

GEOTECHNICAL

ENVIRONMENTAL ECOLOGICAL

WATER

CONSTRUCTION

17975 West Sarah Lane Suite 100 Brookfield, WI 53045 T: 262.754.2560 F: 262.923.7758 www.gza.com



October 6, 2021 File No. 20.0157080.00

Mr. Kevin D. McKnight, Advanced Hydrogeologist Wisconsin Department of Natural Resources 625 East County Road Y, Suite 700 Oshkosh, Wisconsin 54901-9731

Re: Preliminary Soil and Groundwater Analytical Results

Oshkosh Defense LLC - Waukau Lot and West Plant Sites

WDNR BRRTS #02-71-587405 and #02-71-587406

Dear Mr. McKnight:

On September 30, 2021, representatives of GZA GeoEnvironmental, Inc. (GZA), Oshkosh Defense, LLC (Oshkosh), and the Wisconsin Department of Natural Resources (WDNR) participated in a virtual meeting to discuss the per- and polyfluoroalkyl substance (PFAS) results of recent soil and groundwater samples collected at the Waukau Lot (BRRTS #02-71-587405) and West Plant (BRRTS #02-71-587406) sites. Figure 1 shows the locations of the soil borings and monitoring well at the Waukau Lot site and Figures 2 and 3 show the locations of the monitoring well and soil borings at the West Plant site. Following a period of internal data quality review, GZA, on behalf of Oshkosh, is submitting this letter and the attached analytical reports as notification to the WDNR as required under Wisconsin Administrative Code (Wis. Admin. Code) Chapter NR 716.14.

As we discussed during our virtual meeting, given these initial laboratory results, the natural variability in groundwater sampling, and the low levels of quantification involved, Oshkosh is electing to conduct a resampling of the monitoring wells on both the Waukau Lot and West Plant sites to confirm the initial results and improve confidence in the findings on which further decisions can be made. We plan to conduct this resampling at both sites during the month of October 2021. Once the resampling laboratory results are received and reviewed, GZA and Oshkosh will provide an interpretation of the findings, our conclusions, and the proposed next steps.

We appreciate the WDNR's assistance in this matter. If you have questions regarding the information presented, please feel free to contact us at 262-754-2578.

Sincerely,

GZA GeoEnvironmental, Inc.

Kevin M. Hedinger Senior Hydrogeologist kevin.hedinger@gza.com

John C. Osborne, P.G. Principal Hydrogeologist john.osborne@gza.com

J:\157000to157099\157080 Oshkosh\Correspondence\FINAL 20.0157080.00 Prelim Soil and GW Analytical Results_Oshkosh WI 10-6-21.docx

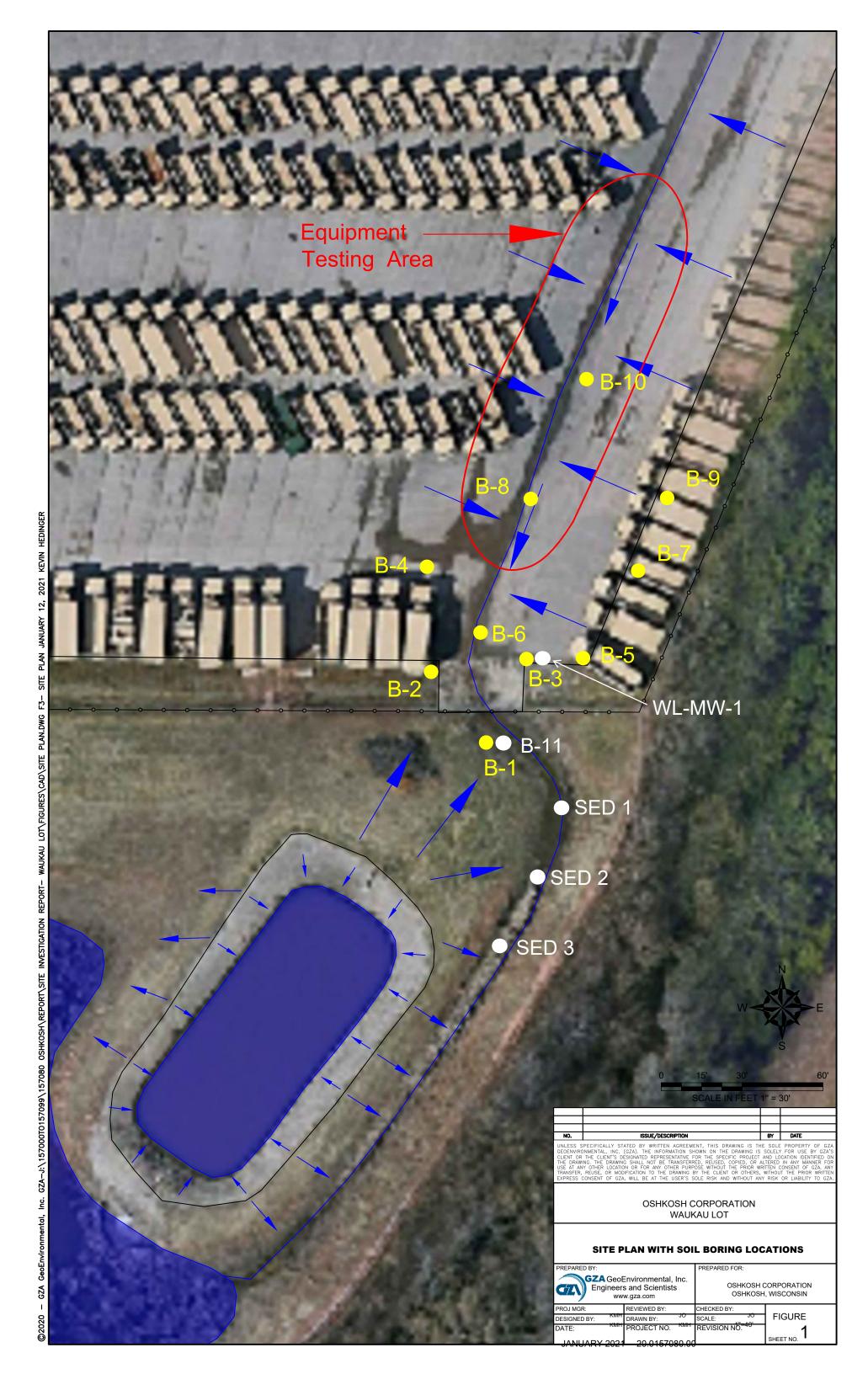
Attachment: Figures 1, 2, and 3

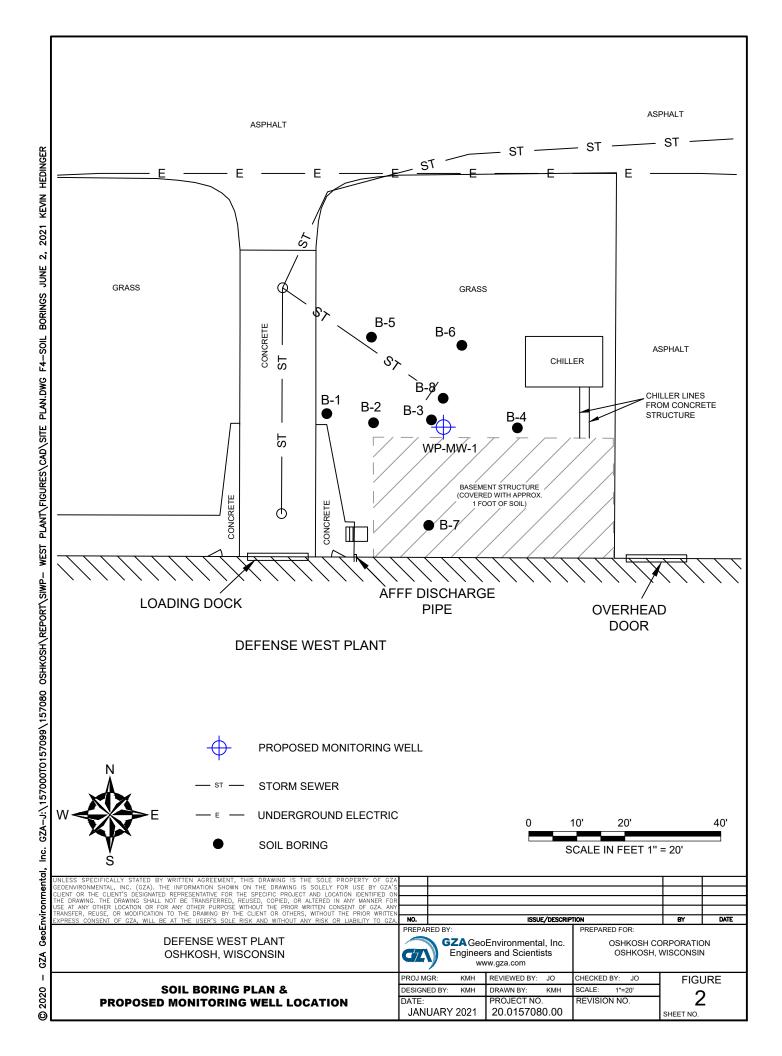
Laboratory Analytical Reports

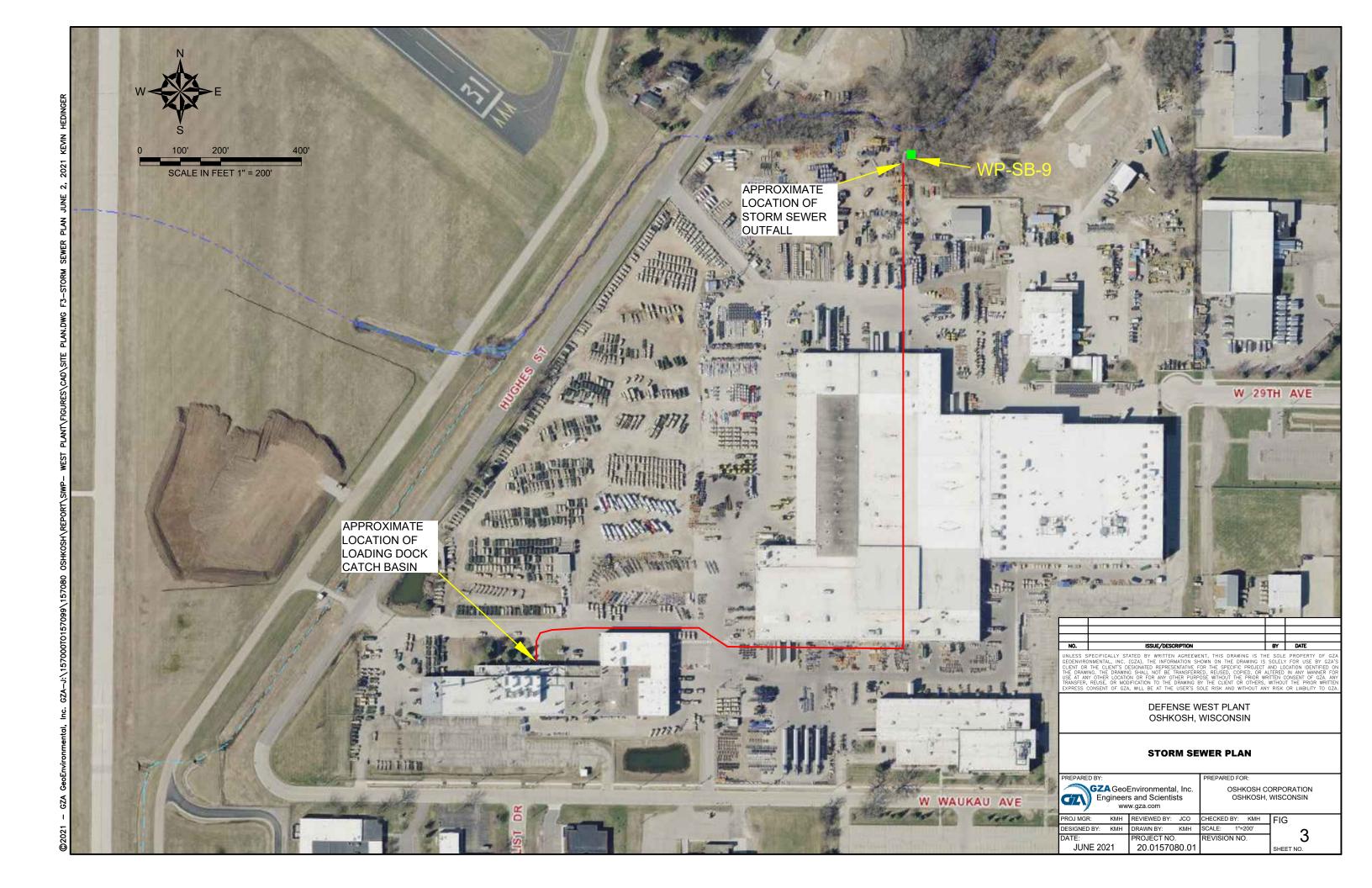
cc: Mr. Kevin Tubbs, Oshkosh Corporation

