



Rose & Westra
A Division of GZA



GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION
MANAGEMENT

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MEMORANDUM

To: Abby Hendershott, EGLE

From: Lori Powers, Rose & Westra, a Division of GZA GeoEnvironmental, Inc.

Date: March 2, 2020

File No.: 16.0062335.52 / 16.0062335.53

Re: Wolverine World Wide, Inc. (Wolverine) – House Street Disposal Area
Monthly Progress Report

This EGLE Monthly Progress Report (MPR) is being submitted on behalf of Wolverine. This EGLE MPR is completed as agreed upon in Mr. John Byl's July 9, 2018 letter entitled *Response to May 29 Correspondence regarding Tannery Meeting Summary and Action Items*.

This progress report also includes information to supplement the February 11, 2020 U.S. EPA MPR (attached). This will be the final MPR submitted pursuant to the 2018 letter. Future submissions will be governed by the Consent Decree entered on February 19, 2020.

SITE INVESTIGATION ACTIONS

Additional wells were installed at location PMW-13 in January 2020. The final boring and well installation log is attached.

On-Site capping task was completed. These are further detailed in the U.S. EPA MPRs.

SITE ANALYTICAL DATA RECEIVED

PFAS data received since the last update is summarized on the attached table. This is limited to the Quarter 4 groundwater monitoring. Future monitoring will be conducted in accordance with the Consent Decree.

SITE MAPPING

No revisions have been made to the RI map.

OFF-SITE SUMMARY

On November 22, draft scopes of work for parcels on the south side of House Street were submitted to EGLE, EPA, MDOT, and the property owners and their counsel for review and approval prior to implementing any removal actions. Some responses to the scopes of work have been received, but not all parties have responded. Questions and requests are being evaluated. R&W/GZA is also working on approval for waste disposal. Revised waste profiles and approval are underway.

J:\62000\623xx\62335.52 - House St Pre-Inv\MDEQ Updates\February 2020 Update\WWW-House Street-MDEQMonthlyUpdate-03022020.docx



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Wolverine World Wide, Inc.

House Street

Belmont, Michigan

Boring No.: HS-MW-13A

Page: 1 of 2

File No.: 16.0062335.52

Check: JTM/JMG

Contractor: Stearns Drilling Company

Foreman: Jerry Huntoon

Logged by: John Morehouse

Date Start/Finish: 1-14-20 / 1-14-20

Boring Location:

GS Elev.: Datum:

Auger/
Casing

Sampler

GROUNDWATER READINGS

Type: Hollow Stem Auger Split Spoon

O.D. / I.D.: 8.0" / 4.25" 2.0" / 1 3/8"

Hammer Wt.: 140lbs NA

Hammer Fall: 30" NA

TOC Elev.: NA NA

Date	Time	Depth	Casing	Stab

Surveyed By: NA Survey Date:

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				PROTECTIVE CASING	Bentonite/Grout
1						See HS-MW-13C for detailed soil descriptions.				
2										
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REMARKS

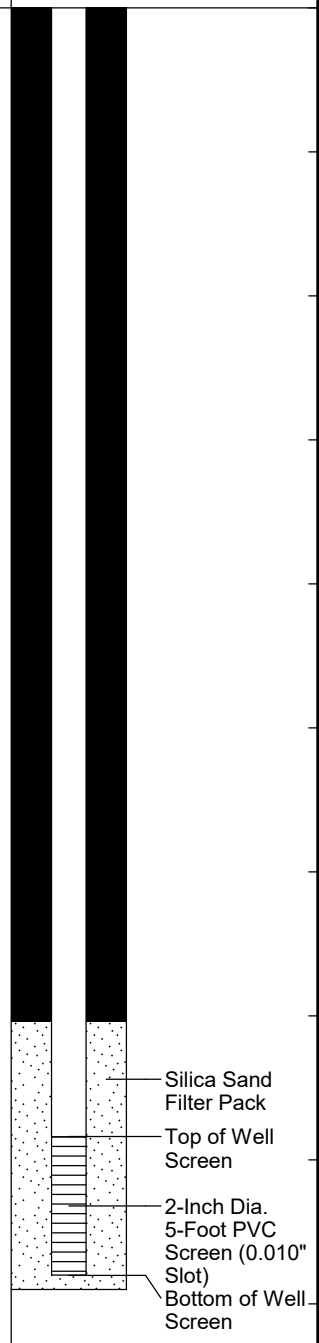
Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13A

BORING WELL 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										
51										
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83										
84										
85						Bottom of Borehole at 84.5 Feet		1		
86										



REMARKS

1. Monitoring well HS-MW-13A was installed in borehole upon completion. Well screen set from approximately 79.2 to 84.0 feet below ground surface.

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ_GZA_CORP_GDT 2/25/20



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House Street

Belmont, Michigan

Boring No.: HS-MW-13B

Page: 1 of 4

File No.: 16.0062335.52

Check: JTM/JMG

Contractor: Stearns Drilling Company

Foreman: Jerry Huntoon

Logged by: John Morehouse

Date Start/Finish: 1-13-20 / 1-14-20

Boring Location:

GS Elev.: Datum:

**Auger/
Casing**

Sampler

GROUNDWATER READINGS

Type: Hollow Stem Auger Split Spoon

O.D. / I.D.: 8.0" / 4.25" 2.0" / 1 3/8"

Hammer Wt.: 140lbs NA

Hammer Fall: 30" NA

TOC Elev.: NA NA

Date	Time	Depth	Casing	Stab

Surveyed By: NA Survey Date:

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					PROTECTIVE CASING
1						See HS-MW-13C for detailed soil descriptions.				
2										
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Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13B

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



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House Street

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Boring No.: HS-MW-13B

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File No.: 16.0062335.52

Check: JTM/JMG

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
41										
42										
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REMARKS										

Bentonite/Grout

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ_GZA_CORP_GDT 2/25/20

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13B



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House Street

Belmont, Michigan

Boring No.: HS-MW-13B

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File No.: 16.0062335.52

Check: JTM/JMG

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
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133										
R E M A R K S										

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13B



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Check: JTM/JMG

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
134									
135									
136									
137									
138									
139									
140									
141									
142									
143									
144									
145									
146									
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156						Bottom of Borehole at 155.5 Feet		1	
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179									

REMARKS

1. Monitoring well HS-MW-13B was installed in borehole upon completion. Well screen set from approximately 148.8 to 153.6 feet below ground surface.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13B

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



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House Street

Belmont, Michigan

Boring No.: HS-MW-13C

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File No.: 16.0062335.52

Check: JTM/JMG

Contractor: Stearns Drilling Company

Foreman: Jerry Huntoon

Logged by: John Morehouse

Date Start/Finish: 12-16-19 / 12-17-19

Boring Location:

GS Elev.: Datum:

Auger/
Casing

Sampler

GROUNDWATER READINGS

Type: Hollow Stem Auger Split Spoon

O.D. / I.D.: 8.0" / 4.25" 2.0" / 1 3/8"

Hammer Wt.: 140lbs NA

Hammer Fall: 30" NA

TOC Elev.: NA NA

Date	Time	Depth	Casing	Stab

Surveyed By: NA Survey Date:

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					PROTECTIVE CASING
1	1	24/11	0-2	1-2 2-1		Dark brown to dark yellowish brown, fine SAND, some Silt, moist. Changing at 0.2 feet to: Yellowish brown, fine SAND, some Silt, moist. Changing at 0.9 feet to: NO RECOVERY.	0.9' NO RECOVERY			
2	2	24/1	2-4	4-2 3-6		Yellowish brown, fine SAND, little Silt, moist. Changing at 2.1 feet to: NO RECOVERY.	2' 2.1' NO RECOVERY			
3										
4	3	24/11	4-6	2-4 5-7		Light yellowish brown, fine SAND, trace Silt, moist. Changing at 4.9 feet to: NO RECOVERY.	4' 4.9' NO RECOVERY			
5										
6	4	24/13	6-8	5-6 7-8		Dark yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 6.7 feet to: Dark yellowish brown, SILT, thin seams of Silty Clay, moist. Changing at 6.9 feet to: Dark yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 7.1 feet to: NO RECOVERY.	6' 6.7' 6.9' 7.1' NO RECOVERY			
7										
8	5	24/16	8-10	6-4 5-6		Dark yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 9.3 feet to: NO RECOVERY.	8' 9.3' NO RECOVERY			
9										
10	6	24/12	10-12	4-8 8-10		Dark yellowish brown, fine SAND, some Silt, moist. Changing at 10.5 feet to: Yellowish brown, SILT, moist. Changing at 11.6 feet to: Pale brown, fine SAND, trace Silt, moist. Changing at 11.8 feet to: NO RECOVERY.	10' 10.5' SILT 11.6' 11.8' NO RECOVERY			
11										
12	7	24/17	12-14	6-8 9-11		Pale brown, fine SAND, trace Silt, moist. Changing at 13.4 feet to: NO RECOVERY.	12' NO RECOVERY SAND 13.4' NO RECOVERY			
13										
14	8	24/14	14-16	5-8 10-12		Pale brown, fine SAND, trace Silt, moist. Changing at 15.2 feet to: NO RECOVERY.	14' SAND			

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13C

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ_GZA_CORP.GDT 2/25/20



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Wolverine World Wide, Inc.

House Street

Belmont, Michigan

Boring No.: HS-MW-13C

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Check: JTM/JMG

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
16	9	24/12	16-18	3-7 7-6		Pale brown, fine SAND, trace Silt, moist. Changing at 17.0 feet to: NO RECOVERY.	15.2' NO RECOVERY 16' SAND		
17							17' NO RECOVERY		
18	10	24/17	18-20	5-6 9-10		Pale brown, fine SAND, trace Silt, moist. Changing at 18.5 feet to: Pale brown, fine SAND, trace Silt, very thin lenses of Silt, moist. Changing at 19.4 feet to: NO RECOVERY.	18' SAND		
19							19.4' NO RECOVERY		
20	11	24/17	20-22	7-9 11-11		Pale brown, fine SAND, trace Silt, moist. Changing at 21.2 feet to: Yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 21.4 feet to: NO RECOVERY.	20' SAND		
21							21.4' NO RECOVERY		
22	12	24/18	22-24	5-8 11-14		Yellowish brown, fine SAND, trace Silt, moist. Changing at 23.5 feet to: NO RECOVERY.	22' SAND		
23							23.5' NO RECOVERY		
24	13	24/18	24-26	13-14 12-18		Yellowish brown, fine SAND, trace Silt, grading to fine to medium SAND, trace Silt, moist. Changing at 25.5 feet to: NO RECOVERY.	24' SAND		
25							25.5' NO RECOVERY		
26	14	24/19	26-28	6-15 17-18		Yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 27.6 feet to: NO RECOVERY.	26' SAND		
27							27.6' NO RECOVERY		
28	15	24/16	28-30	10-22 27-34		Yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 28.6 feet to: Yellowish brown, SILT, some fine Sand, moist. Changing at 29.3 feet to: NO RECOVERY.	28' SAND 28.6' SILT		
29							29.3' NO RECOVERY		
30	16	24/20	30-32	15-20 19-20		Brownish yellow, fine to medium SAND, trace Silt, moist. Changing at 30.3 feet to: Light yellowish brown, fine SAND, trace Silt, moist. Changing at 31.3 feet to: Brownish yellow, fine to medium SAND, trace Silt, moist. Changing at 31.7 feet to: NO RECOVERY.	30' SAND		
31							31.7' NO RECOVERY		
32	17	24/20	32-34	11-14 17-20		Brownish yellow, fine to medium SAND,	32' SAND		

REMARKS

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

Boring No.: HS-MW-13C

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



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Wolverine World Wide, Inc.

House Street

Belmont, Michigan

Boring No.: HS-MW-13C

Page: 3 of 12

File No.: 16.0062335.52

Check: JTM/JMG

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
33						trace Silt, moist. Changing at 33.2 feet to: Yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 33.5 feet to: Brownish yellow, fine to medium SAND, trace Silt, moist. Changing at 33.7 feet to: NO RECOVERY.	SAND			
34	18	24/23	34-36	13-17 20-24		Brownish yellow, fine SAND, trace Silt, moist. Changing at 35.9 feet to: NO RECOVERY.	33.7' 34' NO RECOVERY SAND			
35										
36	19	24/20	36-38	9-18 22-27		Brownish yellow, fine SAND, trace Silt, moist. Changing at 36.7 to: Yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 36.8 feet to: Yellowish brown, SILT, moist. Changing at 37.7 feet to: NO RECOVERY.	35.9' 36' NO RECOVERY SAND			
37							36.8' SILT			
38	20	24/22	38-40	10-10 14-15		Brownish yellow, fine SAND, trace Silt, moist. Changing at 38.5 feet to: Yellowish brown, fine SAND, some Silt, moist. Changing at 38.8 feet to: Yellowish brown, SILT, moist. Changing at 39.7 feet to: Yellowish brown, fine SAND, trace Silt, moist. Changing at 39.8 feet to: NO RECOVERY.	37.7' 38' NO RECOVERY SAND			
39							38.8' SILT			
40	21	24/22	40-42	12-8 18-23		Dark yellowish brown, medium to coarse SAND, trace Silt, moist. Changing at 41.8 feet to: NO RECOVERY.	39.7' 39.8' SAND 40' NO RECOVERY SAND			
41										
42	22	24/16	42-44	11-22 23-21		Dark yellowish brown, medium to coarse SAND, trace Silt, moist. Changing at 42.7 feet to: Yellowish brown, fine SAND, trace Silt, moist. Changing at 43.0 feet to: Yellowish brown, fine SAND, trace Silt, thin lenses of coarse SAND, moist. Changing at 43.3 feet to: NO RECOVERY.	41.8' 42' NO RECOVERY SAND			
43							43.3' NO RECOVERY			
44	23	24/17	44-46	9-20 22-23		Yellowish brown, fine SAND, some Silt, moist. Changing at 45.4 feet to: NO RECOVERY.	44' SAND			
45										
46	24	24/16	46-48	11-19 20-25		Yellowish brown, fine to coarse SAND, trace Silt, moist. Changing at 46.9 feet to: Brownish yellow, fine SAND, trace Silt, moist. Changing at 47.3 feet to: NO RECOVERY.	45.4' NO RECOVERY SAND			
47							47.3' NO RECOVERY			
48	25	18/18	48-49.5	11-18 20-18		Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 48.9 feet to: Dark yellowish brown, coarse SAND, trace Silt, moist. Changing at 49.0 feet to: Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, moist.	48' SAND			
49							49.6' NO			
							50'			

