
Pace Project No.: 10689691

LABORATORY CONTROL SAMPLE: 4945298

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
13C6-PFDA (S)	%.			72	20-150	
13C7-PFUdA (S)	%.			75	20-150	
13C8-PFOA (S)	%.			68	20-150	
13C8-PFOS (S)	%.			74	20-150	
13C8-PFOSA (S)	%.			86	20-150	
13C9-PFNA (S)	%.			69	20-150	
d3-MeFOSAA (S)	%.			73	20-150	
d5-EtFOSAA (S)	%.			82	20-150	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: ZD17009
Pace Project No.: 10689691

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.

Pace Analytical Services, LLC
1700 Elm Street
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ZD17009
Pace Project No.: 10689691

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10689691001	**Catfish livers**	Pace SOP	472463		
10689691001	**Catfish livers**	EPA 1633 DRAFT	945130	EPA 1633 DRAFT	946825

Internal Transfer Chain of Custody

40276907

Pace

☐ Rush Multiplier____X
☒ Samples Pre-Logged into eCOC

State Of Origin: FL
Cert. Needed: ☐ Yes ☒ No

Workorder: 10689691 **Workorder Name:** ZD17009

Owner Received Date: 4/16/2024 **Results Requested By:** 4/23/2024

Report To	Subcontract To
Carolynne Trout Pace Analytical Minnesota 1700 Elm Street Minneapolis, MN 55414 Phone 1(612)607-6351	Pace Analytical Green Bay 1241 Bellevue Street Suite 9 Green Bay, WI 54302 Phone (920)469-2436

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: Tissue homogenization	LAB USE ONLY
1	Catfish livers	PS	4/16/2024 00:00	10689691001	Tissue	1	X	0691
2								
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Fedex	4/16/24 0935	Pace	4/17/24 0935
2	[illegible]	4/25/24 1600	Pace	4-26-24 1420
3				

Comments
Homogenize then ship to Pace MN for analysis.

Cooler Temperature on Receipt ~~3.0°C~~ -17.3 EC 4.26.24 **Custody Seal** (Y) or N EC 4-26-24 **Received on Ice** (Y) or N **Samples Intact** (Y) or N

****In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC document. This chain of custody is considered complete as is since this information is available in the owner laboratory.*

ENV-FRM-MIN4-0150 v16_Sample Condition Upon Receipt

CLIENT NAME: PaceGreen Bay PROJECT #:

WO#: 10689691
PM: CT1 Due Date: 04/29/24
CLIENT: Pace WC

COURIER: ☐ Client ☑ Commercial ☐ FedEx ☐ Pace ☐ SpeeDee ☐ UPS ☐ USPS

TRACKING NUMBER: 388228G2 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Coole/Box Present: ☑ YES ☐ NO Seals Intact: ☑ YES ☐ NO Biological Tissue Frozen: ☑ YES ☐ NO ☐ N/A EC 4-26-24

Packing Material: ☐ Bubble Bags ☐ Bubble Wrap ☑ None ☐ Other Temp Blank: ☐ YES ☑ NO Type of Ice: ☐ Blue ☑ Dry ☐ Wet ☐ Melted ☐ None

Thermometer: ☑ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☐ T9 (0727) ☐ 01339252 (1710)

Did Samples Originate in West Virginia: ☐ YES ☑ NO	Were All Container Temps taken: ☐ YES ☐ NO ☑ N/A
Correction Factor: +0.1 Cooler Temp Read w/Temp Blank: _____ °C Cooler Temp Corrected w/Temp Blank: _____ °C	Average Corrected Temp (no Temp Blank Only): -1.8 °C
NOTE: Temp should be above freezing to 6°C.	☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container
USDA Regulated Soil: ☑ N/A – Water Sample/Other (describe): Tissue	Initials & Date of Person Examining Contents: EC 4-26-24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☐ NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☐ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): ☐ DULUTH ☑ MINNEAPOLIS ☐ VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	☑	☐		1.
Chain of Custody Relinquished?	☑	☐		2.
Sampler Name and/or Signature on COC?	☐	☐	☑	3.
Samples Arrived within Hold Time?	☑	☐		4. If Fecal: ☐ <8 hrs ☐ >8 hr, <24 hr ☐ No
Short Hold Time Analysis (<72 hr)?	☐	☑		5. ☐ BOD / cBOD ☐ Fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/*E. coli* ☐ Other:
Rush Turn Around Time Requested?	☐	☑		6.
Sufficient Sample Volume?	☑	☐		7.
Correct Containers Used? – Pace Containers Used?	☑ ☑	☐ ☐	☐	8.
Containers Intact?	☑	☐		9.
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☑	10. Is sediment visible in the dissolved container: ☐ YES ☐ NO
Is sufficient information available to reconcile the samples to the COC? **NOTE:** If ID/Date/Time don't match fill out section 11. Matrix: ☐ Oil ☐ Soil ☐ Water ☑ Other Tissue	☑	☐		**11. If NO, write ID/Date/Time of container below:** ☐ See Exceptions form ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐	☐	☑	12. Sample #:
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)	☐	☐	☑	☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	☐	☐	☑	Positive for Residual Chlorine: ☐ YES ☐ NO
NOTE: If adding preservation to the container, **verify with the PM first.** Clients may require adding preservative to the field and equipment blanks when this occurs.				**pH Paper Lot #**
				Residual Chlorine / 0-6 Roll / 0-6 Strip / 0-14 Strip (blank)
				☐ See Exceptions form ENV-FRM-MIN4-0142
Headspace in Methyl Mercury Container?	☐	☐	☑	13.
Extra labels present on soil VOA or WIDRO containers?	☐	☐	☑	14.
Headspace in VOA Vials (greater than 6mm)?	☐	☐	☑	☐ See Exceptions form ENV-FRM-MIN4-0142
Trip Blanks Present?	☐	☐	☑	15.
Trip Blank Custody Seals Present?	☐	☐	☑	Pace Trip Blank Lot # (if purchased):