Ms. Suzanne Murawski, Oshkosh Defense Mr. Michael Power, Oshkosh Defense

Mr. Edward B. Witte, Godfrey & Kahn, S.C.









Report of Analysis

GZA GeoEnvironmental, Inc.

17975 West Sarah Lane, Suite 100 Brookfield, WI 53045 Attention: Kevin Hedinger

Project Name: 20.0157080 Oshkosh PFAS Sampling

Project Number: 20.0157080 Lot Number: WH17016 Date Completed: 09/16/2021

Kary Coman

09/16/2021 11:08 AM
Approved and released by:
Project Manager II: **Karen L. Coonan**





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

This report shall not be reproduced, except in its entirety, without the written approval of Pace Analytical Services, LLC.

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative GZA GeoEnvironmental, Inc. Lot Number: WH17016

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.

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.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH17016

Project Name: 20.0157080 Oshkosh PFAS Sampling

Project Number: 20.0157080

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL-B11 (5-6')	Solid	08/14/2021 0910	08/17/2021
002	WL-SED 1 (0-0.5')	Solid	08/14/2021 1000	08/17/2021
003	WL-SED 2 (0-0.5')	Solid	08/14/2021 1010	08/17/2021
004	WL-SED 3 (0-0.5')	Solid	08/14/2021 1020	08/17/2021
005	WL-EQUIPMENT BLANK 1- TROWEL	Aqueous	08/14/2021 1030	08/17/2021
006	WL-EQUIPMENT BLANK 2- DRIVE SHOE	Aqueous	08/14/2021 1100	08/17/2021

(6 samples)

Detection Summary GZA GeoEnvironmental, Inc.

Lot Number: WH17016

Project Name: 20.0157080 Oshkosh PFAS Sampling

Project Number: 20.0157080

Sampl	e Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WL-B11 (5-6')	Solid	6:2 FTS	PFAS by ID	4.1		ug/kg	5
001	WL-B11 (5-6')	Solid	PFHxA	PFAS by ID	0.28	J	ug/kg	5
001	WL-B11 (5-6')	Solid	PFPeA	PFAS by ID	0.46	J	ug/kg	5
002	WL-SED 1 (0-0.5')	Solid	6:2 FTS	PFAS by ID	41		ug/kg	6
002	WL-SED 1 (0-0.5')	Solid	PFHxA	PFAS by ID	2.7		ug/kg	6
002	WL-SED 1 (0-0.5')	Solid	PFPeA	PFAS by ID	2.9		ug/kg	6
002	WL-SED 1 (0-0.5')	Solid	PFOS	PFAS by ID	3.9		ug/kg	6
003	WL-SED 2 (0-0.5')	Solid	6:2 FTS	PFAS by ID	9.3		ug/kg	7
003	WL-SED 2 (0-0.5')	Solid	PFHxA	PFAS by ID	4.6		ug/kg	7
003	WL-SED 2 (0-0.5')	Solid	PFPeA	PFAS by ID	17		ug/kg	7
003	WL-SED 2 (0-0.5')	Solid	PFOS	PFAS by ID	5.1		ug/kg	7
004	WL-SED 3 (0-0.5')	Solid	6:2 FTS	PFAS by ID	5.1		ug/kg	8
004	WL-SED 3 (0-0.5')	Solid	PFHxA	PFAS by ID	4.3		ug/kg	8
004	WL-SED 3 (0-0.5')	Solid	PFPeA	PFAS by ID	15		ug/kg	8
004	WL-SED 3 (0-0.5')	Solid	PFOS	PFAS by ID	2.8		ug/kg	8

(15 detections)

Client: GZA GeoEnvironmental, Inc.

1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)

Laboratory ID: WH17016-001

Description: WL-B11 (5-6')

Matrix: Solid

Date Sampled: 08/14/2021 0910

Project Name: 20.0157080 Oshkosh PFAS

% Solids: 80.5 08/17/2021 2133

ug/kg

ug/kg

1

1

Project Number: 20.0157080 Date Received: 08/17/2021

Run Prep Method SOP SPE 1

Perfluoro-n-hexanoic acid (PFHxA)

Perfluoro-n-pentanoic acid (PFPeA)

Perfluorooctanesulfonic acid (PFOS)

Perfluoro-n-octanoic acid (PFOA)

Parameter

Analytical Method Dilution PFAS by ID SOP

Analysis Date Analyst 08/28/2021 0010 NK1

PFAS by ID SOP

PFAS by ID SOP

CAS

Number

27619-97-2

307-24-4

335-67-1

2706-90-3

1763-23-1

Prep Date

0.46 J

ND

Batch 08/26/2021 1150 13393

1.1

1.1

Analytical Method	Result	Q	LOQ	MDL	Units	Run
PFAS by ID SOP	4.1		2.3	0.35	ug/kg	1
PFAS by ID SOP	0.28	J	1.1	0.21	ug/kg	1
PFAS by ID SOP	ND		1.1	0.24	ug/kg	1

0.18

0.41

Run 1 Acceptance Surrogate Q % Recovery Limits 13C2_6:2FTS 25-150 13C5_PFHxA 86 25-150 87 13C5_PFPeA 25-150 13C8_PFOA 84 25-150 13C8_PFOS 25-150 84

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated result < LOQ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17016-002

Description: WL-SED 1 (0-0.5')

Matrix: Solid

Date Sampled:08/14/2021 1000

Project Name: 20.0157080 Oshkosh PFAS

% Solids: 61.4 08/17/2021 2133

Date Received: 08/17/2021

Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	1	08/28/2021 0020 NK1	08/26/2021 1150	13393

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	41	3.2	0.48	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	2.7	1.6	0.29	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	1.6	0.34	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	2.9	1.6	0.25	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	3.9	1.6	0.56	ug/kg	1

Surrogate	Run 1 A Recovery	Acceptance Limits
13C2_6:2FTS	121	25-150
13C5_PFHxA	76	25-150
13C5_PFPeA	73	25-150
13C8_PFOA	75	25-150
13C8_PFOS	63	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

H = Out of holding time

B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%

 $\begin{aligned} &DL = Detection \ Limit \\ &J = Estimated \ result < LOQ \ and \ge DL \end{aligned}$

Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17016-003

Description: WL-SED 2 (0-0.5')

Matrix: Solid

Date Sampled: 08/14/2021 1010

Project Name: 20.0157080 Oshkosh PFAS

Date Received: 08/17/2021

% Solids: 67.6 08/17/2021 2133

Project Number: 20.0157080

Run Prep Method **Analytical Method Dilution Analysis Date Analyst Prep Date Batch** SOP SPE PFAS by ID SOP 08/28/2021 0031 NK1 08/26/2021 1150 13393

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	9.3	2.8	0.42	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.6	1.4	0.26	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	1.4	0.29	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	17	1.4	0.22	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	5.1	1.4	0.49	ug/kg	1

_	Run 1 A	Acceptance	
Surrogate	Q % Recovery	Limits	
13C2_6:2FTS	99	25-150	
13C5_PFHxA	78	25-150	
13C5_PFPeA	74	25-150	
13C8_PFOA	82	25-150	
13C8_PFOS	71	25-150	

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P =The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated result < LOQ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17016-004

Description: WL-SED 3 (0-0.5')

Matrix: Solid

Date Sampled: 08/14/2021 1020

Project Name: 20.0157080 Oshkosh PFAS

% Solids: 65.7 08/17/2021 2133

Date Received: 08/17/2021

Project Number: 20.0157080

Run Prep Method **Analytical Method Dilution**

Analysis Date Analyst Prep Date Batch SOP SPE PFAS by ID SOP 08/28/2021 0041 NK1 08/26/2021 1150 13393

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	5.1	2.6	0.40	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	4.3	1.3	0.24	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	1.3	0.28	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	15	1.3	0.21	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.8	1.3	0.47	ug/kg	1

Surrogate	Run 1 A Q % Recovery	cceptance Limits		
13C2_6:2FTS	84	25-150		
13C5_PFHxA	73	25-150		
13C5_PFPeA	68	25-150		
13C8_PFOA	72	25-150		
13C8_PFOS	64	25-150		

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P =The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated result < LOQ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17016-005

Description: WL-EQUIPMENT BLANK 1- TROWEL

Matrix: Aqueous

Date Sampled: 08/14/2021 1030

Project Name: 20.0157080 Oshkosh PFAS

Date Received: 08/17/2021

Project Number: 20.0157080

Run Prep Method
1 SOP SPE

Analytical Method Dilution
PFAS by ID SOP 1

Analysis Date Analyst 09/09/2021 1804 SES Prep Date

Batch 730 14782

09/08/2021 1730 14782

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	8.3	2.1	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	4.2	0.72	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	4.2	0.86	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	4.2	0.57	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	4.2	2.1	ng/L	1

Surrogate	Run 1 Q % Recove	
13C2_6:2FTS	118	25-150
13C5_PFHxA	92	25-150
13C5_PFPeA	98	25-150
13C8_PFOA	90	25-150
13C8_PFOS	89	25-150

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

H = Out of holding time

B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis

 $\label{eq:power_power} E = \mbox{Quantitation of compound exceeded the calibration range} \\ P = \mbox{The RPD between two GC columns exceeds } 40\%$

DL = Detection Limit J = Estimated result < LOQ and $\geq DL$

Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17016-006

Description: WL-EQUIPMENT BLANK 2- DRIVE SHOE

Matrix: Aqueous

Date Sampled: 08/14/2021 1100

Project Name: 20.0157080 Oshkosh PFAS

Date Received: 08/17/2021

Project Number: 20.0157080

Run Prep Method SOP SPE **Analytical Method Dilution** PFAS by ID SOP

Analysis Date Analyst 09/09/2021 1815 SES

Prep Date

Batch

09/08/2021 1730 14782

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	9.2	2.3	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	4.6	0.79	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	4.6	0.95	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	4.6	0.62	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	4.6	2.3	ng/L	1