REMARKS

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Boring No.: HS-MW-13C

BORING WELL 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (6")	Test Data				
51	26	24/16	50-52	11-12 12-11		Changing at 49.2 feet to: Dark yellowish brown, coarse SAND, trace Silt, moist. Changing at 49.3 feet to: Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 49.6 feet to: NO RECOVERY.	RECOVERY SAND 51.1' 51.3' SILT NO RECOVERY		
52	27	24/16	52-54	6-5 6-6		Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, moist. Changing at 50.6 feet to: Yellowish brown, fine to medium SAND, trace Silt, moist. Changing at 51.1 feet to: Yellowish brown, SILT, moist. Changing at 51.3 feet to: NO RECOVERY.	52' SAND		
53							53.3' NO RECOVERY		
54	28	24/7	54-56	3-4 8-15		Yellowish brown, fine SAND, trace Silt, wet. Changing at 52.6 feet to: Dark yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 53.3 feet to: NO RECOVERY.	54' SAND		
55							54.6' NO RECOVERY		
56	29	24/17	56-58	6-10 10-14		Dark yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 54.6 feet to: NO RECOVERY. Dark yellowish brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 57.4 feet to: NO RECOVERY.	56' SAND		
57							57.4' NO RECOVERY		
58	30	24/12	58-60	2-5 9-9		Dark yellowish brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 59.0 feet to: No RECOVERY.	58' SAND		
59							59' NO RECOVERY	1	
60	31	24/1	60-62	1-3 8-10		Yellowish brown, fine SAND, trace Silt, moist. Changing at 60.1 feet to: NO RECOVERY.	60' 60.1' SAND NO RECOVERY		
61									
62	32	24/16	62-64	3-5 17-16		Dark yellowish brown, Silty CLAY, moist. Changing at 62.1 feet to: Dark yellowish brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 62.3 feet to: Dark yellowish brown, Silty CLAY, moist. Changing at 63.2 feet to: Dark yellowish brown to dark brown, coarse SAND, trace Silt, wet. Changing at 63.3 feet to: NO RECOVERY.	62' Silty CLAY	2	
63							63.2' 63.3' SAND NO RECOVERY		
64	33	24/14	64-66	2-6 10-13		Dark yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 64.4 feet to: Dark yellowish brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 65.2 feet to: NO RECOVERY. Yellowish brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 66.9 feet to: NO RECOVERY.	64' SAND		
65							65.2' NO RECOVERY		
66	34	24/11	66-68	4-10 10-12			66' SAND		
67							66.9' NO RECOVERY		

REMARKS

1. Temporary well set at 59.0 to 64.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
2. Groundwater was encountered at approximately 62.1 feet below ground surface.

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ_GZA_CORP.GDT 2/25/20

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GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Wolverine World Wide, Inc.

House Street

Belmont, Michigan

Boring No.: HS-MW-13C

Page: 5 of 12

File No.: 16.0062335.52

Check: JTM/JMG

Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed		
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data						
68	35	24/19	68-70	14-16 13-14		Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 68.2 feet to: Dark yellowish brown, coarse SAND, trace Silt, wet. Changing at 68.3 feet to: Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 69.2 feet to: Dark yellowish brown, Silty CLAY, trace Gravel, moist. Changing at 69.3 feet to: Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 70.8 feet to: NO RECOVERY. Dark yellowish brown, GRAVEL, some fine to coarse Sand, trace Silt, wet. Changing at 70.8 feet to: NO RECOVERY.	68'	3			
69							69.2'				SAND
70							69.3'				Silty CLAY
70	36	24/10	70-72	3-7 12-12		Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 69.2 feet to: Dark yellowish brown, Silty CLAY, trace Gravel, moist. Changing at 69.3 feet to: Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 70.8 feet to: NO RECOVERY. Dark yellowish brown, GRAVEL, some fine to coarse Sand, trace Silt, wet. Changing at 70.8 feet to: NO RECOVERY.	69.6'				
71							70'	NO RECOVERY			
72							70.8'	GRAVEL			
72	37	24/8	72-74	5-8 16-17		Yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 72.7 feet to: NO RECOVERY.	72'				
73							72.7'	SAND			
74							74'	NO RECOVERY			
74	38	24/16	74-76	3-12 19-21		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 74.3 feet to: Brown, coarse SAND, some Gravel, trace Silt, wet. Changing at 74.6 feet to: Yellowish brown, SILT, wet. Changing at 75.3 feet to: NO RECOVERY.	74.6'				
75							75.3'	SILT			
76							76'	NO RECOVERY			
76	39	24/19	76-78	14-16 22-26		Dark yellowish brown, fine to coarse SAND, trace Gravel, trace Silt, wet. Changing at 76.7 feet to: Yellowish brown, SILT, trace fine Sand, trace Gravel, trace Clay, wet. Changing at 77.4 feet to: Brown to yellowish brown, fine SAND, trace Gravel, trace Silt, wet. Changing at 77.6 feet to: NO RECOVERY.	76.7'				
77							77.4'	SILT			
78							77.6'	SAND			
78	40	24/6	78-80	7-9 15-19		Brown to yellowish brown, fine SAND, trace Gravel, trace Silt, wet. Changing at 78.5 feet to: NO RECOVERY.	78'				
79							78.5'	NO RECOVERY			
80							80'	SAND			
80	41	24/12	80-82	0-0 9-20		Dark yellowish brown, fine SAND, trace Gravel, trace Silt, wet. Changing at 81.0 feet to: NO RECOVERY.	81'				
81							82'	NO RECOVERY			
82							83.5'	SAND			
82	42	24/18	82-84	2-8 16-22		Dark yellowish brown, fine SAND, trace Gravel, trace Silt, wet. Changing at 83.5 feet to: NO RECOVERY.	84'				
83							84.5'	NO RECOVERY			
84							84.5'	SAND			
84	43	24/6	84-86	7-13 15-18		Dark yellowish brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 84.5 feet to: NO RECOVERY.	84.5'				
								NO RECOVERY			

REMARKS

3. Temporary well set at 69.0 to 74.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
 4. Temporary well set at 79.0 to 84.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
86	44	24/7	86-88	5-10 19-28		Dark yellowish brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 86.6 feet to: NO RECOVERY.	86' NO RECOVERY SAND 86.6'	5		
87							88' NO RECOVERY SAND			
88	45	24/19	88-90	11-20 30-45		Dark yellowish brown to yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 89.6 feet to: NO RECOVERY.	89.6'			
89							90' NO RECOVERY SAND			
90	46	24/17	90-92	2-11 23-43		Dark yellowish brown to yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 91.4 feet to: NO RECOVERY.	91.4'			
91							92' NO RECOVERY SAND	6		Bentonite/Grout
92	47	24/18	92-94	0-1 6-11		Dark yellowish brown to yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 93.5 feet to: NO RECOVERY.	93.5'			
93							94' NO RECOVERY SAND			
94	48	24/5	94-96	4-8 16-24		Dark yellowish brown to yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 94.4 feet to: NO RECOVERY.	94.4'			
95							96' NO RECOVERY SAND			
96	49	24/7	96-98	4-13 19-31		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 96.6 feet to: NO RECOVERY.	96.6'	6		Bentonite/Grout
97							98' NO RECOVERY SAND			
98	50	24/8	98-100	2-7 15-22		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 98.7 feet to: NO RECOVERY.	98.7'			
99							100' NO RECOVERY SAND			
100	51	24/12	100-102	9-15 25-38		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 101.0 feet to: NO RECOVERY.	101'			
101							NO RECOVERY	6		Bentonite/Grout
102	52	24/0	102-104	7-24 39-50/4"		NO RECOVERY.				

REMARKS

- 5. Temporary well set at 89.0 to 94.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
- 6. Temporary well set at 99.0 to 104.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.

