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Analysis Report

Sample Description: **WWW-FRB-CDA004-122717 Grab Water**
Wolverine World Wide

Project Name: **Wolverine World Wide Tannery**

Submittal Date/Time: 12/29/2017 10:00
Collection Date/Time: 12/27/2017 11:56
SDG#: WWW01-10FB

Tetra Tech, Inc.
ELLE Sample #: **WW 9388828**
ELLE Group #: **1891712**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1**		ng/l	ng/l	
14070	NEtFOSAA	2991-50-6	N.D.	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.				
14070	NMeFOSAA	2355-31-9	N.D.	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.				
14070	Perfluorobutanesulfonate	375-73-5	N.D.	2	1
14070	Perfluorodecanoic acid	335-76-2	N.D.	2	1
14070	Perfluorododecanoic acid	307-55-1	N.D.	2	1
14070	Perfluoroheptanoic acid	375-85-9	N.D.	2	1
14070	Perfluorohexanesulfonate	355-46-4	N.D.	2	1
14070	Perfluorohexanoic acid	307-24-4	N.D.	2	1
14070	Perfluorononanoic acid	375-95-1	N.D.	2	1
14070	Perfluoro-octanesulfonate	1763-23-1	N.D.	2	1
14070	Perfluorooctanoic acid	335-67-1	N.D.	2	1
14070	Perfluorotetradecanoic acid	376-06-7	N.D.	3	1
14070	Perfluorotridecanoic acid	72629-94-8	N.D.	2	1
14070	Perfluoroundecanoic acid	2058-94-8	N.D.	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	Full List PFAS - DW	EPA 537 Version 1.1	1	18005007	01/09/2018 20:10	Marissa C Drexinger	1
14381	DW PFAS Prep	EPA 537 Version 1.1	1	18005007	01/05/2018 07:35	Pamela Rothharpt	1

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Analysis Report

Sample Description: **WWW-DW-CDA004-122717 Grab Water**
Wolverine World Wide

Project Name: **Wolverine World Wide Tannery**

Submittal Date/Time: 12/29/2017 10:00
Collection Date/Time: 12/27/2017 12:02
SDG#: WWW01-11

Tetra Tech, Inc.
ELLE Sample #: **PW 9388829**
ELLE Group #: **1891712**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1**		ng/l	ng/l	
14070	NEtFOSAA	2991-50-6	N.D.	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.				
14070	NMeFOSAA	2355-31-9	N.D.	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.				
14070	Perfluorobutanesulfonate	375-73-5	N.D.	2	1
14070	Perfluorodecanoic acid	335-76-2	N.D.	2	1
14070	Perfluorododecanoic acid	307-55-1	N.D.	2	1
14070	Perfluoroheptanoic acid	375-85-9	N.D.	2	1
14070	Perfluorohexanesulfonate	355-46-4	N.D.	2	1
14070	Perfluorohexanoic acid	307-24-4	N.D.	2	1
14070	Perfluorononanoic acid	375-95-1	N.D.	2	1
14070	Perfluoro-octanesulfonate	1763-23-1	N.D.	2	1
14070	Perfluorooctanoic acid	335-67-1	N.D.	2	1
14070	Perfluorotetradecanoic acid	376-06-7	N.D.	3	1
14070	Perfluorotridecanoic acid	72629-94-8	N.D.	2	1
14070	Perfluoroundecanoic acid	2058-94-8	N.D.	2	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	Full List PFAS - DW	EPA 537 Version 1.1	1	17363008	01/02/2018 22:42	Marissa C Drexinger	1
14381	DW PFAS Prep	EPA 537 Version 1.1	1	17363008	12/31/2017 08:20	Pamela Rothharpt	1

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Analysis Report

Sample Description: **WWW-PF-CDA004-122717 Grab Water**
Wolverine World Wide

Project Name: **Wolverine World Wide Tannery**

Submittal Date/Time: 12/29/2017 10:00
Collection Date/Time: 12/27/2017 12:07
SDG#: WWW01-12

Tetra Tech, Inc.
ELLE Sample #: **PW 9388830**
ELLE Group #: **1891712**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1**		**ng/l**		**ng/l**	
14070	NEtFOSAA	2991-50-6	N.D.		5	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14070	NMeFOSAA	2355-31-9	N.D.		5	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14070	Perfluorobutanesulfonate	375-73-5	15		5	1
14070	Perfluorodecanoic acid	335-76-2	N.D.		5	1
14070	Perfluorododecanoic acid	307-55-1	N.D.		5	1
14070	Perfluoroheptanoic acid	375-85-9	13		5	1
14070	Perfluorohexanesulfonate	355-46-4	36		5	1
14070	Perfluorohexanoic acid	307-24-4	11	J	5	1
14070	Perfluorononanoic acid	375-95-1	N.D.		5	1
14070	Perfluoro-octanesulfonate	1763-23-1	510		50	10
14070	Perfluorooctanoic acid	335-67-1	130		5	1
14070	Perfluorotetradecanoic acid	376-06-7	N.D.		8	1
14070	Perfluorotridecanoic acid	72629-94-8	N.D.		5	1
14070	Perfluoroundecanoic acid	2058-94-8	N.D.		5	1