Surrogate	Run 1 Q % Recovery	Acceptance Limits
13C2_6:2FTS	142	25-150
13C5_PFHxA	92	25-150
13C5_PFPeA	96	25-150
13C8_PFOA	87	25-150
13C8_PFOS	93	25-150

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P =The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated result < LOQ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ13393-001 **Batch:** 13393

Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE

Prep Date: 08/26/2021 1150

Parameter	Result	Q Dil	LOQ	MDL	Units	Analysis Date
6:2 FTS	ND	1	2.0	0.31	ug/kg	08/27/2021 1438
PFHxA	ND	1	1.0	0.18	ug/kg	08/27/2021 1438
PFOA	ND	1	1.0	0.21	ug/kg	08/27/2021 1438
PFPeA	ND	1	1.0	0.16	ug/kg	08/27/2021 1438
PFOS	ND	1	1.0	0.36	ug/kg	08/27/2021 1438
Surrogate	Q % Rec	Acceptance Limit				
13C2_6:2FTS	93	25-150				
13C5_PFHxA	99	25-150				
13C5_PFPeA	92	25-150				
13C8_PFOA	102	25-150				
13C8_PFOS	91	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

 $P = The \ RPD$ between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ13393-002

Batch: 13393

Analytical Method: PFAS by ID SOP

Matrix: Solid
Prep Method: SOP SPE
Prep Date: 08/26/2021 1150

	%Rec Limit	Analysis Date
	50-150 0	8/27/2021 1448
	50-150 0	8/27/2021 1448
	50-150 0	8/27/2021 1448
	50-150 0	8/27/2021 1448
	50-150 0	8/27/2021 1448
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A		
3		

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

 $J = Estimated result < LOQ and \ge DL$

 $P = The \ RPD$ between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - MB

Sample ID: WQ14782-001 Batch: 14782

Analytical Method: PFAS by ID SOP

Matrix: Aqueous Prep Method: SOP SPE

Prep Date: 09/08/2021 1730

Parameter	Result	Q Dil	LOQ	MDL	Units	Analysis Date
6:2 FTS	ND	1	8.0	2.0	ng/L	09/09/2021 1411
PFHxA	ND	1	4.0	0.69	ng/L	09/09/2021 1411
PFOA	ND	1	4.0	0.83	ng/L	09/09/2021 1411
PFPeA	ND	1	4.0	0.54	ng/L	09/09/2021 1411
PFOS	ND	1	4.0	2.0	ng/L	09/09/2021 1411
Surrogate	Q % Rec	Acceptance Limit				
13C2_6:2FTS	90	25-150				
13C5_PFHxA	87	25-150				
13C5_PFPeA	95	25-150				
13C8_PFOA	79	25-150				
13C8 PFOS	95	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

 $P = The \ RPD$ between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ14782-002

Batch: 14782

Analytical Method: PFAS by ID SOP

Matrix: Aqueous
Prep Method: SOP SPE

Prep Date: 09/08/2021 1730

Parameter	Spike Amount (ng/L)	Result (ng/L) Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16	1	106	50-150	09/09/2021 1422
PFHxA	16	16	1	102	50-150	09/09/2021 1422
PFOA	16	18	1	110	50-150	09/09/2021 1422
PFPeA	16	18	1	111	50-150	09/09/2021 1422
PFOS	15	16	1	107	50-150	09/09/2021 1422
Surrogate	Q % Rec	Acceptance Limit				
13C2_6:2FTS	89	25-150				
13C5_PFHxA	87	25-150				
13C5_PFPeA	87	25-150				
13C8_PFOA	80	25-150				
13C8_PFOS	78	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

 $J = Estimated result < LOQ and \ge DL$ P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria + = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

QC Data for Lot Number: WH17016

Chain of Custody and Miscellaneous Documents

Document Number: IAE003N2-01

DISTRIBUTION: WHITE & YELLOW-Return to Inforeitry with Sample(s); PINK-Field/Client Copy

Pace Analytical "	PAC 108 Van Telepho	CE ANAL tage Point ne No. 809	PACE ANALYTICAL SERVICES, LLC 106 Vantage Point Drive - West Columbia, SC 29172 Telephone No. 808-791-9700 Fax No. 808-791-9111 www.pacelabs.com	, LLC SC 29172 -791-9111	Number	124342
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Oshkosh Comperculon	2712200	77 075	गायकाम अस्कृष्टम्बर्ग रूप	+ %		
20,0157080	877 Merce	Matric	No of Contentions by Presonative Type	(1 /67) (1 /9 /1 /1 /1 /1 /1 /1 /1 /1 /1 /1 /1 /1 /1		WH17016
Containers for each sawryth may be combined on one (inc.) Containers for each sawryth may be combined on one (inc.)	Colection Time dec	zerocky vey 2905 onograby	HOM HOM HOM HOM HOM HOSSH	774.5 27.9 28.9	-	41.02
WL-Bit (5-6") 3/4/2	910 6	×		/×		
WL-SEDI (0-0.5")	5 0001	×	×	×		
WL-SED 2 (0-0,5")	10/0 6	×	×	×		
WL-SED 3 (0-0,5')	1020 C	×	×	 		
With Egypment Blank 1 - Trowel	9 0801	×	×	:×		
We-Eppmart Blank 2 - Dive Shoe	1100 6	×	×	×		
						41
Turn Around Time Required (Prior lab approval required for expedited TAT.) 13 Standard — Rush (Specify)) Sample Disposed C. Return to Other? No Oknobes had ad-	Oknosa ho t	Possible Hazard Identification		OC Regulranents (Specify)	(Specify)
í. Reithquished by	Date	Time		UNDURANT COMPANY OF THE PROPERTY OF THE PROPER	Date Tand	2
2. Relinquished by	Date	Time	2. Received by		Date 7And	01
3. Relinquished by	Date	Trinc	5. Received by		Deta	9
4. Resisquished by Ledeup	Barle 7-21	7m6 61.5	4 Jabonatory received by	1,	Dure Th	り背
Note: All samples are retained for four weeks from receipt unless other arrangements are made.	seks from receipt made.	7	LAB USE ONLY Received on ice (Onclass Charles)		1 1 1	47.2 Tomp Blank DY GN
			Secretary and the second	No. of Street, or other Persons	2	

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15) Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020 Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA	
Means of receipt:	Cooler Inspected by/date: KDRW / 8/17/2021 Lot #: WHI7016
Yes V No	Pace Client UPS FedEx Other:
	Were custody seals present on the cooler? (1) 1 2 X6 (2) 1 2 X6 (3) 1 3 X6 (4) 1 3 X6 (5) 1 3 X6 (6) 1 3 X6 (7) 1 3 X6 (7) 1 3 X6 (8) 1 3 X6 (9) 1 3 X6 (9) 1 3 X6 (10) 1
Tes No V	NA 2. If custody seals were present, were they intact and unbroken?
pH Strip ID: NA	Chlorine Strip ID: NA Tested by: NA
4.7 /4.7 °C NA	upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: 21-1425
Method: Tempera	Plant III at a part of the par
Method of coolant:	Wet Ice L Ice Packs Dry Ice None
Yes No 2	NA 3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified?
✓ Yes No	PM was Notified by: phone / email / face-to-face (circle one).
✓ Yes □ No	NA 4. Is the commercial courier's packing slip attached to this form?
✓ Yes No	Were proper custody procedures (relinquished/received) followed? Were symple ID: list dead 5000000000000000000000000000000000000
✓ Yes No	6. Were sample IDs listed on the COC?
✓ Yes No	7. Were sample IDs listed on all sample containers?
✓ Yes No	8. Was collection date & time listed on the COC?
	Was collection date & time listed on all sample containers?
✓ Yes No	10. Did all container label information (ID, date, time) agree with the COC?
✓ Yes No	11. Were tests to be performed listed on the COC?
☑ Yes ☐ No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
✓ Yes No	
Yes V No	13. Was adequate sample volume available?
Yes V No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
100 100	15. Were any samples containers missing/excess (circle one) complet Not listed on Close
	NA in any of the VOA vials?
Yes No 🗸	NA 17. Were all DRO/metals/nutrient samples received at a pH of < 2?
Yes No 🗸	NA 18. Were all cyanide samples received at a pH > 12 and extends complete and extends and
☐Ycs ☐No 🗸	NA 19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of
	residual chlorine?
☐ Yes ☐ No ☑	NA 20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc)
	correctly transcribed from the COC into the comment section in LIMS?
✓ Yes No	21. Was the quote number listed on the container label? If yes, Quote # 25164
Sample Preservation	(Must be complete 1.5)
	(Must be completed for any sample(s) incorrectly preserved or with headspace.)
Sample(s) NA	were received incorrectly preserved and were adjusted according to
in sample receiving wit	Table of Carelle Bile. 112504, HNO3, HCI, NaOH using SR # NA
Time of preservation 1	. If more than one preservative is needed, please note in the comments below.
Sample(s) NA	
Samples(s) NA	were received with bubbles >6 mm in diameter.
	were received with TRC > 0.5 mg/L (If #19 is $n\sigma$) and were sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy (D: NA
SR barcode labels appli	led by: JSM Date: 8/17/2021
	Out.
Comments:	



Report of Analysis

GZA GeoEnvironmental, Inc.

17975 West Sarah Lane, Suite 100 Brookfield, WI 53045 Attention: Kevin Hedinger

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080 Lot Number: **WH24025**

Date Completed:09/17/2021

Kary Coman

09/17/2021 3:06 PM
Approved and released by:
Project Manager II: **Karen L. Coonan**





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

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SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative GZA GeoEnvironmental, Inc. Lot Number: WH24025

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.

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.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary GZA GeoEnvironmental, Inc.