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BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
103							NO RECOVERY			
104	53	24/12	104-106	11-23 32-45		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 105.0 feet to: NO RECOVERY.	104' SAND			
105							105' NO RECOVERY			
106	54	24/16	106-108	5-18 37-50/5"		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 107.3 feet to: NO RECOVERY.	106' SAND			
107							107.3' NO RECOVERY			
108	55	24/12	108-110	4-18 48-50/3"		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 109.0 feet to: NO RECOVERY.	108' SAND			
109							109' NO RECOVERY	7		
110	56	24/2	110-112	10-22 36-50/5"		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 110.2 feet to: NO RECOVERY.	110' 110.2' SAND			
111							NO RECOVERY			
112	57	24/14	112-114	13-27 41-50		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 113.2 feet to: NO RECOVERY.	112' SAND			
113							113.2' NO RECOVERY			
114	58	24/20	114-116	12-27 35-50		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 115.7 feet to: NO RECOVERY.	114' SAND			
115							115.7' NO RECOVERY			
116	60	24/16	116-118	3-8 22-48		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 117.3 feet to: NO RECOVERY.	116' NO RECOVERY SAND			
117							117.3' NO RECOVERY			
118	61	24/0	118-120	5-9 16-27		NO RECOVERY.				
119								8		

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20

REMARKS

- 7. Temporary well set at 109.0 to 114.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
- 8. Temporary well set at 119.0 to 124.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (6")	Test Data					
121	62	24/0	120-122	5-10 25-32		NO RECOVERY.	NO RECOVERY			
122	63	24/2	122-124	5-11 18-25		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 122.2 feet to: NO RECOVERY.	122' 122.2' SAND NO RECOVERY			
124	64	24/0	124-126	5-12 21-25		NO RECOVERY.				
126	65	24/5	126-128	4-9 19-27		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 126.4 feet to: NO RECOVERY.	126' 126.4' SAND NO RECOVERY			
128	66	24/12	128-130	15-23 40-47		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 129.0 feet to: NO RECOVERY.	128' SAND 129' NO RECOVERY	9		
130	67	24/5	130-132	7-9 19-33		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 130.4 feet to: NO RECOVERY.	130' SAND 130.4' NO RECOVERY			
132	68	24/6	132-134	3-9 22-43		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 133.1 feet to: NO RECOVERY.	132' SAND 133.1' NO RECOVERY			
134	70	24/0	134-136	2-4 14-25		NO RECOVERY.				
136	71	24/13	136-138	8-25 36-45		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 137.1 feet to: NO RECOVERY.	136' SAND 137.1'			

REMARKS

9. Temporary well set at 129.0 to 134.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.



Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
138	72	24/13	138-140	6-5 7-11		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 139.1 feet to: NO RECOVERY.	138' NO RECOVERY SAND	10		
139							139.1' NO RECOVERY			
140	73	24/13	140-142	1-4 9-17		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 141.1 feet to: NO RECOVERY.	140' SAND			
141							141.1' NO RECOVERY			
142	74	24/0	142-144	2-8 18-26		NO RECOVERY.				
143										
144	75	24/13	144-146	1-6 13-28		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 145.1 feet to: NO RECOVERY.	144' SAND			
145							145.1' NO RECOVERY			
146	76	24/17	146-148	7-13 32-50		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 174.4 feet to: NO RECOVERY.	146' SAND			
147							147.4' NO RECOVERY			
148	77	24/14	148-150	6-15 28-50		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 149.2 feet to: NO RECOVERY.	148' NO RECOVERY SAND	11		
149							149.2' NO RECOVERY			
150	78	24/7	150-152	6-15 25-44		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 150.6 feet to: NO RECOVERY.	150' SAND			
151							150.6' NO RECOVERY			
152	79	24/11	152-154	14-28 63-50/4"		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 152.9 feet to: NO RECOVERY.	152' SAND			
153							152.9' NO RECOVERY			
154	80	24/6	154-156	8-19 32-50		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 154.5 feet to: NO RECOVERY.	154' SAND			
							154.5' NO RECOVERY			

REMARKS

10. Temporary well set at 139.0 to 144.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
11. Temporary well set at 149.0 to 154.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed	
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data					
156	81	24/8	156-158	9-18 30-50/2"		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 156.7 feet to: NO RECOVERY.	NO RECOVERY 156' SAND 156.7'	12		
157							NO RECOVERY			
158	82	24/2	158-160	3-12 25-37		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 158.2 feet to: NO RECOVERY.	158' 158.2' SAND			
159							NO RECOVERY			
160	83	18/5	160-161.5	15-13-27		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 160.4 feet to: NO RECOVERY.	160' 160.4' SAND			
161							NO RECOVERY			
162	84	24/8	162-164	6-19 32-32		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 162.7 feet to: NO RECOVERY.	162' SAND 162.7'			
163							NO RECOVERY			
164	85	24/16	164-166	3-12 28-46		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 165.3 feet to: NO RECOVERY.	164' SAND			
165							165.3'			
166	86	18/8	166-167.5	8-22-40		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 166.7 feet to: NO RECOVERY.	NO RECOVERY 166' SAND 166.7'			
167							NO RECOVERY			
168	87	24/10	168-170	5-19 25-42		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 168.8 feet to: NO RECOVERY.	168' SAND 168.8'	13		
169							NO RECOVERY			
170	88	24/20	170-172	33-30 32-34		Yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 171.3 feet to: Very dark brown, Silty CLAY, moist. Changing at 171.7 feet to: NO RECOVERY.	170' SAND			
171							171.3'			
172	89	24/8	172-174	33-43 45-47		Brown, fine to coarse SAND, some Gravel,	171.6' Silty CLAY 171.7' SAND 172' NO RECOVERY			

REMARKS

- 12. Temporary well set at 159.0 to 164.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
- 13. Temporary well set at 169.0 to 174.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.

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BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20



Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
173						trace Silt, wet. Changing at 172.7 feet to: NO RECOVERY.	172.7' SAND NO RECOVERY		
174	90	24/5	174-176	2-6 27-50/3"		Brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 174.3 feet to: NO RECOVERY.	174' 174.3' SAND NO RECOVERY		
175									
176	91	24/0	176-178	14-50/5"		NO RECOVERY.			
177									
178	92	18/4	178-179.5	6-31-50		Brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 178.3 feet to: NO RECOVERY.	178' 178.3' SAND NO RECOVERY	14	
179									
180	93	12/2	180-181	18-50		Brown, fine to coarse SAND, some Gravel, trace Silt, wet. Changing at 180.2 feet to: NO RECOVERY.	180' 180.2' SAND NO RECOVERY		
181									
182	94	24/7	182-184	13-50/2"		Dark grayish brown, CLAY, some Sand, little Silt, trace Gravel, moist. Changing at 182.6 feet to: NO RECOVERY.	182' CLAY 182.6' NO RECOVERY		
183									
184	95	24/19	184-186	19-43 42-50/5"		Dark yellowish brown, fine to medium SAND, trace Silt, wet. Changing at 184.7 feet to: Dark yellowish brown, fine to coarse SAND, little Gravel, trace Silt, wet. Changing at 184.9 feet to: Grayish brown, GRAVEL, some Sand, trace Silt, wet. Changing at 185.6 feet to: NO RECOVERY.	184' SAND 184.9' GRAVEL		
185									
186	96	12/6	186-187	23-50		Grayish-brown, GRAVEL, some Sand, trace Silt, wet. Changing at 186.5 feet to: NO RECOVERY.	185.6' NO RECOVERY 186' GRAVEL 186.5' NO RECOVERY		
187									
188	97	12/11	188-189	40-50/4"		Dark yellowish brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 188.3 feet to: Brown to dark brown, medium to coarse SAND, trace Gravel, trace Silt, wet. Changing at 188.9 feet to: NO RECOVERY.	188' SAND 188.9' NO RECOVERY	15	
189							190'		

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- 14. Temporary well set at 179.0 to 184.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.
- 15. Temporary well set at 189.0 to 194.0 feet below ground surface. Groundwater sample submitted for laboratory analysis.

