October 11, 2018

Vista Work Order No. 1802732

Ms. Maya Murshak
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Dear Ms. Murshak,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on August 28, 2018 under your Project Name 'MDEQ State Municipal Sampling'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1802732
Case Narrative

Sample Condition on Receipt:

Two drinking water samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

EPA Method 537, Rev. 1.1

The samples were extracted and analyzed for a selected list of 14 PFAS using EPA Method 537, Rev. 1.1. The results have been reported following the conventions specified by the Michigan Department of Environmental Quality.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

Two Laboratory Fortified Blanks (LFB/LFBD) and a Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the Laboratory Reagent Blank. The LFB/LFBD recoveries were within the method acceptance criteria.

The surrogate recoveries for all QC and field samples were within the acceptance criteria.

Table of Contents

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1802732-01	GWIN1808240950GSC	24-Aug-18 09:50	28-Aug-18 09:30	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1802732-02	GWNT1808241000GSC	24-Aug-18 10:00	28-Aug-18 09:30	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

Name: Merit Laboratories, Inc.
Project: MDEQ State Municipal Sampling
Matrix: Aqueous

Laboratory Data

Lab Sample: B8H0235-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFHxA	307-24-4	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFHpA	375-85-9	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFHxS	355-46-4	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFOA	335-67-1	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFNA	375-95-1	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFOS	1763-23-1	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFDA	335-76-2	ND	2		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
MeFOSAA	2355-31-9	ND	4		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
EtFOSAA	2991-50-6	ND	4		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFUnA	2058-94-8	ND	4		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFDoA	307-55-1	ND	4		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFTrDA	72629-94-8	ND	4		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
PFTeDA	376-06-7	ND	4		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	100	70 - 130		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
13C2-PFDA	SURR	95	70 - 130		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1
d5-EtFOSAA	SURR	109	70 - 130		B8H0235	30-Aug-18	0.25 L	31-Aug-18 17:06	1

RL - Reporting limit

Results reported to RL.
Reporting convention specified by MI DEQ.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LFBD **EPA Method 537**

Name:	Merit Laboratories, Inc.	Lab Sample:	B8H0235-BS1/B8H0235-BSD1
Project:	MDEQ State Municipal Sampling	QC Batch:	B8H0235
Matrix:	Aqueous	Samp Size:	0.25/0.25 L
		Date Extracted:	30-Aug-18
		Column:	BEH C18

Analyte	CAS Number	LFB (ng/L)	LFB Spike Amt	LFB % Rec	LFB Quals	LFBD (ng/L)	LFBD Spike Amt	LFBD % Rec	RPD	LFBD Quals	%Rec Limits	RPD Limits	LFB Analyzed	LFB Dil	LFBD Analyzed	LFBD Dil
PFBS	375-73-5	73	71	104		78	71	110	6		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFHxA	307-24-4	90	80	113		83	80	103	8		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFHpA	375-85-9	85	80	107		83	80	103	3		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFHxS	355-46-4	69	73	95		71	73	98	3		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFOA	335-67-1	83	80	104		80	80	101	3		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFNA	375-95-1	76	80	95		70	80	88	8		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFOS	1763-23-1	78	74	105		83	74	113	7		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFDA	335-76-2	73	80	91		71	80	89	2		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
MeFOSAA	2355-31-9	89	80	111		89	80	112	0		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
EtFOSAA	2991-50-6	85	80	106		80	80	100	6		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFUnA	2058-94-8	82	80	103		76	80	95	8		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFDoA	307-55-1	85	80	107		78	80	97	9		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFTrDA	72629-94-8	77	80	96		75	80	94	2		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1
PFTeDA	376-06-7	74	80	93		73	80	92	1		70-130		31-Aug-18 17:19	1	31-Aug-18 17:32	1

Labeled Standards	Type	LFB % Rec	LFB Quals	LFBD % Rec	LFBD Quals	Limits	LFB Analyzed	LFB Dil	LFBD Analyzed	LFBD Dil
13C2-PFHxA	SURR	97		90		70-130	31-Aug-18 17:19	1	31-Aug-18 17:32	1
13C2-PFDA	SURR	99		84		70-130	31-Aug-18 17:19	1	31-Aug-18 17:32	1
d5-EtFOSAA	SURR	104		104		70-130	31-Aug-18 17:19	1	31-Aug-18 17:32	1

Data Reported per Michigan DEQ instructions.

Sample ID: GWIN1808240950GSC

EPA Method 537

Client Data

Name: Merit Laboratories, Inc.
Project: MDEQ State Municipal Sampling
Location: XTALFATOW06630CH002

Matrix: Drinking Water
Date Collected: 24-Aug-18 09:50

Laboratory Data

Lab Sample: 1802732-01
Date Received: 28-Aug-18 09:30

Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFHxA	307-24-4	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFHpA	375-85-9	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFHxS	355-46-4	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFOA	335-67-1	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFNA	375-95-1	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFOS	1763-23-1	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFDA	335-76-2	ND	2		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
MeFOSAA	2355-31-9	ND	4		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
EtFOSAA	2991-50-6	ND	4		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFUnA	2058-94-8	ND	4		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFDoA	307-55-1	ND	4		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFTrDA	72629-94-8	ND	4		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
PFTeDA	376-06-7	ND	4		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	91	70 - 130		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
13C2-PFDA	SURR	95	70 - 130		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1
d5-EtFOSAA	SURR	92	70 - 130		B8H0235	30-Aug-18	0.25 L	16-Sep-18 22:31	1

RL - Reporting limit

Results reported to RL.
Reporting convention specified by MI DEQ..