Lot Number: WH24025

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WL-MW-1	Aqueous	08/19/2021 1655	08/24/2021

(1 sample)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH24025

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Sample	e Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WL-MW-1	Aqueous	6:2 FTS	PFAS by ID	10000		ng/L	5
001	WL-MW-1	Aqueous	PFHxS	PFAS by ID	34	J	ng/L	5
001	WL-MW-1	Aqueous	PFBA	PFAS by ID	460		ng/L	5
001	WL-MW-1	Aqueous	PFHpA	PFAS by ID	320		ng/L	5
001	WL-MW-1	Aqueous	PFHxA	PFAS by ID	1600		ng/L	5
001	WL-MW-1	Aqueous	PFOA	PFAS by ID	41	J	ng/L	6
001	WL-MW-1	Aqueous	PFPeA	PFAS by ID	3200		ng/L	6

(7 detections)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH24025-001

Description: WL-MW-1

Matrix: Aqueous

Date Sampled:08/19/2021 1655

Project Name: Oshkosh GW PFAS Sampling

Date Received: 08/24/2021

Project Number: 20.0157080

CAS

Run Prep Method SOP SPE Analytical Method Dilution PFAS by ID SOP 20

Analysis Date Analyst 09/15/2021 1832 MMM

Analytical

Prep Date

Batch 09/13/2021 1227 15147

Parameter	Number	Method	Result Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND	150	9.2	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3)	763051-92-9	PFAS by ID SOP	ND	150	13	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND	150	30	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	10000	150	38	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND	150	17	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND	150	39	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND	150	9.2	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND	150	26	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND	150	14	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND	150	18	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND	300	24	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND	150	18	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND	150	24	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND	76	7.9	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND	76	15	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND	76	9.5	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND	76	14	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND	76	12	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND	76	11	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND	150	20	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	34 J	76	10	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	460	76	11	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND	76	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND	76	9.0	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	320	76	8.5	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	1600	76	13	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND	76	8.8	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	41 J	76	16	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	3200	76	10	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND	76	11	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND	76	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND	76	12	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	76	38	ng/L	1
R	un 1 Accer	otance					
		nits					
13C2_4:2FTS	132 25	-150					
13C2_6:2FTS	130 25	-150					
13C2_8:2FTS	120 25	-150					
13C2_PFDoA	102 25	-150					
13C2_PFTeDA	97 25	-150					
13C3_PFBS	99 25	-150					

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

13C3_PFHxS

13C4_PFBA

13C3-HFPO-DA

LOQ = Limit of Quantitation

H = Out of holding time

ND = Not detected at or above the DL

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

B = Detected in the method blank

W = Reported on wet weight basis

N = Recovery is out of criteria

87

95

98

25-150

25-150

25-150

E = Quantitation of compound exceeded the calibration range

P = The RPD between two GC columns exceeds 40%

DL = Detection Limit

 $J = Estimated \ result < LOQ \ and \ge DL$

Q = Surrogate failure

L = LCS/LCSD failure S = MS/MSD failure

Client: GZA GeoEnvironmental, Inc.

Date Sampled:08/19/2021 1655

Laboratory ID: WH24025-001

Matrix: Aqueous

Description: WL-MW-1

Project Name: Oshkosh GW PFAS Sampling

Date Received: 08/24/2021

d7-MeFOSE

Project Number: 20.0157080

90

Run 1 Acceptance Surrogate % Recovery Q Limits 13C4_PFHpA 25-150 13C5_PFHxA 94 25-150 13C5_PFPeA 99 25-150 92 13C6_PFDA 25-150 13C7_PFUdA 90 25-150 97 13C8_PFOA 25-150 13C8_PFOS 72 25-150 13C8_PFOSA 82 10-150 13C9_PFNA 95 25-150 94 d-EtFOSA10-150 d5-EtFOSAA 106 25-150 d9-EtFOSE 90 10-150 d-MeFOSA 85 10-150 d3-MeFOSAA 104 25-150

10-150

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit J = Estimated result < LOQ and \geq DL Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ15147-001 Batch: 15147 Analytical Method: PFAS by ID SOP Matrix: Aqueous Prep Method: SOP SPE

Prep Date: 09/13/2021 1227

Parameter	Result	Q Dil	LOQ	MDL	Units	Analysis Date
9CI-PF3ONS	ND	1	8.0	0.48	ng/L	09/14/2021 1800
11CI-PF3OUdS	ND	1	8.0	0.66	ng/L	09/14/2021 1800
8:2 FTS	ND	1	8.0	1.6	ng/L	09/14/2021 1800
6:2 FTS	ND	1	8.0	2.0	ng/L	09/14/2021 1800
4:2 FTS	ND	1	8.0	0.87	ng/L	09/14/2021 1800
GenX	ND	1	8.0	2.1	ng/L	09/14/2021 1800
ADONA	ND	1	8.0	0.48	ng/L	09/14/2021 1800
EtFOSA	ND	1	8.0	1.4	ng/L	09/14/2021 1800
EtFOSAA	ND	1	8.0	0.75	ng/L	09/14/2021 1800
EtFOSE	ND	1	8.0	0.95	ng/L	09/14/2021 1800
MeFOSA	ND	1	16	1.3	ng/L	09/14/2021 1800
MeFOSAA	ND	1	8.0	0.93	ng/L	09/14/2021 1800
MeFOSE	ND	1	8.0	1.3	ng/L	09/14/2021 1800
PFBS	ND	1	4.0	0.41	ng/L	09/14/2021 1800
PFDS	ND	1	4.0	0.78	ng/L	09/14/2021 1800
PFHpS	ND	1	4.0	0.50	ng/L	09/14/2021 1800
PFNS	ND	1	4.0	0.71	ng/L	09/14/2021 1800
PFOSA	ND	1	4.0	0.61	ng/L	09/14/2021 1800
PFPeS	ND	1	4.0	0.59	ng/L	09/14/2021 1800
PFDOS	ND	1	8.0	1.0	ng/L	09/14/2021 1800
PFHxS	ND	1	4.0	0.55	ng/L	09/14/2021 1800
PFBA	ND	1	4.0	0.60	ng/L	09/14/2021 1800
PFDA	ND	1	4.0	0.52	ng/L	09/14/2021 1800
PFDoA	ND	1	4.0	0.47	ng/L	09/14/2021 1800
PFHpA	ND	1	4.0	0.45	ng/L	09/14/2021 1800
PFHxA	ND	1	4.0	0.69	ng/L	09/14/2021 1800
PFNA	ND	1	4.0	0.46	ng/L	09/14/2021 1800
PFOA	ND	1	4.0	0.83	ng/L	09/14/2021 1800
PFPeA	ND	1	4.0	0.54	ng/L	09/14/2021 1800
PFTeDA	ND	1	4.0	0.60	ng/L	09/14/2021 1800
PFTrDA	ND	1	4.0	0.53	ng/L	09/14/2021 1800
PFUdA	ND	1	4.0	0.63	ng/L	09/14/2021 1800
PFOS	ND	1	4.0	2.0	ng/L	09/14/2021 1800
Surrogate	Q % Rec	Acceptance Limit				
13C2_4:2FTS	143	25-150				
13C2_6:2FTS	92	25-150				
13C2_8:2FTS	100	25-150				
13C2_PFDoA	115	25-150				
13C2_PFTeDA	126	25-150				
13C3_PFBS	114	25-150				
13C3_PFHxS	104	25-150				
13C3-HFPO-DA	125	25-150				
13U3-HFPU-DA	125	25-15U				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

 $J = Estimated result < LOQ and <math>\geq DL$

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - MB

Sample ID: WQ15147-001

Batch: 15147

Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/13/2021 1227

Analytical Method: PFAS by ID SOP

Surrogate	Q % Rec	Acceptance Limit	
13C4_PFBA	111	25-150	
13C4_PFHpA	121	25-150	
13C5_PFHxA	123	25-150	
13C5_PFPeA	109	25-150	
13C6_PFDA	115	25-150	
13C7_PFUdA	118	25-150	
13C8_PFOA	119	25-150	
13C8_PFOS	128	25-150	
13C8_PFOSA	105	10-150	
13C9_PFNA	124	25-150	
d-EtFOSA	104	10-150	
d5-EtFOSAA	105	25-150	
d9-EtFOSE	108	10-150	
d-MeFOSA	107	10-150	
d3-MeFOSAA	110	25-150	
d7-MeFOSE	115	10-150	

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ15147-002	Matrix: A	Aqueous	
Batch: 15147	Prep Method: S	SOP SPE	
Analytical Method: PFAS by ID SOP	Prep Date: 0)9/13/2021	1227
	Colleg		

	Spike Amount	Result			%Rec	
Parameter	(ng/L)	(ng/L) Q	Dil	% Rec	Limit	Analysis Date
9CI-PF3ONS	15	13	1	88	50-150	09/14/2021 1810
11CI-PF3OUdS	15	13	1	88	50-150	09/14/2021 1810
8:2 FTS	15	13	1	83	50-150	09/14/2021 1810
6:2 FTS	15	15	1	102	50-150	09/14/2021 1810
4:2 FTS	15	15	1	100	50-150	09/14/2021 1810
GenX	32	25	1	79	50-150	09/14/2021 1810
ADONA	15	16	1	104	50-150	09/14/2021 1810
EtFOSA	16	17	1	105	50-150	09/14/2021 1810
EtFOSAA	16	16	1	103	50-150	09/14/2021 1810
EtFOSE	16	16	1	102	50-150	09/14/2021 1810
MeFOSA	16	18	1	114	50-150	09/14/2021 1810
MeFOSAA	16	16	1	97	50-150	09/14/2021 1810
MeFOSE	16	14	1	89	50-150	09/14/2021 1810
PFBS	14	15	1	103	50-150	09/14/2021 1810
PFDS	15	13	1	87	50-150	09/14/2021 1810
PFHpS	15	16	1	104	50-150	09/14/2021 1810
PFNS	15	15	1	96	50-150	09/14/2021 1810
PFOSA	16	16	1	103	50-150	09/14/2021 1810
PFPeS	15	16	1	107	50-150	09/14/2021 1810
PFDOS	15	15	1	98	50-150	09/14/2021 1810
PFHxS	15	14	1	99	50-150	09/14/2021 1810
PFBA	16	17	1	107	50-150	09/14/2021 1810
PFDA PFDoA	16	16	1 1	99 112	50-150 50-150	09/14/2021 1810
PFHpA	16 16	18 17	1	106	50-150	09/14/2021 1810 09/14/2021 1810
PFHxA	16	15	1	95	50-150	09/14/2021 1810
PFNA	16	16	1	97	50-150	09/14/2021 1810
PFOA	16	16	1	103	50-150	09/14/2021 1810
PFPeA	16	15	1	94	50-150	09/14/2021 1810
PFTeDA	16	18	1	112	50-150	09/14/2021 1810
PFTrDA	16	16	1	103	50-150	09/14/2021 1810
PFUdA	16	18	1	110	50-150	09/14/2021 1810
PFOS	15	15	1	101	50-150	09/14/2021 1810
	10	Acceptance		101	00 100	07/17/2021 1010
Surrogate	Q % Rec	Limit				
13C2_4:2FTS	141	25-150				
13C2_6:2FTS	91	25-150				
13C2_8:2FTS	104	25-150				
13C2_PFDoA	102	25-150				
13C2_PFTeDA	117	25-150				
13C3_PFBS	112	25-150				
13C3_PFHxS	108	25-150				
13C3-HFPO-DA	133	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ15147-002 Batch: 15147 Analytical Method: PFAS by ID SOP Matrix: Aqueous
Prep Method: SOP SPE

Prep Date: 09/13/2021 1227

Surrogate	Q % Rec	Acceptance Limit	
13C4_PFBA	112	25-150	
13C4_PFHpA	107	25-150	
13C5_PFHxA	117	25-150	
13C5_PFPeA	125	25-150	
13C6_PFDA	122	25-150	
13C7_PFUdA	104	25-150	
13C8_PFOA	119	25-150	
13C8_PFOS	111	25-150	
13C8_PFOSA	99	10-150	
13C9_PFNA	128	25-150	
d-EtFOSA	90	10-150	
d5-EtFOSAA	112	25-150	
d9-EtFOSE	108	10-150	
d-MeFOSA	101	10-150	
d3-MeFOSAA	107	25-150	
d7-MeFOSE	113	10-150	

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Chain of Custody and Miscellaneous Documents

Document Number: ME003N2-01

DISTRIBUTION: WHITE & YELLOW-Rollinn to laboratory with Sample(s), Philic Field/Client Copy

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PACE ANALYTICAL SERVICES, LLC 106 Vantage Point Drivo · Wost Columbia, SC 29172 Telephone No. 803-791-9700 Fax No. 803-791-9111 www.pacelabs.com