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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Depth	Sample Information					Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	No.	Pen./ Rec. (in.)	Depth (Ft.)	Blows (/6")	Test Data				
191	98	12/10	190-191	26-50/3"		Dark yellowish-brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 190.6 feet to: Brown, fine to medium SAND, trace Silt, wet. Changing at 190.8 feet to: NO RECOVERY.	SAND 190.8' NO RECOVERY		
192	99	12/12	192-193	25-50/3"		Brown, fine to medium SAND, trace Silt, wet. Changing at 192.6 feet to: NO RECOVERY.			
194	100	12/7	194-195	29-50/2"		Brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 194.6 feet to: Grayish-brown, SILT, little Clay, moist. Changing at 194.7 feet to: NO RECOVERY.	194' SAND 194.6' 194.7' SILT NO RECOVERY		
196	101	6/6	196-196.5	50/3"		Brown, fine to medium SAND, trace Silt, wet. Changing at 196.6 feet to: NO RECOVERY.	196' SAND 196.6' NO RECOVERY		
198	102	12/7	198-199	30-50/3"		Yellowish-brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 198.6 feet to: NO RECOVERY.	198' SAND 198.6' NO RECOVERY		
200	103	18/17	200-201.5	37-33-50/2"		Yellowish-brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 201.2 feet to: NO RECOVERY.	200' SAND 201.2' NO RECOVERY		
202	104	12/11	202-203	37-50/2"		Yellowish-brown, fine to medium SAND, trace Gravel, trace Silt, wet. Changing at 202.1 feet to: Grayish-brown, GRAVEL, some coarse Sand, trace Silt, wet. Changing at 202.2 feet to: Brown, SILT, some fine Sand, wet. Changing at 202.3 feet to: Grayish-brown, GRAVEL, some coarse Sand, trace Silt, wet. Changing at 202.5 feet to: Brown, fine SAND, some Silt, moist. Changing at 202.7 feet to: Brown, Silty CLAY, trace Gravel, moist.	202' 202.1' SAND 202.2' GRAVEL 202.3' SILT 202.5' GRAVEL 202.7' GRAVEL SAND Silty CLAY		
204	105	12/11	204-205	37-50/2"		Dark grayish-brown, Silty CLAY, trace Gravel, moist. Changing at 204.9 feet to: NO RECOVERY.	204.9' NO RECOVERY		
205						Bottom of Borehole at 205.0 Feet	205' NO RECOVERY		

REMARKS
16. Monitoring well was installed in borehole upon completion. Well screen set from 199.4 to 204.2 feet below ground surface.

BORING WELL: 62355.52 HOUSE STREET COMPLETE.GPJ GZA CORP.GDT 2/25/20

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-1D	HS-MW-1S	HS-MW-2S	HS-MW-3S	HS-MW-4S	HS-MW-5D	HS-MW-5D	HS-MW-5S	HS-MW-6D	HS-MW-6S	HS-MW-7S	HS-MW-8	HS-MW-9D
						HS-GW-MW-1D	HS-GW-MW-1S	HS-GW-MW-2S	HS-GW-MW-3S	HS-GW-MW-4S	HS-GW-MW-5D	HS-GW-MW-5D DUP	HS-GW-MW-5S	HS-GW-MW-6D	HS-GW-MW-6S	HS-GW-MW-7S	HS-GW-MW-8	HS-GW-MW-9D
Sample Name						172.3-176.9	67.4-72.1	77.9-82.5	70.1-75	70.2-74.8	190.5-200.5	190.5-200.5	60.3-65	157.5-162.5	58.2-62.9	69.9-74.5	30-35	204.3-209.3
Well Screen Interval (Feet below ground surface)						UL05055-005	UL05055-003	UL05055-009	UL05055-011	UL05055-020	UL05055-018	UL05055-019	UL05055-021	UL05055-028	UL05055-027	UL05055-022	UL05055-031	UL12091-004
Laboratory Sample ID(s)						12/02/2019	12/02/2019	12/03/2019	12/03/2019	12/04/2019	12/04/2019	12/04/2019	12/04/2019	12/05/2019	12/05/2019	12/04/2019	12/06/2019	12/09/2019
Sample Date																		
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0069	<0.0071	<0.0075	<0.0071	<0.0074	<0.007	<0.0072	<0.14	<0.0071	<0.0072	<0.007	<0.0075	<0.0076
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	0.0054	0.0054	0.04	0.57	0.1	0.005	0.0068	1.4	<0.0036	0.0046	0.0055	0.086	<0.0038
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	0.05	0.74	<0.0035	<0.0036	3.4	<0.0036	<0.0036	<0.0035	0.12	<0.0038
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0069	<0.0071	<0.0075	<0.0071	<0.0074	<0.007	<0.0072	<0.14	<0.0071	<0.0072	<0.007	<0.0075	<0.0076
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	0.028	0.75	0.38	0.0053	0.0077	3.5	<0.0036	<0.0036	<0.0035	0.11	<0.0038
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	0.0035	0.022	0.022	1.6	4.6	0.013	0.02	15	<0.0036	0.013	0.01	0.32	<0.0038
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	0.0063	0.14	0.23	<0.0035	<0.0036	0.43	<0.0036	<0.0036	<0.0035	0.017	<0.0038
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	0.0065	0.24	0.45	<0.0035	<0.0036	2.4	<0.0036	<0.0036	<0.0035	0.074	<0.0038
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	0.03	0.51	0.48	<0.0035	<0.0036	1.3	<0.0036	<0.0036	<0.0035	0.031	<0.0038
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	0.01	0.0072	0.0044	0.73	2.1	0.008	0.013	11	<0.0018	0.012	0.003	0.7	<0.0019
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	0.0038	0.006	<0.0037	0.023	2.3	0.01	0.015	71	<0.0036	0.0046	0.0091	0.12	<0.0038
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	0.014	0.013	0.0044	0.75	4.4	0.018	0.028	82	ND	0.017	0.012	0.82	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	0.0076	0.16	0.21	<0.0035	<0.0036	0.51	<0.0036	<0.0036	<0.0035	0.011	<0.0038
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluorotridecanoic acid (PFTriDA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0034	<0.0035	<0.0037	<0.0036	<0.0037	<0.0035	<0.0036	<0.071	<0.0036	<0.0036	<0.0035	<0.0038	<0.0038
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	0.023	0.041	0.14	4.8	12	0.041	0.063	110	ND	0.034	0.028	1.6	ND