Reporting limits were raised due to interference from the sample matrix.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	Full List PFAS - DW	EPA 537 Version 1.1	1	18010003	01/12/2018 19:13	Marissa C Drexinger	1
14070	Full List PFAS - DW	EPA 537 Version 1.1	1	18010003	01/12/2018 19:24	Marissa C Drexinger	10
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18010003	01/10/2018 09:00	Pamela Rothharpt	1

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Analysis Report

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Sample Description: **WWW-PF-CDA004-122717-D Grab Water**
Wolverine World Wide

Project Name: **Wolverine World Wide Tannery**

Submittal Date/Time: 12/29/2017 10:00
Collection Date/Time: 12/27/2017 12:07
SDG#: WWW01-13FD

Tetra Tech, Inc.
ELLE Sample #: **PW 9388831**
ELLE Group #: **1891712**
Matrix: Water

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Misc. Organics	**EPA 537 Version 1.1**		ng/l	ng/l	
14070	NEtFOSAA	2991-50-6	N.D.	2	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.				
14070	NMeFOSAA	2355-31-9	N.D.	2	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.				
14070	Perfluorobutanesulfonate	375-73-5	16	2	1
14070	Perfluorodecanoic acid	335-76-2	N.D.	2	1
14070	Perfluorododecanoic acid	307-55-1	N.D.	2	1
14070	Perfluoroheptanoic acid	375-85-9	13	2	1
14070	Perfluorohexanesulfonate	355-46-4	36	2	1
14070	Perfluorohexanoic acid	307-24-4	11	2	1
14070	Perfluorononanoic acid	375-95-1	N.D.	2	1
14070	Perfluoro-octanesulfonate	1763-23-1	530	20	10
14070	Perfluorooctanoic acid	335-67-1	110	20	10
14070	Perfluorotetradecanoic acid	376-06-7	N.D.	3	1
14070	Perfluorotridecanoic acid	72629-94-8	N.D.	2	1
14070	Perfluoroundecanoic acid	2058-94-8	N.D.	2	1

The recovery for native compound PFHxS in the laboratory fortified blank (LFB) is outside of QC acceptance limits as noted on the QC Summary. The sample was re-extracted and the recovery for PFHxS is again outside of QC acceptance limits in the LFB/LFBD. The recovery for several surrogates was also outside of QC acceptance limits in the re-extracted sample. Comparable results were observed between the two extractions with the exception of PFOA, PFHxS and PFOS. Both sets of data are included in the data package.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	Full List PFAS - DW	EPA 537 Version 1.1	1	18008004	01/09/2018 22:28	Marissa C Drexinger	1
14070	Full List PFAS - DW	EPA 537 Version 1.1	1	18008004	01/10/2018 18:36	Marissa C Drexinger	10
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18008004	01/08/2018 08:30	Pamela Rothharpt	1

Environmental Analysis Request/Chain of Custody

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Acct. # 10459 Group # 1891712 Sample # 9388817

COC # 540830

Client Information

Client: MSG / Tetra Tech	Acct. #:
Project Name/#: Wolverine World Wide	PWSID #:
Project Manager: BRENT RITCHIE	P.O. #: 217808
Sampler: BLR / C. Renner	Quote #:
State where samples were collected: MI	For Compliance: Yes ☐ No ☒

Matrix: Soil ☐ Tissue ☐ Sediment ☐ Water: Potable ☒ Ground ☐ Surface ☐ NPDES ☐ Other: ____

Analysis Requested — Preservation Codes: 0

For Lab Use Only: FSC: ____ SCR#: ____

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PFAS	Remarks
WWW-FRB-CDA004-122717	122717	1156	X		1	X	
WWW-DW-CDA004-122717	↓	1202	X		2	X	
WWW-PF-CDA004-122717		1207	X		2	X	
WWW-PF-CDA004-122717-D		1207	X		2	X	
WWW-FRB-CDA005-122717		1250	X		1	X	
WWW-DW-CDA005-122717		1253	X		2	X	
WWW-PF-CDA005-122717		1258	X		2	X	
WWW-FRB-CDA006-122717		1438	X		1	X	
WWW-DW-CDA006-122717		1440	X		2	X	
WWW-PF-CDA006-122717	↓	1445	X		2	X	

Turnaround Time (TAT) Requested (please circle)

Standard (Rush)

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: 5-day

E-mail address: britchie@marshsmithgroup.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) — Type VI (Raw Data Only) (Level IV)

Type III (Reduced non-CLP) — NJ DKQP — TX TRRP-13

NYSDEC Category A or B — MA MCP — CT RCP

Relinquished by	Date	Time	Received by	Date	Time
[signature]	12.29.17	2000			
			[signature]	12/29/17	1000

EDD Required? (Yes) No

If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? (Yes) No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS ____ FedEx X Other ____

Temperature upon receipt 1.3 °C

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Sample Administration Receipt Documentation Log

Doc Log ID: 205017

Group Number(s): 1891712

Client: MSG/TETRA TECH

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	12/29/2017 10:00
Number of Packages:	4	Number of Projects:	1
State/Province of Origin:	MI		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	Yes	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Wendy Wakeley (1669) at 11:06 on 12/29/2017

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	3.6	DT	Wet	Y	Bagged	N
2	DT146	1.3	DT	Wet	Y	Bagged	N
3	DT146	0.4	DT	Wet	Y	Bagged	N
4	DT146	1.0	DT	Wet	Y	Bagged	N

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	non-detect
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
J (or G, I, X)	Estimated value >= the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.