Number 124339

Semplor's Signature X. MAMM. Maguer. Printed Name Elizabeth Stapleton Va. Coberdian Tone of Preservative Type Coberdian Tone of Preservative Type Ammany Ammany	Anelysis (Attach fist if more space in morton) Anelysis (Attach fist if more space in morton)	Page (of) WH24025 ALC2 Hemarks / Oxoker LD.
Printed Name Print	E-HEIT IM SHELLS	WH24025 ALC2 ALC2 Alcases / Caoker LD.
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# 100 P P P P P P P P P P P P P P P P P P	*H=14	Remarks / Cooker LD.
/655 GX X		
Turn Around Time Required (Pitor lat approval required for expedited 187.) Sample Olsposal Standard — I. Rush (Specify) Lateran Around Time Regulated (Specify)	U.S.Kin Indian) T. Polenn T. Hohanwa	GC Requirements (Specify)
	536 S/73/2	OO bear
2. Redirequished by 7	Date	Типе
3. Received by Time 3. Received by	John Jane	Типе
4. Revirrauished by FCol (A 8/24/14 1995 4. Libersion received by	Massur & and 3/2 1/2 inno	1 inns (015
Note: All samples are retained for four weeks from recept	27	Jemp Blank 11-10 N

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)

Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020 Page 1 of 1

Sample Receipt Checklist (SRC)

Means of receipt: Pace	Client: GZA	Cooler Inspected by/date: JSM / 08/24/2021 Lot #: WH24025
Yes No 1. Were custody seals present on the cooler? Yes No No 2 NA 2. If Custody seals were present, were they infact and unbroken? Head No 1 NA 2. If Custody seals were present, were they infact and unbroken? Head No 1 NA 2. If Custody seals were present, were they infact and unbroken? Head No 1 NA 2. NA NA	Means of receipt:	
Yes No Z NA 2. If custody seals were present, were they intact and unbroken? Tested by: NA Chlorine Strip ID: NA Tested by: NA Tested by: NA Chlorine Strip ID: NA Tested by: NA Tested by: NA NA SC NA NA NA SC NA NA NA SC NA NA SC NA NA NA SC NA NA NA NA NA SC NA NA		
Surginal temperature upon receipt / Derived (Corrected) temperature upon receipt %50lid Snap-Cup ID: NA	Yes No V	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt 94Solid Snap-Cup ID: NA 24 /42 °C NA NA 9C NA /NA 9C NA 9C N	pH Strip ID: NA	Chlorine Strip ID: NA Tested by: NA
Method of Coolant: Wet toc	Original temperature up	on receipt / Derived (Corrected) temperature upon receipt
Method of coolant:		NA °C NA /NA °C NA /NA °C
Yes	Method: ✓ Temperatur	e Blank Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C
Yes	Method of coolant:	Wet loc Lice Packs Dry ice None
y Yes No No No No No No No No No N	☐ Yes ☐ No ☑ N	A 3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified?
Yes	Z Vec DNa DN	
Yes No	The second secon	
Yes		
Yes	200 at 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
yes	All Printers and All Pr	
Yes		
Yes		
12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lide on, etc.)? Yes		
Yes		
Yes		
Yes No 15. Were any samples containers missing/excess (circle one) samples Not listed on COC? Yes No No 16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials? Yes No VNA 17. Were all DRO/metals/nutrient samples received at a pH of < 2? Yes No VNA 18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9? Yes No VNA 19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine? Yes No VNA 20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc) correctly transcribed from the COC into the comment section in LIMS? Yes VNO 21. Was the quote number listed on the container label? If yes, Quote # ample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.) ample(s) NA were received incurrectly preserved and were adjusted accordingly insample receiving with NA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA ine of preservation NA if more than one preservative is needed, please note in the comments below. Ample(s) NA were received with bubbles >6 mm in diameter. were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA NA NA NA NA NA NA NA		
Yes No	The second secon	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes	Yes ✓ No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
Yes No	Yes □No VN	
Yes		In any of the VOA vials?
Yes No	Yes No VN	A 17. Were all DRO/metals/nutrient samples received at a pH of < 2?
residual chlorine? 20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc) correctly transcribed from the COC into the comment section in LIMS? Yes V No		10 Wass of some Contract of the Contract of th
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Ample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.) Ample(s) NA	Yes V No	
ample(s) NA		
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	adjusted accordingly in s	ample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA
	SR barcode labels applie	d by: JSM Date: 08/24/2021
omments:		
	Comments:	



Report of Analysis

GZA GeoEnvironmental, Inc.

17975 West Sarah Lane, Suite 100 Brookfield, WI 53045 Attention: Kevin Hedinger

Project Name: 20.0157080 Oshkosh- West Plant PFAS Sampling

Project Number: 20.0157080 Lot Number: WH17017 Date Completed: 09/12/2021

Kary Coman

09/13/2021 10:25 AM
Approved and released by:
Project Manager II: **Karen L. Coonan**





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

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SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative GZA GeoEnvironmental, Inc. Lot Number: WH17017

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.

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.

Where applicable, all soil sample results (including LOQ and DL if requested) are corrected for dry weight unless flagged with a "W" qualifier.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Surrogate recovery for the following sample was outside the upper control limit: WH17017-003. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH17017

Project Name: 20.0157080 Oshkosh- West Plant PFAS Sampling

Project Number: 20.0157080

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	WP-SB9 (1-2')	Solid	08/14/2021 1300	08/17/2021
002	WP EQUIP BLANK 1 - HAND AUGER	Aqueous	08/14/2021 1520	08/17/2021
003	WP EQUIP BLANK 2 - DRIVE SHOE	Aqueous	08/14/2021 1530	08/17/2021

(3 samples)

Detection Summary

GZA GeoEnvironmental, Inc. Lot Number: WH17017

Project Name: 20.0157080 Oshkosh- West Plant PFAS Sampling

Project Number: 20.0157080

Sample	e Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WP-SB9 (1-2')	Solid	PFHpA	PFAS by ID	0.28	J	ug/kg	5
001	WP-SB9 (1-2')	Solid	PFOA	PFAS by ID	0.52	J	ug/kg	5
001	WP-SB9 (1-2')	Solid	PFPeA	PFAS by ID	0.27	J	ug/kg	5
001	WP-SB9 (1-2')	Solid	PFOS	PFAS by ID	38		ug/kg	5
002	WP EQUIP BLANK 1 - HAND AUGER	Aqueous	PFOS	PFAS by ID	2.9	J	ng/L	6

(5 detections)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17017-001

Description: WP-SB9 (1-2')

Matrix: Solid

Date Sampled:08/14/2021 1300

Project Name: 20.0157080 Oshkosh- West

% Solids: 77.1 08/17/2021 2133

Date Received: 08/17/2021

Project Number: 20.0157080

Run	Prep Method
1	SOP SPE

Analytical Method Dilution PFAS by ID SOP

Analysis Date Analyst 08/28/2021 0052 SES

Prep Date 08/26/2021 1150 13393

Batch

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	2.2	0.34	ug/kg	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	0.28 J	1.1	0.16	ug/kg	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	1.1	0.20	ug/kg	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	0.52 J	1.1	0.24	ug/kg	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	0.27 J	1.1	0.18	ug/kg	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	38	1.1	0.39	ug/kg	1

Surrogate	Q	Run 1 A % Recovery	acceptance Limits
13C2_6:2FTS		90	25-150
13C4_PFHpA		94	25-150
13C5_PFHxA		95	25-150
13C5_PFPeA		93	25-150
13C8_PFOA		95	25-150
13C8_PFOS		80	25-150

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated \ result < LOQ \ and \ge DL$

Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17017-002

Description: WP EQUIP BLANK 1 - HAND AUGER

Matrix: Aqueous

Date Sampled:08/14/2021 1520

Project Name: 20.0157080 Oshkosh- West

Date Received: 08/17/2021

Project Number: 20.0157080

Run Prep Method SOP SPE Analytical Method Dilution PFAS by ID SOP

Analysis Date Analyst 09/09/2021 1826 SES

Prep Date

Batch 09/08/2021 1730 14782

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	11	2.6	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND	5.3	0.59	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	5.3	0.91	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	5.3	1.1	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	5.3	0.72	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.9 J	5.3	2.6	ng/L	1

Surrogate	Run 1 Acceptance Q % Recovery Limits	
13C2_6:2FTS	124 25-150	
13C4_PFHpA	95 25-150	
13C5_PFHxA	89 25-150	
13C5_PFPeA	87 25-150	
13C8_PFOA	84 25-150	
13C8_PFOS	90 25-150	

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated \ result < LOQ \ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH17017-003

Description: WP EQUIP BLANK 2 - DRIVE SHOE

Matrix: Aqueous

Date Sampled:08/14/2021 1530

Project Name: 20.0157080 Oshkosh- West

Date Received: 08/17/2021 Project Number: 20.0157080

Run Prep Method SOP SPE Analytical Method Dilution PFAS by ID SOP

Analysis Date Analyst 09/09/2021 1836 SES

Prep Date Batch

09/08/2021 1730 14782

Parameter	CAS Number	Analytical Method	Result Q	LOQ	MDL	Units	Run
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND Q	10	2.5	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND	5.0	0.56	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND	5.0	0.86	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND	5.0	1.0	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND	5.0	0.68	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND	5.0	2.5	ng/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
13C2_6:2FTS	N	244	25-150
13C4_PFHpA		90	25-150
13C5_PFHxA		90	25-150
13C5_PFPeA		93	25-150
13C8_PFOA		88	25-150
13C8_PFOS		93	25-150

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated \ result < LOQ \ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ13393-001 Batch: 13393 Analytical Method: PFAS by ID SOP Matrix: Solid Prep Method: SOP SPE

Prep Date: 08/26/2021 1150

Parameter	Result	Q	Dil	L	DC	MDL	Units	Analysis Date
6:2 FTS	ND		1	2.	.0	0.31	ug/kg	08/27/2021 1438
PFHpA	ND		1	1.	.0	0.14	ug/kg	08/27/2021 1438
PFHxA	ND		1	1.	.0	0.18	ug/kg	08/27/2021 1438
PFOA	ND		1	1.	.0	0.21	ug/kg	08/27/2021 1438
PFPeA	ND		1	1.	.0	0.16	ug/kg	08/27/2021 1438
PFOS	ND		1	1.	.0	0.36	ug/kg	08/27/2021 1438
Surrogate	Q % Rec	Д	cceptance Limit					
13C2_6:2FTS	93		25-150					
13C4_PFHpA	97		25-150					
13C5_PFHxA	99		25-150					
13C5_PFPeA	92		25-150					
13C8_PFOA	102		25-150					
13C8_PFOS	91		25-150					

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and \geq DL P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ13393-002 Batch: 13393 Analytical Method: PFAS by ID SOP Matrix: Solid Prep Method: SOP SPE

Prep Date: 08/26/2021 1150

Parameter	Spike Amount (ug/kg)	Result (ug/kg)	Q Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	1.9	2.0	1	105	50-150	08/27/2021 1448
PFHpA	2.0	1.9	1	96	50-150	08/27/2021 1448
PFHxA	2.0	1.9	1	93	50-150	08/27/2021 1448
PFOA	2.0	1.9	1	96	50-150	08/27/2021 1448
PFPeA	2.0	1.9	1	93	50-150	08/27/2021 1448
PFOS	1.9	1.7	1	91	50-150	08/27/2021 1448
Surrogate	Q % Rec	Acceptano Limit	e			
13C2_6:2FTS	95	25-150				
13C4_PFHpA	100	25-150				
13C5_PFHxA	101	25-150				
13C5_PFPeA	95	25-150				
13C8_PFOA	98	25-150				
13C8_PFOS	92	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - MB