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-9M	HS-MW-9S	HS-MW-9S	HS-MW-10D	HS-MW-10M	HS-MW-10S	HS-MW-11D	HS-MW-11M	HS-MW-11S	HS-MW-12A	HS-MW-12B	HS-MW-12C	HS-MW-12D
						HS-GW-MW-9M	HS-GW-MW-9S	HS-GW-MW-9S DUP	HS-GW-MW-10D	HS-GW-MW-10M	HS-GW-MW-10S	HS-GW-MW-11D	HS-GW-MW-11M	HS-GW-MW-11S	HS-GW-MW-12A	HS-GW-MW-12B	HS-GW-MW-12C	HS-GW-MW-12D
Well Screen Interval (Feet below ground surface)						126.8-131.8	26.2-31.2	26.2-31.2	188.2-193.2	126.4-131.4	48.3-58.3	153.6-158.6	96.4-101.4	21.2-31.2	15.4-20.4	51.5-56.5	127.7-132.7	158.7-163.7
Laboratory Sample ID(s)						UL12091-003	UL12091-013	UL12091-014	UL05055-006	UL05055-010	UL05055-001	UL05055-013	UL05055-012	UL05055-014	UK29008-021	UK29008-012	UK29008-011	UK29008-010
Sample Date						12/09/2019	12/11/2019	12/11/2019	12/02/2019	12/03/2019	12/02/2019	12/03/2019	12/03/2019	12/03/2019	11/27/2019	11/25/2019	11/25/2019	11/25/2019
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0071	<0.0077	<0.0074	<0.007	<0.0071	<0.0071	<0.0075	<0.0073	<0.0071	<0.0072	<0.0073	<0.0076	<0.0068
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	<0.0036	<0.0038	<0.0037	<0.0035	0.0089	0.0037	<0.0038	0.05	<0.0036	<0.0036	<0.0037	0.13	0.14
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	0.0037	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0071	<0.0077	<0.0074	<0.007	<0.0071	<0.0071	<0.0075	<0.0073	<0.0071	<0.0072	<0.0073	<0.0076	<0.0068
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	0.016	<0.0036	<0.0036	<0.0037	0.13	0.12
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	0.0039	0.013	<0.0038	0.0045	<0.0036	<0.0036	0.0054	0.12	0.091
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.0049	0.0049	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	0.036	0.037
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	0.07	0.072
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	0.076	0.09
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0018	0.0048	0.0049	<0.0018	0.01	0.021	<0.0019	<0.0018	0.0041	0.0089	0.0023	0.19	0.17
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0036	0.0076	0.0081	<0.0035	0.013	0.024	<0.0038	<0.0036	<0.0036	0.0063	<0.0037	<0.0038	<0.0034
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND	0.012	0.013	ND	0.023	0.045	ND	ND	0.0041	0.015	0.0023	0.19	0.17
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	0.0039	<0.0037	0.039	0.038
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0038	<0.0037	<0.0035	<0.0036	<0.0035	<0.0038	<0.0036	<0.0036	<0.0036	<0.0037	<0.0038	<0.0034
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	ND	0.017	0.018	ND	0.036	0.065	ND	0.071	0.0041	0.019	0.0077	0.79	0.76

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-12E	HS-MW-14D	HS-MW-14M	HS-MW-14S	HS-MW-15D	HS-MW-15M	HS-MW-15S	HS-MW-17D	HS-MW-17M	HS-MW-17S	HS-MW-18D	HS-MW-18S	HS-MW-19D
						HS-GW-MW-12E	HS-GW-MW-14D	HS-GW-MW-14M	HS-GW-MW-14S	HS-GW-MW-15D	HS-GW-MW-15M	HS-GW-MW-15S	HS-GW-MW-17D	HS-GW-MW-17M	HS-GW-MW-17S	HS-GW-MW-18D	HS-GW-MW-18S	HS-GW-MW-19D
Sample Name						187.5-192.5	109-114	68.1-73.1	13-23	108.6-118.6	44.8-49.8	6.9-16.9	222.1-227.1	167.3-172.3	105.8-110.8	140.6-145.6	12.8-22.8	85.9-95.9
Well Screen Interval (Feet below ground surface)						UK29008-013	UK29008-016	UK29008-015	UK29008-014	UK19008-012	UK21036-009	UK21036-010	UL12091-010	UL12091-012	UL12091-007	UK19008-015	UK21036-020	UL12091-019
Laboratory Sample ID(s)						11/25/2019	11/25/2019	11/25/2019	11/25/2019	11/20/2019	11/19/2019	11/19/2019	12/10/2019	12/11/2019	12/10/2019	11/20/2019	11/21/2019	12/12/2019
Sample Date																		
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.007	<0.007	<0.0069	<0.0069	<0.0069	<0.0073	<0.0069	<0.0074	<0.0068	<0.0075	<0.0075	<0.007	<0.0072
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	0.0073	0.42	0.0038	0.018	0.029	<0.0035	<0.0036
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.029	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.007	<0.007	<0.0069	<0.0069	<0.0069	<0.0073	<0.0069	<0.0074	<0.0068	<0.0075	<0.0075	<0.007	<0.0072
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.49	<0.0034	<0.0038	0.014	<0.0035	<0.0036
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	0.004	1	<0.0034	<0.0038	0.0072	0.0043	<0.0036
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.12	<0.0034	0.0042	0.02	<0.0035	<0.0036
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.31	<0.0034	<0.0038	0.011	<0.0035	<0.0036
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.28	<0.0034	0.0054	0.022	<0.0035	<0.0036
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0018	0.0018	1.1	<0.0017	<0.0019	0.015	<0.0017	<0.0018
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.076	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	0.0018	1.2	ND	ND	0.015	ND	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	0.14	<0.0034	0.0073	0.016	<0.0035	<0.0036
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0035	<0.0034	<0.0034	<0.0034	<0.0036	<0.0034	<0.0037	<0.0034	<0.0038	<0.0037	<0.0035	<0.0036
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	ND	ND	0.013	4	0.0038	0.035	0.13	0.0043	ND

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-19S	HS-MW-20D	HS-MW-20M	HS-MW-20S	HS-MW-21D	HS-MW-21D	HS-MW-21M	HS-MW-21S	HS-MW-23A	HS-MW-23B	HS-MW-23C	HS-MW-23D	HS-MW-24A
						HS-GW-MW-19S	HS-GW-MW-20D	HS-GW-MW-20M	HS-GW-MW-20S	HS-GW-MW-21D	HS-GW-MW-21D DUP	HS-GW-MW-21M	HS-GW-MW-21S	HS-GW-MW-23A	HS-GW-MW-23B	HS-GW-MW-23C	HS-GW-MW-23D	HS-GW-MW-24A
						58.4-61.4	126.1-131.1	101.5-106.5	61.1-66.1	76.2-86.2	76.2-86.2	59-64	9.8-19.8	72.1-77.1	137.9-142.8	210.2-215	238.9-243.9	55.6-60.4
						UL12091-016	UK29008-019	UK29008-002	UK29008-001	UL12091-001	UL12091-002	UK29008-020	UK29008-022	UL05055-032	UL05055-033	UL05055-034	UL12091-008	UL12091-009
Sample Date						12/11/2019	11/27/2019	11/26/2019	11/26/2019	12/09/2019	12/09/2019	11/27/2019	11/27/2019	12/06/2019	12/06/2019	12/06/2019	12/10/2019	12/10/2019
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0072	<0.0069	<0.0071	<0.007	<0.0072	<0.0071	<0.0074	<0.007	<0.0071	<0.007	<0.0071	<0.0072	<0.007
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	<0.0036	0.15	0.06	0.018	<0.0036	<0.0035	<0.0037	0.0036	0.018	0.014	0.28	0.14	<0.0035
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	0.0077	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0072	<0.0069	<0.0071	<0.007	<0.0072	<0.0071	<0.0074	<0.007	<0.0071	<0.007	<0.0071	<0.0072	<0.007
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.098	0.062	0.012	<0.0036	<0.0035	<0.0037	<0.0035	0.0094	0.0071	0.23	0.076	<0.0035
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.043	0.13	0.013	<0.0036	<0.0035	<0.0037	<0.0035	0.019	0.015	0.09	0.011	<0.0035
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.049	0.014	0.0067	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	0.067	0.043	<0.0035
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.076	0.038	0.0092	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	0.057	0.02	<0.0035
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.1	0.034	0.013	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	0.0044	0.26	0.16	<0.0035
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0018	0.11	0.15	0.023	<0.0018	<0.0018	<0.0019	0.0031	0.012	0.0082	0.03	0.0056	<0.0017
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0036	<0.0035	0.029	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	0.015	<0.0035	<0.0035	<0.0036	<0.0035
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND	0.11	0.18	0.023	ND	ND	ND	0.0031	0.027	0.0082	0.03	0.0056	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0036	0.049	0.014	0.0064	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	0.11	0.08	<0.0035
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0036	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035	<0.0037	<0.0035	<0.0035	<0.0035	<0.0035	<0.0036	<0.0035
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	ND	0.68	0.54	0.1	ND	ND	ND	0.0067	0.073	0.049	1.1	0.54	ND