CLIENT NOTIFICATION / RESOLUTION **FIELD DATA REQUIRED:** ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Carolynne Trout **Date:** 4/29/24

NOTE: *When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).*

Labeled By: FC **Line:** 2

Workorder #: _____

No Temp Blank		
Read Temp	Corrected Temp	Average temp
-20.5	-20.3	-17.8
-17.8	-17.6	
-18.3	-18.1	
-15.3	-15.1	

PM Notified of Out of Temp Cooler? ☐ YES ☐ NO
If yes, indicate who was contacted, date and time. If no, indicate reason why.
Multiple Cooler Project? ☐ YES ☐ NO

If anything is OVER 6.0°C, you MUST document containers in this section HERE

Tracking Number	Temperature

Out of Temp Sample ID	Container Type	# of Containers

pH Adjustment Log for Preserved Samples										
Sample ID	Type Of Preserve	pH Upon Receipt	Date Adjusted	Time Adjusted	Amount Added (mL)	Lot # Added	pH After	In Compliance After Addition? YES	In Compliance After Addition? NO	Initials
								☐	☐	
								☐	☐	
								☐	☐	
								☐	☐	
								☐	☐	
								☐	☐	
								☐	☐	
								☐	☐	

Comments:

Pace® Location Requested (City/State)

CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

LAB USE ONLY- Affix Workorder/Login Label Here

Scan QR Code for instructions

Company Name.	Good Samaritan Institute	Contact/Report To:	Doug Liles
Street Address.	900 North County Highway 22, Santa Rosa Beach FL 32459	Phone #	850-622-8150
		E-Mail.	admin@goodsam.ai
		Cc E-Mail:	
Customer Project #.	PFAS - Biota	Invoice To:	
Project Name:		Invoice E-Mail:	
Site Collection Info/Facility ID (as applicable)		Purchase Order # (if applicable).	
		Quote #.	

Time Zone Collected: [ ] AK [ ] PT [ ] MT [ ] CT [ ] ET

County / State origin of sample(s):

Data Deliverables:

[ ] Level II [ ] Level III [ ] Level IV

[ ] EQUIS

[ ] Other_____

Regulatory Program (DW, RCRA, etc.) as applicable

Rush (Pre-approval required):

[ ] 2 Day [ ] 3 day [ ] 5 day [ ] Other_____

Date Results Requested:

DW PWSID # or WW Permit # as applicable:

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis.

Specify Container Size **

**Container Size: (1) 1L, (2) 500mL, (3) 250mL, (4) 125mL, (5) 100mL, (6) 40mL vial, (7) EnCore, (8) TerraCore, (9) Other

Identify Container Preservative Type***

*** Preservative Types: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) NaHSO4, (8) Sod. Thiosulfate, (9) Ascorbic Acid, (10) MeOH, (11) Other

Analysis Requested

Lab Use Only: Proj. Mgr: / AcctNum / Client ID: / Table #: / Profile / Template / Prelog / Bottle Ord. ID:

Preservation non-conformance identified for sample

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Waste Water (WW), Product (P), Soil/Solid (SS), Oil (OL), Wipe (WP), Tissue (TS), Bioassay (B), Vapor (V), Other (OT), Surface Water (SW),Sediment (SED), Sludge (SL), Caulk

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Collected (or Composite Start) Time	Composite End Date	Composite End Time	Res. Cl2	Number & Type of Containers Plastic	Number & Type of Containers Glass	PFAS - Biota	Sample Comment
Catfish livers (1)											001
											(1) ID taken from sample by lab 4/16/24 86

Customer Remarks / Special Conditions / Possible Hazards:

Collected By:

Printed Name:

Signature:

Additional Instructions from Pace®:

# Coolers:	Thermometer ID:	Correction Factor (°C):	Obs. Temp. (°C)	Corrected Temp. (°C)

Relinquished by/Company. (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Tracking Number:
Fedex	4/16/24 0935	Pace	4/16/24 0935	
Relinquished by/Company: (Signature)	Date/Time.	Received by/Company: (Signature)	Date/Time:	Delivered by: [ ] In- Person [ ] Courier
Relinquished by/Company: (Signature)	Date/Time.	Received by/Company. (Signature)	Date/Time:	[ ] FedEX [ ] UPS [ ] Other
Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:	Page: of

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/

ENV-FRM-CORQ-0019_v01_082123 ©

Sample Preservation Receipt Form

Client Name: Good Samaritan Institute Project #

All containers needing preservation have been checked and noted below. ☐Yes ☐No ☑N/A

Lab Lot# of pH paper: Lab Std #ID of preservation (if pH adjusted): Initial when completed: Date/ Time:

	Glass						Plastic						Vials						Jars				General								
Pace Lab #	AG1U	BG1U	AG1H	AG4S	AG5U	AG2S	BG3U	BP1U	BP3U	BP3B	BP3N	BP3S	BP2Z	VG9C	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	JG9U	WGFU	WPFU	SP5T	ZPLC	GN 1	GN 2	VOA Vials (>6mm) *	H2SO4 pH ≤2	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≤2	pH after adjusted	Volume (mL)
001																									1									2.5 / 5
002																																		2.5 / 5
003																																		2.5 / 5
004																																		2.5 / 5
005																																		2.5 / 5
006																																		2.5 / 5
007																																		2.5 / 5
008																																		2.5 / 5
009																																		2.5 / 5
010																																		2.5 / 5
011																																		2.5 / 5
012																																		2.5 / 5
013																																		2.5 / 5
014																																		2.5 / 5
015																																		2.5 / 5
016																																		2.5 / 5
017																																		2.5 / 5
018																																		2.5 / 5
019																																		2.5 / 5
020																																		2.5 / 5

Exceptions to preservation check VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: Headspace in VOA Vials (>6mm) : ☐Yes ☐No ☑N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	VG9C	40 mL clear ascorbic w/ HCl	JGFU	4 oz amber jar unpres
BG1U	1 liter clear glass	BP3U	250 mL plastic unpres	DG9T	40 mL amber Na Thio	JG9U	9 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP3B	250 mL plastic NaOH	VG9U	40 mL clear vial unpres	WGFU	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9H	40 mL clear vial HCL	WPFU	4 oz plastic jar unpres
AG5U	100 mL amber glass unpres	BP3S	250 mL plastic H2SO4	VG9M	40 mL clear vial MeOH	SP5T	120 mL plastic Na Thiosulfate
AG2S	500 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH + Zn	VG9D	40 mL clear vial DI	ZPLC	ziploc bag
BG3U	250 mL clear glass unpres					GN 1	
						GN 2	

Page 1 of 2

Sample Condition Upon Receipt Form (SCUR)

Project #:

AFFIX WORKORDER LABEL HERE

Client Name: Good Samaritan Institute

Courier: ☐ CS Logistics ☑ Fed Ex ☐ Speedee ☐ UPS ☐ Waltco ☐ Client ☐ Pace Other:

Tracking #: 5839 9187 6874

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other

Thermometer Used SR - 139 **Type of Ice:** Wet Blue Dry None ☒ Meltwater Only

Cooler Temperature Uncorr: 3.0 /Corr: 3.0

Temp Blank Present: ☐ yes ☑ no **Biological Tissue is Frozen:** ☒ yes ☐ no

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C if shipped on Dry Ice.

Person examining contents:
Date: 4/16/24 /Initials: SG

Labeled By Initials:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☐Yes ☑No ☐N/A	2. no date, ID, or time 4/16/24 SG
Chain of Custody Relinquished:	☐Yes ☑No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☑No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No	5.
- DI VOA Samples frozen upon receipt	☐Yes ☐No	Date/Time:
Short Hold Time Analysis (<72hr):	☐Yes ☑No	6.
Rush Turn Around Time Requested:	☐Yes ☑No	7.
Sufficient Volume: For Analysis: ☑Yes ☐No MS/MSD: ☐Yes ☑No ☐N/A		8.
Correct Containers Used:	☑Yes ☐No	9.
Correct Type: Pace Green Bay, Pace IR, (Non-Pace)		
Containers Intact:	☑Yes ☐No	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: Biota	☑Yes ☐No ☐N/A	12.
Trip Blank Present:	☐Yes ☐No ☑N/A	13.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

PM Review is documented electronically in LIMs. By releasing the project, the PM acknowledges they have reviewed the sample logi

Page 2 of 2