Sample ID: WQ14782-001 Batch: 14782 Analytical Method: PFAS by ID SOP Matrix: Aqueous Prep Method: SOP SPE

Prep Date: 09/08/2021 1730

Parameter	Result	Q	Dil	LOQ	MDL	Units	Analysis Date
6:2 FTS	ND		1	8.0	2.0	ng/L	09/09/2021 1411
PFHpA	ND		1	4.0	0.45	ng/L	09/09/2021 1411
PFHxA	ND		1	4.0	0.69	ng/L	09/09/2021 1411
PFOA	ND		1	4.0	0.83	ng/L	09/09/2021 1411
PFPeA	ND		1	4.0	0.54	ng/L	09/09/2021 1411
PFOS	ND		1	4.0	2.0	ng/L	09/09/2021 1411
Surrogate	Q % Rec	Α	cceptance Limit				
13C2_6:2FTS	90		25-150				
13C4_PFHpA	81		25-150				
13C5_PFHxA	87		25-150				
13C5_PFPeA	95		25-150				
13C8_PFOA	79		25-150				
13C8_PFOS	95		25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ14782-002 Batch: 14782 Analytical Method: PFAS by ID SOP

Matrix: Aqueous Prep Method: SOP SPE Prep Date: 09/08/2021 1730

Parameter	Spike Amount (ng/L)	Result (ng/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
6:2 FTS	15	16		1	106	50-150	09/09/2021 1422
PFHpA	16	16		1	101	50-150	09/09/2021 1422
PFHxA	16	16		1	102	50-150	09/09/2021 1422
PFOA	16	18		1	110	50-150	09/09/2021 1422
PFPeA	16	18		1	111	50-150	09/09/2021 1422
PFOS	15	16		1	107	50-150	09/09/2021 1422
Surrogate	Q % Rec	Accepta Limit					
13C2_6:2FTS	89	25-15	50				
13C4_PFHpA	84	25-15	50				
13C5_PFHxA	87	25-15	50				
13C5_PFPeA	87	25-15	50				
13C8_PFOA	80	25-15	50				
13C8 PFOS	78	25-15	50				

LOQ = Limit of Quantitation

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

J = Estimated result < LOQ and \geq DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria + = RPD is out of criteria

Chain of Custody and Miscellaneous Documents

Decument Number: ME003N2-01

DISTRIBUTION: WHITE & YELLOW-Return to tobardary with Sangake); PINK-FlakWCKent Copy

Pace Analytical "	PACE ANALYTICAL S 106 Variage Point Drive - Wes Telephone No. 803-791-9700 www.pacelab	ANALYT e Point Dri No. 803-79 www	PACE ANALYTICAL SERVICES, LLC 106 Variage Point Drive • West Columbia, SC 29172 Telephone No. 803-791-9700 Fax No. 803-791-9111 www.pacelabs.com	LLC 5 29172 791-9111		Number	124341
CIA GEOFINIONMENTAL INC	Recort to Contact Keuth +	Hedinger		Telephone (Courts)	Temphone No. / Email Kovin, Kedinge/Grg 22.com		Guala Ma.
17975 W Sanh Lane Swite 100	Sampler's Signature	l .		Ansiya's (A	Ansiysha (Attach üst il more space is needoti)	/paq)	Pageof
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Project Name Con - West Plant	Elizabeth		Stapleton Yu		なさる		
Froject No. 20,0157080	ourness open	Matrix	No of Containers by Procevalive Type	ر الاركار الاركار	5		10.11 L
contains Colection Colection Colection	Colection Trate display	south)	PARTON PA		G-19		
12/41/8 (2-1) P82-9W	1300 €	×		×	X		
1 - hand auger	1520 GX		×	ス	X		
WP Enip Blank 2-Dave Snow	1530 GX		×	X X	X		
2							
					Part of the same o		
The Late And Approximation of the Control of the Co			our answer 9				
				www.rt.c			
Turn Around Time Required (Phot lab approval required for expedition ML) Sample Disposal Planeterin Recention	Sample Disposal	Decreed for Lett	Possible Hazerd Identification		Skin Install 11 Physics 11 Bishman	GC Requirements (Specify)	s (Spenify)
/q ps	Date	Time	1. Received by			Dafe	בישב.
2. Reinquished by	Clebe	Time	2. Received by			Date	Tong
3. Pehhyuaned by	Set	Time	3. Received by			Date	Tieng
4. Polimerished by A-CL CV	8th 21	ુ વાડ	1. Laparatory received by	1	Nucane	S-(7.2)	7,000 21,
Note: All samples are retained for four weeks from receipt unless other arrangements are made.	eks from receipt nade.		LAB USE CALT Received on ice (Circle) 1/69, No. Ice Pack	Ve3 №	toe Pack Receipt Temp. 4.7	ုဒ္	Temp Brenk D.Y. D.W.



Samples Receipt Checklist (SRC) (ME0018C-15) Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020 Page 1 of 1

Sample Receipt Checklist (SRC)

Client: GZA	Cooler Inspected by/date: KDRW / 8/17/2021 Lot #; WH17017									
Means of receipt: P	ace Client UPS / FedEx Other:									
Yes ✓ No	Were custody seals present on the cooler?									
	2. If custody seals were present, were they intact and unbroken?									
pH Strip ID: NA	Chlorine Strip ID: NA Tested by: NA									
Original temperature upor 4.7 /4.7 °C NA /N	n receipt / Derived (Corrected) temperature upon receipt									
Method: Temperature	Blank Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 °C									
Method of coolant:	Wet Ice lee Packs Dry Ice None									
□Yes □No ☑NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).									
✓ Yes No NA	4. Is the commercial courier's packing slip attached to this form?									
✓ Yes No	5. Were proper custody procedures (relinquished/received) followed?									
✓ Yes No	6. Were sample IDs listed on the COC?									
✓ Yes No	7. Were sample IDs listed on all sample containers?									
✓ Yes No	8. Was collection date & time listed on the COC?									
✓ Yes No	9. Was collection date & time listed on all sample containers?									
✓ Yes No	10. Did all container label information (ID, date, time) agree with the COC?									
✓ Yes No										
☑ Yes □ No	(unbroken, has on, etc.)?									
✓ Yes No	13. Was adequate sample volume available?									
Yes V No	14. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?									
Yes V No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?									
□Yes □No ☑NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?									
☐ Yes ☐ No ✔NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?									
☐ Yes ☐ No ✔NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?									
☐ Yes ☐ No ☑NA	19. Were all applicable NH ₃ /TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?									
☐Yes ☐No ☑NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc)									
LITES LINO VINA	correctly transcribed from the COC into the comment section in LIMS?									
✓ Yes No	21. Was the quote number listed on the container label? If yes, Quote # 2164									
	Must be completed for any sample(s) incorrectly preserved or with headspace.)									
Sample(s) NA in sample receiving with	were received incorrectly preserved and were adjusted accordingly MA mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA									
Time of preservation NA	. If more than one preservative is needed, please note in the comments below.									
Sample(s) NA	were received with bubbles >6 mm in diameter.									
Samples(s) NA	were received with TRC > 0.5 mg/L (If #19 is na) and were									
adjusted accordingly in sa	imple receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA									
SR barcode labels applied	by: ISM Date: 8/17/2621									
Comments:										



Report of Analysis

GZA GeoEnvironmental, Inc.

17975 West Sarah Lane, Suite 100 Brookfield, WI 53045 Attention: Kevin Hedinger

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080 Lot Number: **WH24026**

Date Completed:09/20/2021

Kary Coman

09/21/2021 2:29 PM
Approved and released by:
Project Manager II: **Karen L. Coonan**





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

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SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

Case Narrative GZA GeoEnvironmental, Inc. Lot Number: WH24026

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.

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.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Surrogate recovery for the following sample was outside the upper control limit: WH24026-002. This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample Summary GZA GeoEnvironmental, Inc.

Lot Number: WH24026

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Sar	mple Number	Sample ID	Matrix	Date Sampled	Date Received
	001	WP-MW-1	Aqueous	08/19/2021 1810	08/24/2021
	002	Field Blank	Aqueous	08/19/2021 1820	08/24/2021

(2 samples)

Detection Summary

GZA GeoEnvironmental, Inc.

Lot Number: WH24026

Project Name: Oshkosh GW PFAS Sampling

Project Number: 20.0157080

Sample	e Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	WP-MW-1	Aqueous	6:2 FTS	PFAS by ID	200		ng/L	5
001	WP-MW-1	Aqueous	PFBS	PFAS by ID	10	J	ng/L	5
001	WP-MW-1	Aqueous	PFHxS	PFAS by ID	23	J	ng/L	5
001	WP-MW-1	Aqueous	PFBA	PFAS by ID	3800		ng/L	5
001	WP-MW-1	Aqueous	PFHpA	PFAS by ID	1300		ng/L	5
001	WP-MW-1	Aqueous	PFHxA	PFAS by ID	7900		ng/L	5
001	WP-MW-1	Aqueous	PFOA	PFAS by ID	120		ng/L	5
001	WP-MW-1	Aqueous	PFPeA	PFAS by ID	19000		ng/L	5
002	Field Blank	Aqueous	PFBA	PFAS by ID	0.66	J	ng/L	7
002	Field Blank	Aqueous	PFOS	PFAS by ID	2.4	J	ng/L	7

(10 detections)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH24026-001 Matrix: Aqueous

Description: WP-MW-1

Date Sampled:08/19/2021 1810

Project Name: Oshkosh GW PFAS Sampling

Date Received: 08/24/2021

Project Number: 20.0157080

Run	Prep Method	Analytical Method	Dilution	Analysis Date Analyst	Prep Date	Batch
1	SOP SPE	PFAS by ID SOP	20	09/15/2021 1842 MMM	09/13/2021 1227	15147
2	SOP SPE	PFAS by ID SOP	50	09/18/2021 2100 NK1	09/13/2021 1227	15147

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		160	9.4	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3)	763051-92-9	PFAS by ID SOP	ND		160	13	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		160	31	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	200		160	39	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		160	17	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		160	41	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		160	9.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		160	26	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		160	15	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		160	19	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		310	25	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		160	18	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		160	25	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	10	J	78	8.1	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		78	15	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		78	9.7	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		78	14	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		78	12	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		78	12	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		160	20	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	23	J	78	11	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	3800		78	12	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		78	10	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		78	9.2	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	1300		78	8.7	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	7900		78	13	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		78	9.0	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	120		78	16	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	19000		200	27	ng/L	2
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		78	12	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		78	10	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		78	12	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	ND		78	39	ng/L	1
Ru	n 1 Accer	otance F	Run 2 Ac	ceptance				
Surrogate Q % Rec			Recovery	Limits				
13C2_4:2FTS 1	25 25	-150	100	25-150				
13C2_6:2FTS 1	45 25	-150	101	25-150				
13C2_8:2FTS 1	16 25	-150	96	25-150				
13C2_PFDoA 1	12 25	-150	114	25-150				
13C2_PFTeDA 1	13 25	-150	101	25-150				
13C3_PFBS 1	07 25	-150	98	25-150				
13C3_PFHxS 1	00 25	-150	94	25-150				

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

13C3-HFPO-DA

H = Out of holding time

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

B = Detected in the method blank

W = Reported on wet weight basis

N = Recovery is out of criteria

118

25-150

E = Quantitation of compound exceeded the calibration range

P = The RPD between two GC columns exceeds 40%

96

25-150

DL = Detection Limit

 $J = Estimated \ result < LOQ \ and \ge DL$

Q = Surrogate failure

L = LCS/LCSD failure

S = MS/MSD failure

Client: GZA GeoEnvironmental, Inc.