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-24B	HS-MW-25D	HS-MW-25S	HS-MW-26D	HS-MW-26M	HS-MW-26S	HS-MW-27A	HS-MW-27B	HS-MW-27C	HS-MW-27D	HS-MW-27E	HS-MW-28A	HS-MW-28B
						HS-GW-MW-24B	HS-GW-MW-25D	HS-GW-MW-25S	HS-GW-MW-26D	HS-GW-MW-26M	HS-GW-MW-26S	HS-GW-MW-27A	HS-GW-MW-27B	HS-GW-MW-27C	HS-GW-MW-27D	HS-GW-MW-27E	HS-GW-MW-28A	HS-GW-MW-28B
Sample Name						225.2-230	65.7-70.7	51.1-56.1	79.6-84.6	61.7-66.7	25.8-30.8	21.6-26.2	35.4-38	41.3-45.9	52.4-56.4	58.5-62.5	39.1-43.7	43.3-47.9
Well Screen Interval (Feet below ground surface)						UL12091-015	UL05055-004	UL05055-002	UK21036-008	UK21036-005	UK21036-001	UK19008-001	UK19008-003	UK19008-002	UK21036-002	UK19008-004	UK21036-018	UK21036-019
Laboratory Sample ID(s)						12/11/2019	12/02/2019	12/02/2019	11/19/2019	11/19/2019	11/19/2019	11/18/2019	11/18/2019	11/18/2019	11/19/2019	11/18/2019	11/21/2019	11/21/2019
Sample Date																		
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0077	<0.0074	<0.007	<0.0073	<0.0073	<0.0077	<0.0075	<0.0075	<0.0076	<0.0074	<0.0072	<0.0075
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	<0.0037	0.018	0.012	<0.0035	0.0053	<0.0037	0.004	<0.0037	<0.0038	<0.0038	<0.0037	0.0047	0.0092
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0074	<0.0077	<0.0074	<0.007	<0.0073	<0.0073	<0.0077	<0.0075	<0.0075	<0.0076	<0.0074	<0.0072	<0.0075
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.0082	0.0057	<0.0035	<0.0037	<0.0037	0.0056	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.0054	0.0039	<0.0035	<0.0037	<0.0037	0.0067	<0.0037	<0.0038	<0.0038	0.0074	<0.0036	<0.0038
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.005	0.0049	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.012	0.0092	<0.0035	<0.0037	<0.0037	0.0069	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0018	0.015	0.014	<0.0017	0.0052	<0.0018	0.0051	<0.0019	<0.0019	<0.0019	0.0025	<0.0018	<0.0019
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0037	0.042	0.061	<0.0035	0.017	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND	0.057	0.075	ND	0.022	ND	0.0051	ND	ND	ND	0.0025	ND	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0037	0.0087	0.0067	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0037	<0.0038	<0.0037	<0.0035	<0.0037	<0.0037	<0.0038	<0.0037	<0.0038	<0.0038	<0.0037	<0.0036	<0.0038
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	ND	0.11	0.12	ND	0.028	ND	0.028	ND	ND	ND	0.0099	0.0047	0.0092

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-28C	HS-MW-28D	HS-MW-28D	HS-MW-28E	HS-MW-29A	HS-MW-29B	HS-MW-29C	HS-MW-29D	HS-MW-30A	HS-MW-30A	HS-MW-30B	HS-MW-30C	HS-MW-30D
						HS-GW-MW-28C	HS-GW-MW-28D	HS-GW-MW-28D DUP	HS-GW-MW-28E	HS-GW-MW-29A	HS-GW-MW-29B	HS-GW-MW-29C	HS-GW-MW-29D	HS-GW-MW-30A	HS-GW-MW-30A DUP	HS-GW-MW-30B	HS-GW-MW-30C	HS-GW-MW-30D
						49.2-53.8	62.2-66.8	62.2-66.8	82.7-87.3	3.5-13.5	16.8-21.8	27.2-32.2	37.1-42.1	46.9-51.5	46.9-51.5	51.5-56.1	77.4-82	112.7-117.3
						UK21036-016	UK21036-014	UK21036-015	UK21036-017	UK19008-006	UK21036-003	UK21036-004	UK19008-005	UK19008-010	UK19008-011	UK19008-014	UK21036-026	UK21036-024
Well Screen Interval (Feet below ground surface)	Laboratory Sample ID(s)	Sample Date	11/21/2019	11/21/2019	11/21/2019	11/21/2019	11/18/2019	11/19/2019	11/19/2019	11/18/2019	11/20/2019	11/20/2019	11/20/2019	11/22/2019	11/22/2019	11/22/2019		
Parameter (µg/L)																		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0071	<0.0072	<0.0074	<0.0072	<0.007	<0.0069	<0.007	<0.007	<0.0071	<0.0084	<0.007	<0.0069	<0.0071
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	<0.0035	<0.0036	<0.0037	<0.0036	0.018	0.024	0.011	0.0035	0.0072	0.0069	0.0073	0.0055	0.0056
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.01	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0071	<0.0072	<0.0074	<0.0072	<0.007	<0.0069	<0.007	<0.007	<0.0071	<0.0084	<0.007	<0.0069	<0.0071
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.0056	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.025	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	0.0038	<0.0034	<0.0036
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.01	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.0064	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.017	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0018	<0.0018	<0.0018	<0.0018	0.036	<0.0017	<0.0018	<0.0018	0.003	0.0027	0.0041	<0.0017	<0.0018
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.32	0.004	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND	ND	ND	ND	0.36	0.004	ND	ND	0.003	0.0027	0.0041	ND	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	0.01	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0035	<0.0036	<0.0037	<0.0036	<0.0035	<0.0034	<0.0035	<0.0035	<0.0035	<0.0042	<0.0035	<0.0034	<0.0036
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	ND	ND	ND	ND	0.46	0.028	0.011	0.0035	0.01	0.0096	0.015	0.0055	0.0056

TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-MW-30E	HS-MW-31A	HS-MW-31B	HS-MW-31C	HS-MW-31D	HS-MW-31E	HS-MW-32A	HS-MW-32B	HS-MW-32C	HS-MW-32D
Sample Name						HS-GW-MW-30E	HS-GW-MW-31A	HS-GW-MW-31B	HS-GW-MW-31C	HS-GW-MW-31D	HS-GW-MW-31E	HS-GW-MW-32A	HS-GW-MW-32B	HS-GW-MW-32C	HS-GW-MW-32D
Well Screen Interval (Feet below ground surface)						123.2-127.7	17.1-21.6	26-30.5	41.3-45.8	48.8-53.4	64.1-68.7	60.9-65.5	79.1-83.7	108.8-113.4	142.3-146.9
Laboratory Sample ID(s)						UK21036-025	UK21036-006	UK19008-013	UK21036-007	UK21036-027	UK19008-009	UK29008-003	UK29008-004	UK29008-005	UK29008-006
Sample Date						11/22/2019	11/19/2019	11/20/2019	11/19/2019	11/22/2019	11/20/2019	11/26/2019	11/26/2019	11/26/2019	11/26/2019
Parameter (µg/L)															
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0077	<0.0073	<0.0073	<0.0073	<0.0075	<0.007	<0.0068	<0.0069	<0.0074	<0.0071
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	0.0059	0.0068	0.012	0.015	0.0076	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0077	<0.0073	<0.0073	<0.0073	<0.0075	<0.007	<0.0068	<0.0069	<0.0074	<0.0071
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	0.0043	0.0048	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0038	0.0053	0.013	0.01	0.0053	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	0.0072	0.0047	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	0.018	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0038	0.0043	0.017	0.0073	0.0041	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0019	0.0032	0.052	0.0079	0.0074	<0.0018	<0.0017	<0.0017	<0.0019	<0.0018
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0038	<0.0036	0.014	0.0052	0.007	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND	0.0032	0.066	0.013	0.014	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	0.014	0.0057	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0038	<0.0036	<0.0037	<0.0036	<0.0037	<0.0035	<0.0034	<0.0035	<0.0037	<0.0035
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	0.0059	0.02	0.15	0.061	0.031	ND	ND	ND	ND	ND

TABLE 2
SUMMARY OF GROUNDWATER SAMPLE ANALYSIS - PFAS
1855 House Street NE
Plainfield Twp, Kent Co, MI

Sample Location	Part 201 Generic Residential Groundwater Cleanup Criteria – Drinking Water ²	Part 201 Generic Groundwater Cleanup Criteria – Groundwater Surface Water Interface ²	Part 201 Generic Residential Groundwater Cleanup Criteria – Groundwater Volatilization to Indoor Air Inhalation ²	EGLE Residential Recommended Volatilization to Indoor Air Interim Action Screening Level - Groundwater ³	U.S. EPA Residential Tap Water Regional Removal Management Levels ⁴	HS-PMW-13
Sample Name						HS-13 189-194
Well Screen Interval (Feet below ground surface)						189-194
Laboratory Sample ID(s)						UL19173-001
Sample Date						12/16/2019
Parameter (µg/L)						
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0038
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NCL	NCL	NCL	NCL	NCL	<0.0038
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0038
N-Methyl perfluorooctane sulfonamide (MeFOSA)	NCL	NCL	NCL	NCL	NCL	<0.0076
Perfluorobutane sulfonic acid (PFBS)	NCL	NCL	NCL	NCL	1,200	<0.0038
Perfluorodecane sulfonic acid (PFDS)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluoroheptane sulfonic acid (PFHpS)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorononane sulfonic acid (PFNS)	NCL	NCL	NCL	NCL	NCL	<0.0076
Perfluorooctane sulfonamide (FOSA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluoropentane sulfonic acid (PFPeS)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorohexane sulfonic acid (PFHxS)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorobutanoic acid (PFBA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorodecanoic acid (PFDA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorododecanoic acid (PFDoDA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluoroheptanoic acid (PFHpA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorohexanoic acid (PFHxA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorononanoic acid (PFNA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorooctanoic acid (PFOA)	0.07 (JJ)	12	NCL	NCL	NCL	<0.0019
Perfluorooctane sulfonic acid (PFOS)	0.07 (JJ)	0.012	NCL	NCL	NCL	<0.0038
PFOA + PFOS (Calculated)	0.07	NCL	NCL	NCL	NCL	ND
Perfluoropentanoic acid (PFPeA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorotetradecanoic acid (PFTeDA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluorotridecanoic acid (PFTrDA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Perfluoroundecanoic acid (PFUnDA)	NCL	NCL	NCL	NCL	NCL	<0.0038
Total PFAS (Calculated)	NCL	NCL	NCL	NCL	NCL	ND

NOTES:

1. Concentration and criteria units are micrograms per Liter ($\mu\text{g/L}$) or parts per billion (ppb). Calculated criteria and concentrations are rounded to two significant digits. "ND" indicates the parameters used in the calculation were not detected.
2. Michigan Part 201 Groundwater Cleanup Criteria are based on "Table 1, Groundwater: Residential and Nonresidential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Tier I Risk Based Screening Levels," Michigan Administrative Code, Cleanup Criteria Requirements for Response Activity, Rules 299.44 and 299.49, effective December 30, 2013; updated June 25, 2018.
Abbreviations Include:
"ID" indicates insufficient data to develop criterion.
"NA" indicates a criterion or value is not available or, in the case of background, not applicable.
"NCL" indicates no criterion listed in EGLE Table 1.
"NLV" indicates the substance is not likely to volatilize under most conditions.
Footnotes Include:
(JJ) - Compliance with the drinking water criteria shall require comparing the sum of the PFOA and PFOS groundwater concentrations to the drinking water criterion of 0.07 $\mu\text{g/L}$.
3. EGLE Residential Groundwater Recommended Volatilization to Indoor Air Interim Action Screening Levels (RIASLs) for were based on EGLE's Toxics Steering Group's "Media-Specific Interim Action Screening Levels," published in August 2017. The EGLE published the RIASLs in August 2017, and recently removed the RIASLs from the EGLE website. The EGLE is reportedly evaluating the RIASLs for appropriate use and applicability. These are included for reference.
Abbreviations Include:
"NCL" indicates no value listed in the Media-Specific Interim Action Screening Levels table.
Footnotes Include:
(M) - Site-specific criterion may be below target detection limits (TDL).
4. U.S. EPA Residential Tap Water Regional Removal Management Levels (RMLs) were based on "Generic RML Tables," updated November 2018.
5. Bold, italic number with thick line border or italic parameter name indicates that parameter was detected above the Michigan Part 201 Groundwater Cleanup Criteria or Media-Specific Interim Action Screening Levels. U.S. EPA RMLs are provided for reference only and results detected above the EPA RMLs are not bolded or italicized.
6. Abbreviations include:
"< RL" indicates the parameter was analyzed for but not detected above the method detection limit; RL = Reporting Limit.
"DUP" indicates a duplicate sample.
7. Well screen interval presented is the top of the well screen to the bottom of the well screen in feet below ground surface.



Rose & Westra
A Division of GZA



MEMORANDUM

To: Jeffrey Kimble, U.S. EPA, Region 5

From: Loretta Powers, Rose & Westra, a Division of GZA GeoEnvironmental, Inc.

Date: February 11, 2020

File No.: 16.0062335.52 Task 006/008

Re: Wolverine World Wide, Inc. (Wolverine) – House Street – Monthly Progress Report

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This Monthly Progress Report (MPR) is being provided at the request of the U.S. EPA to support the July 12, 2019 *Work Plan, House Street Disposal Area, Plainfield Township, Kent County, Michigan* (July 2019 WP). The July 2019 WP was prepared in response to the U.S. EPA Region 5 Unilateral Administrative Order for Removal Actions¹ (UAO) effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Area. This MPR is, however, submitted pursuant to Paragraph 22 of the October 28, 2019 U.S. EPA Region 5 Administrative Settlement Agreement and Order on Consent for Removal Actions² (AOC). Per Paragraph 22 of the AOC, this MPR summarizes the following items for the period of January 11 to February 10, 2020: “. . . significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.”

ACTIONS PERFORMED

- 1) Construction equipment was demobilized from the Site.
- 2) R&W/GZA began drafting the 2019 investigation and capping summary report, due to EPA April 9, 2020.

ANALYTICAL DATA RECEIVED

No new analytical data was received for the Site during this reporting period.

ANTICIPATED ACTIONS AND SCHEDULE FOR NEXT REPORTING PERIOD

During the next reporting period, February 11, 2020 to March 10, 2020, the following tasks are anticipated to begin or be completed:

¹. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004.

² CERCLA Docket No. V-W-20-C-002.





- 1) Completion of ordering and placement of signs on fencing as indicated in the July 2019 WP (including recent modifications approval).
- 2) Continue drafting 2019 investigation and capping summary report.

IDENTIFIED PROBLEMS AND RESOLUTIONS

No significant problems were identified during this reporting period.

APPROVED 2019 WP MODIFICATIONS

No modifications to the 2019 WPs were made or approved during this reporting period.

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