Description: WP-MW-1

Laboratory ID: WH24026-001

Matrix: Aqueous

Date Sampled:08/19/2021 1810

Project Name: Oshkosh GW PFAS Sampling

Date Received: 08/24/2021 Project Number: 20.0157080

Surrogate	Q	Run 1 / % Recovery	Acceptance Limits	Q	Run 2 A % Recovery	cceptance Limits	
13C4_PFBA		105	25-150		93	25-150	
13C4_PFHpA		119	25-150		98	25-150	
13C5_PFHxA		104	25-150		95	25-150	
13C5_PFPeA		96	25-150		95	25-150	
13C6_PFDA		99	25-150		102	25-150	
13C7_PFUdA		108	25-150		99	25-150	
13C8_PFOA		115	25-150		98	25-150	
13C8_PFOS		91	25-150		93	25-150	
13C8_PFOSA		99	10-150		97	10-150	
13C9_PFNA		115	25-150		103	25-150	
d-EtFOSA		111	10-150		97	10-150	
d5-EtFOSAA		104	25-150		107	25-150	
d9-EtFOSE		115	10-150		95	10-150	
d-MeFOSA		98	10-150		88	10-150	
d3-MeFOSAA		99	25-150		99	25-150	
d7-MeFOSE		98	10-150		108	10-150	

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated \ result < LOQ \ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH24026-002

Description: Field Blank

Matrix: Aqueous

Date Sampled:08/19/2021 1820

Project Name: Oshkosh GW PFAS Sampling

Date Received: 08/24/2021

Project Number: 20.0157080

Run Prep Method 1 SOP SPE Analytical Method Dilution PFAS by ID SOP 1

Analysis Date Analyst 09/15/2021 1853 MMM Prep Date

Batch

09/13/2021 1227 15147

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	MDL	Units	Run
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	756426-58-1	PFAS by ID SOP	ND		8.5	0.51	ng/L	1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3)	763051-92-9	PFAS by ID SOP	ND		8.5	0.71	ng/L	1
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS)	39108-34-4	PFAS by ID SOP	ND		8.5	1.7	ng/L	1
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	PFAS by ID SOP	ND	Q	8.5	2.1	ng/L	1
1H,1H,2H,2H-perfluorohexane sulfonic acid (4:2 FTS)	757124-72-4	PFAS by ID SOP	ND		8.5	0.93	ng/L	1
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	PFAS by ID SOP	ND		8.5	2.2	ng/L	1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	PFAS by ID SOP	ND		8.5	0.52	ng/L	1
N-ethylperfluoro-1-octanesulfonamide (EtFOSA)	4151-50-2	PFAS by ID SOP	ND		8.5	1.4	ng/L	1
N-ethylperfluoro-1-octanesulfonamidoacetic acid (EtFOSAA)	2991-50-6	PFAS by ID SOP	ND		8.5	0.80	ng/L	1
2-N-ethylperfluoro-1-octanesulfonamido-ethanol (EtFOSE)	1691-99-2	PFAS by ID SOP	ND		8.5	1.0	ng/L	1
N-methylperfluoro-1-octanesulfonamide (MeFOSA)	31506-32-8	PFAS by ID SOP	ND		17	1.3	ng/L	1
N-methylperfluoro-1-octanesulfonamidoacetic acid (MeFOSAA)	2355-31-9	PFAS by ID SOP	ND		8.5	1.0	ng/L	1
2-N-methylperfluoro-1-octanesulfonamido-ethanol (MeFOSE)	24448-09-7	PFAS by ID SOP	ND		8.5	1.4	ng/L	1
Perfluoro-1-butanesulfonic acid (PFBS)	375-73-5	PFAS by ID SOP	ND		4.3	0.44	ng/L	1
Perfluoro-1-decanesulfonic acid (PFDS)	335-77-3	PFAS by ID SOP	ND		4.3	0.83	ng/L	1
Perfluoro-1-heptanesulfonic acid (PFHpS)	375-92-8	PFAS by ID SOP	ND		4.3	0.53	ng/L	1
Perfluoro-1-nonanesulfonic acid (PFNS)	68259-12-1	PFAS by ID SOP	ND		4.3	0.76	ng/L	1
Perfluoro-1-octanesulfonamide (PFOSA)	754-91-6	PFAS by ID SOP	ND		4.3	0.65	ng/L	1
Perfluoro-1-pentanesulfonic acid (PFPeS)	2706-91-4	PFAS by ID SOP	ND		4.3	0.63	ng/L	1
Perfluorododecanesulfonic acid (PFDOS)	79780-39-5	PFAS by ID SOP	ND		8.5	1.1	ng/L	1
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	PFAS by ID SOP	ND		4.3	0.59	ng/L	1
Perfluoro-n-butanoic acid (PFBA)	375-22-4	PFAS by ID SOP	0.66	J	4.3	0.64	ng/L	1
Perfluoro-n-decanoic acid (PFDA)	335-76-2	PFAS by ID SOP	ND		4.3	0.56	ng/L	1
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	PFAS by ID SOP	ND		4.3	0.50	ng/L	1
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	PFAS by ID SOP	ND		4.3	0.48	ng/L	1
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	PFAS by ID SOP	ND		4.3	0.73	ng/L	1
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	PFAS by ID SOP	ND		4.3	0.49	ng/L	1
Perfluoro-n-octanoic acid (PFOA)	335-67-1	PFAS by ID SOP	ND		4.3	0.89	ng/L	1
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	PFAS by ID SOP	ND		4.3	0.58	ng/L	1
Perfluoro-n-tetradecanoic acid (PFTeDA)	376-06-7	PFAS by ID SOP	ND		4.3	0.64	ng/L	1
Perfluoro-n-tridecanoic acid (PFTrDA)	72629-94-8	PFAS by ID SOP	ND		4.3	0.57	ng/L	1
Perfluoro-n-undecanoic acid (PFUdA)	2058-94-8	PFAS by ID SOP	ND		4.3	0.67	ng/L	1
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	PFAS by ID SOP	2.4	J	4.3	2.1	ng/L	1

Surrogate	Rui Q % Rec		
13C2_4:2FTS	1.	15 25-150	
13C2_6:2FTS	N 25	52 25-150	
13C2_8:2FTS	8	36 25-150	
13C2_PFDoA	8	32 25-150	
13C2_PFTeDA	8	37 25-150	
13C3_PFBS	8	39 25-150	
13C3_PFHxS	9	25-150	
13C3-HFPO-DA	9	25-150	
13C4_PFBA	9	25-150	

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

H = Out of holding time

B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis

 $\label{eq:power_power} E = \mbox{Quantitation of compound exceeded the calibration range} \\ P = \mbox{The RPD between two GC columns exceeds } 40\%$

DL = Detection Limit $J = Estimated result < LOQ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

Client: GZA GeoEnvironmental, Inc.

Laboratory ID: WH24026-002

Matrix: Aqueous

Description: Field Blank Date Sampled:08/19/2021 1820

Project Name: Oshkosh GW PFAS Sampling

Date Received: 08/24/2021 Project Number: 20.0157080

Surrogate	Run 1 Ao Q % Recovery	acceptance Limits
13C4_PFHpA	90	25-150
13C5_PFHxA	93	25-150
13C5_PFPeA	99	25-150
13C6_PFDA	85	25-150
13C7_PFUdA	83	25-150
13C8_PFOA	96	25-150
13C8_PFOS	80	25-150
13C8_PFOSA	82	10-150
13C9_PFNA	97	25-150
d-EtFOSA	60	10-150
d5-EtFOSAA	90	25-150
d9-EtFOSE	87	10-150
d-MeFOSA	72	10-150
d3-MeFOSAA	99	25-150
d7-MeFOSE	82	10-150

LOQ = Limit of Quantitation ND = Not detected at or above the DL H = Out of holding time

B = Detected in the method blank N = Recovery is out of criteria W = Reported on wet weight basis E = Quantitation of compound exceeded the calibration range P = The RPD between two GC columns exceeds 40%

DL = Detection Limit $J = Estimated \ result < LOQ \ and \ge DL$ Q = Surrogate failure L = LCS/LCSD failure S = MS/MSD failure

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)

QC Summary

PFAS by LC/MS/MS - MB

Sample ID: WQ15147-001 Batch: 15147 Analytical Method: PFAS by ID SOP Matrix: Aqueous Prep Method: SOP SPE

Prep Date: 09/13/2021 1227

Parameter	Result	Q	Dil LOQ	MDL	Units	Analysis Date
9CI-PF3ONS	ND		1 8.0	0.48	ng/L	09/14/2021 1800
11CI-PF3OUdS	ND		1 8.0	0.66	ng/L	09/14/2021 1800
8:2 FTS	ND		1 8.0	1.6	ng/L	09/14/2021 1800
6:2 FTS	ND		1 8.0	2.0	ng/L	09/14/2021 1800
4:2 FTS	ND		1 8.0	0.87	ng/L	09/14/2021 1800
GenX	ND		1 8.0	2.1	ng/L	09/14/2021 1800
ADONA	ND		1 8.0	0.48	ng/L	09/14/2021 1800
EtFOSA	ND		1 8.0	1.4	ng/L	09/14/2021 1800
EtFOSAA	ND		1 8.0	0.75	ng/L	09/14/2021 1800
EtFOSE	ND		1 8.0	0.95	ng/L	09/14/2021 1800
MeFOSA	ND		1 16	1.3	ng/L	09/14/2021 1800
MeFOSAA	ND		1 8.0	0.93	ng/L	09/14/2021 1800
MeFOSE	ND		1 8.0	1.3	ng/L	09/14/2021 1800
PFBS	ND		1 4.0	0.41	ng/L	09/14/2021 1800
PFDS	ND		1 4.0	0.78	ng/L	09/14/2021 1800
PFHpS	ND		1 4.0	0.50	ng/L	09/14/2021 1800
PFNS	ND		1 4.0	0.71	ng/L	09/14/2021 1800
PFOSA	ND		1 4.0	0.61	ng/L	09/14/2021 1800
PFPeS	ND		1 4.0	0.59	ng/L	09/14/2021 1800
PFDOS	ND		1 8.0	1.0	ng/L	09/14/2021 1800
PFHxS	ND		1 4.0	0.55	ng/L	09/14/2021 1800
PFBA	ND		1 4.0	0.60	ng/L	09/14/2021 1800
PFDA	ND		1 4.0	0.52	ng/L	09/14/2021 1800
PFDoA	ND		1 4.0	0.47	ng/L	09/14/2021 1800
PFHpA	ND		1 4.0	0.45	ng/L	09/14/2021 1800
PFHxA	ND		1 4.0	0.69	ng/L	09/14/2021 1800
PFNA	ND		1 4.0	0.46	ng/L	09/14/2021 1800
PFOA	ND		1 4.0	0.83	ng/L	09/14/2021 1800
PFPeA	ND		1 4.0	0.54	ng/L	09/14/2021 1800
PFTeDA	ND		1 4.0	0.60	ng/L	09/14/2021 1800
PFTrDA	ND		1 4.0	0.53	ng/L	09/14/2021 1800
PFUdA	ND		1 4.0	0.63	ng/L	09/14/2021 1800
PFOS	ND		1 4.0	2.0	ng/L	09/14/2021 1800
Surrogate	Q % Red	Accep C Lir	otance nit			
13C2_4:2FTS	143	25-	150			
13C2_6:2FTS	92	25-	150			
13C2_8:2FTS	100		150			
13C2_PFDoA	115	25-	150			
13C2_PFTeDA	126	25-	150			
13C3_PFBS	114	25-	150			
13C3_PFHxS	104	25-	150			
13C3-HFPO-DA	125	25-				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - MB

Sample ID: WQ15147-001 Batch: 15147 Analytical Method: PFAS by ID SOP Matrix: Aqueous
Prep Method: SOP SPE

Prep Date: 09/13/2021 1227

Surrogate	Q % Rec	Acceptance Limit	
13C4_PFBA	111	25-150	
13C4_PFHpA	121	25-150	
13C5_PFHxA	123	25-150	
13C5_PFPeA	109	25-150	
13C6_PFDA	115	25-150	
13C7_PFUdA	118	25-150	
13C8_PFOA	119	25-150	
13C8_PFOS	128	25-150	
13C8_PFOSA	105	10-150	
13C9_PFNA	124	25-150	
d-EtFOSA	104	10-150	
d5-EtFOSAA	105	25-150	
d9-EtFOSE	108	10-150	
d-MeFOSA	107	10-150	
d3-MeFOSAA	110	25-150	
d7-MeFOSE	115	10-150	

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ15147-002 Batch: 15147 Analytical Method: PFAS by ID SOP Matrix: Aqueous
Prep Method: SOP SPE
Prep Date: 09/13/2021 1227

	Spike	Dooult			%Rec	
Parameter	Amount (ng/L)	Result (ng/L) Q) Dil	% Rec	Limit	Analysis Date
9CI-PF3ONS	15	13	1	88	50-150	09/14/2021 1810
11CI-PF3OUdS	15	13	1	88	50-150	09/14/2021 1810
8:2 FTS	15	13	1	83	50-150	09/14/2021 1810
6:2 FTS	15	15	1	102	50-150	09/14/2021 1810
4:2 FTS	15	15	1	100	50-150	09/14/2021 1810
GenX	32	25	1	79	50-150	09/14/2021 1810
ADONA	15	16	1	104	50-150	09/14/2021 1810
EtFOSA	16	17	1	105	50-150	09/14/2021 1810
EtFOSAA	16	16	1	103	50-150	09/14/2021 1810
EtFOSE	16	16	1	102	50-150	09/14/2021 1810
MeFOSA	16	18	1	114	50-150	09/14/2021 1810
MeFOSAA	16	16	1	97	50-150	09/14/2021 1810
MeFOSE	16	14	1	89	50-150	09/14/2021 1810
PFBS	14	15	1	103	50-150	09/14/2021 1810
PFDS	15	13	1	87	50-150	09/14/2021 1810
PFHpS	15	16	1	104	50-150	09/14/2021 1810
PFNS	15	15	1	96	50-150	09/14/2021 1810
PFOSA	16	16	1	103	50-150	09/14/2021 1810
PFPeS	15	16	1	107	50-150	09/14/2021 1810
PFDOS	15	15	1	98	50-150	09/14/2021 1810
PFHxS	15	14	1	99	50-150	09/14/2021 1810
PFBA	16	17	1	107	50-150	09/14/2021 1810
PFDA	16	16	1	99	50-150	09/14/2021 1810
PFDoA	16	18	1	112	50-150	09/14/2021 1810
PFHpA	16	17	1	106	50-150	09/14/2021 1810
PFHxA	16	15	1	9 5	50-150	09/14/2021 1810
PFNA	16	16	1	97	50-150	09/14/2021 1810
PFOA	16	16	1	103	50-150	09/14/2021 1810
PFPeA	16	15	1	94	50-150	09/14/2021 1810
PFTeDA	16	18	1	112	50-150	09/14/2021 1810
PFTrDA	16	16	1	103	50-150	09/14/2021 1810
PFUdA	16	18	1	110	50-150	09/14/2021 1810
PFOS	15	15	1	101	50-150	09/14/2021 1810
Surrogate	Q % Rec	Acceptance Limit				
13C2_4:2FTS	141	25-150				
13C2_6:2FTS	91	25-150				
13C2_8:2FTS	104	25-150				
13C2_PFDoA	102	25-150				
13C2_PFTeDA	117	25-150				
13C3_PFBS	112	25-150				
13C3_PFHxS	108	25-150				
13C3-HFPO-DA	133	25-150				
1909-1111 0-07	100	25-150				

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

PFAS by LC/MS/MS - LCS

Sample ID: WQ15147-002 Batch: 15147 Matrix: Aqueous
Prep Method: SOP SPE

Analytical Method: PFAS by ID SOP

Prep Date: 09/13/2021 1227

Surrogate	Q % Rec	Acceptance Limit	
13C4_PFBA	112	25-150	
13C4_PFHpA	107	25-150	
13C5_PFHxA	117	25-150	
13C5_PFPeA	125	25-150	
13C6_PFDA	122	25-150	
13C7_PFUdA	104	25-150	
13C8_PFOA	119	25-150	
13C8_PFOS	111	25-150	
13C8_PFOSA	99	10-150	
13C9_PFNA	128	25-150	
d-EtFOSA	90	10-150	
d5-EtFOSAA	112	25-150	
d9-EtFOSE	108	10-150	
d-MeFOSA	101	10-150	
d3-MeFOSAA	107	25-150	
d7-MeFOSE	113	10-150	

LOQ = Limit of Quantitation

ND = Not detected at or above the DL

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

P = The RPD between two GC columns exceeds 40%

* = RSD is out of criteria

+ = RPD is out of criteria

Chain of Custody and Miscellaneous Documents

PACE ANALYTICAL SERVICES, LLC 106 Vantage Point Drive • West Columbia, SC 29172 Telephone No. 803-791-9700 Fax No. 803-791-9111 www.pacelabs.com

124340 Number

GZA GEOFINTONMENTAL INC		Reports Contact Keyln	Kevin Hedonger	مدر	TORDAND NO / EMBE KENTAN hedwyer @ 920, Com	a. Com	Quote No.
19975 W Swah Lane Sufe 100	150	Sampler's Signature		, ,	Analysis (Attach list if more space is needed) **Analysis (Attach list if more space is needed)	dea))	Page (of 3
ON Brookfield State Zo	7 S3045	X MANUMEN X	Marke	Margapala	E-K		
Project Name LOS h Corporation		Branbern Stapicton	7. STA	peron re	ו ק		WH24026
Project No. 20.015 7080	P.O. No.	ejerach Gest	Marrix	No of Containers by Preserveine Type	M '8		KLC2
Semple 1D / Description (Contehers for each sample may be combined on one the.)	Callsaten Col Calers)	Collection Time Oct.	snearby english snearby snearby snearby	PRODUCT PRODUC	WHY		Hemarka / Gooler I.D.
WP-MW-I	12/61/8	1810 6		>	X		,
Field Blank		1820 -X	X		<u>×</u>		
Turn Around Time Required (Prior tab agrees) required for expedited IAT.) Sample Disposed Standard Bush (Seecily)	for expedited TAT.) So	hmple Disposal Return to Olen' X	Oisposal by Cap	Sample Disposal Possible Hazard Identification Possible Hazard Identification Possible Hazard Identification Possible Hazard Identification	A Skin Interf. C. Polson C. Unknown	GC Requirem	GC Requirements (Specify)
		8/23/21	Trine 300	- Received of	I.	Date 7/2/21	Time 900
2. Rekrapulahed by			Tame	2. Received by		Date	Yune
3. Reknqulahed by		Date	Time	3. Received by	-	Ozto	Тте
4. Restricturated by FO of Ex		Pluste /	15/0/2	4. Labourdony received by	The Me Show	HENRY	Thre 1015
Note: All samples are retained for four weeks from feceign unless other arrangements are made.	ed for four week	Process of		LAB USE ONLY Flooring on the Choles	a Ann Line Park	2,7,2	Temp Blank TO Y TO N
With the same of t	and an amount of			Time of the second	1		Supplied to the supplied to th

Cocument Mumber: MEGGSN2-91



Samples Receipt Checklist (SRC) (ME0018C-15)

Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020 Page 1 of 1

Sample Receipt Checklist (SRC)

677	
Client; GZA	Cooler Inspected by/date: JSM / 08/24/2021 Lot #: WH24026
	Pace Client UPS 7 FedEx Other:
Yes V No	1. Were custody seals present on the cooler?
The second secon	A 2. If custody seals were present, were they intact and unbroken?
H Strip ID: NA	Chlorine Strip ID: NA Tested by: NA
original temperature up	on receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA
	NA °C NA /NA °C NA /NA °C
	Blank Against Bottles IR Gun ID: 5 IR Gun Correction Factor: 0 "C
fethod of coolant:	Wet Ice Lice Packs Dry Ice None
Yes □No ☑N	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified?
	PM was Notified by: phone / email / face-to-face (circle one).
Yes No N	A 4. Is the commercial courier's packing slip attached to this form?
✓ Yas No	Were proper custody procedures (relinquished/received) followed?
✓ Yas No	Were sample IDs listed on the COC?
✓ Yes No	7. Were sample iDs listed on all sample containers?
✓ Yes No	8. Was collection date & time listed on the COC?
✓ Yes No	9. Was collection date & time listed on all sample containers?
✓ Yes No	10. Did all container label information (ID, date, time) agree with the COC?
✓ Yes No	11. Were tests to be performed listed on the COC?
☑Yes ☐No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
✓ Yes ∟ No	13. Was adequate sample volume available?
Yes ✓ No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ✓ No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
Yes □ No ☑N	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (%"or 6mm in diameter) In any of the VOA vials?
Yes No VN	A 17. Were all DRO/metals/nutrient samples received at a pH of < 2?
	A 18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
	10 Mars 11 - Valid NII (TMN) - 14 (1 - 1600 1600 2 (40 C - 0)
∐ Yes □ No ☑ N	A residual chlorine?
n. n n	20 Warm alignst recognity/propagate (i.e. recognited dilutions, MS/MSD designations, etc.)
⊥Yes □No ☑N	correctly transcribed from the COC into the comment section in LIMS?
Yes V No	21. Was the quote number listed on the container label? If yes, Quote #
ample Preservation	(Must be completed for any sample(s) incorrectly preserved or with headspace.)
Sample(s) NA	were received incorrectly preserved and were adjusted accordingly
n sample receiving with	MAmL of circle one: H2SO4, HNO3, HCl, NaOH using SR # NA
ime of preservation N/	If more than one preservative is needed, please note in the comments below.
ample(s) NA	were received with bubbles >6 mm in diameter.
amples(s) NA	were received with TRC ≥ 0.5 mg/L (If #19 is no) and were
	sample receiving with sodium thiosulfate (Na ₂ S ₂ O ₃) with Shealy ID: NA
iR barcode labels applie	d by: JSM Date: 08/24/2021
Name and the	
Comments:	
	1