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: GWNT1808241000GSC

EPA Method 537

Client Data

Name: Merit Laboratories, Inc.
Project: MDEQ State Municipal Sampling
Location: XTALFATOW06630CH002

Matrix: Drinking Water
Date Collected: 24-Aug-18 10:00

Laboratory Data

Lab Sample: 1802732-02
Date Received: 28-Aug-18 09:30

Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFHxA	307-24-4	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFHpA	375-85-9	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFHxS	355-46-4	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFOA	335-67-1	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFNA	375-95-1	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFOS	1763-23-1	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFDA	335-76-2	ND	2		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
MeFOSAA	2355-31-9	ND	4		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
EtFOSAA	2991-50-6	ND	4		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFUnA	2058-94-8	ND	4		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFDoA	307-55-1	ND	4		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFTrDA	72629-94-8	ND	4		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
PFTeDA	376-06-7	ND	4		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93	70 - 130		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
13C2-PFDA	SURR	91	70 - 130		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1
d5-EtFOSAA	SURR	94	70 - 130		B8H0235	30-Aug-18	0.24 L	16-Sep-18 22:57	1

RL - Reporting limit

Results reported to RL.
Reporting convention specified by MI DEQ..

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank**
Conc.	**Concentration**
D	**Dilution**
DL	**Detection limit**
E	**The associated compound concentration exceeded the calibration range of the instrument**
H	**Recovery and/or RPD was outside laboratory acceptance limits**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ**
LOD	**Limits of Detection**
LOQ	**Limits of Quantitation**
M	**Estimated Maximum Possible Concentration (CA Region 2 projects only)**
NA	**Not applicable**
ND	**Not Detected**
Q	**Ion ratio outside of 70-130% of Standard Ratio. (DOD PFAS projects only)**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**
*****	**See Cover Letter**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	18-008-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-009
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-18-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1802732 Temp: 1.0 °C
Storage ID: MR-2 Storage Secured: Yes ☑ No ☐

Project ID: MDEQ STATE MUNICIPAL SAMPLING PO#: 60570309 Sampler: GARTH COUSINEAU (name)

TAT (check one): Standard: [x] 21 days; Rush (surcharge may apply): [ ] 14 days [ ] 7 days Specify:

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
MIKE JURY	MDEQ	401 KETCHUM ST, SUITE B	BAY CITY	MI	989-894-6255	989-891-9237

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Garth Cousineau	08/27/18	1930	KIM EURIC	08/28/18	0957
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
Ph: (916) 673-1520; Fax: (916) 673-0106

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s): Quantity	Type	Matrix	PFAS Isotope Dilution: List of 21	List of 21 w/isomers	List of 24	List of 24 w/isomers	List of 28	Other: Please List Below	USEPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
GWIN1808240950GSC	8/24/18	0950	XTALFATOW06630CH002	2	P	DW									X	WELL 7
GWNT1808241000GSC	8/24/18	1000	XTALFATOW06630CH002	2	P	DW									X	WELL 3

Special Instructions/Comments: Send Results and Acknowledgements to the list provided by e-mail to Vista.

SEND DOCUMENTATION AND RESULTS TO:
Name: MIKE JURY
Company: MDEQ
Address: 401 KETCHUM ST, SUITE B
City: BAY CITY State: MI Zip: 48708
Phone: 989-894-6255 Fax: 989-891-9237
Email: dorin.bogdan@aecom.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other:

Vista Analytical Laboratory

Sample Log in Checklist

1 of 1

WO#: 1802732
SDG#: —
TAT: std

Section 1: Container Receipt

Delivered By: ☑ FedEx ☐ UPS ☐ On Trac ☐ GSO ☐ DHL ☐ Hand Delivered ☐ Other

Number of Containers	Arrival Date	Arrival time	Received By/Date	LR-SCL Initiated By
1	08/28/18	0930	KE 8/28/18	KE

Section 2: Sample Receipt Condition and Initial Storage

Container Condition	Chain of Custody	Preservation Type	Temperature	Storage Location	Initials/ Date
☑ Shipping container intact ☑ Custody Seals present ☑ Custody seals intact	☑ COC present ☑ Relinquished by section complete 10 coc's	☑ Ice ☐ Blue Ice ☐ Dry Ice ☐ Other	Thermometer ID: **IR-4** ☐ Probe used Temp (uncorrected): 1.1 °C Temp (corrected): 1.0 °C ☐ Anomaly form required	☑ WR2 ☐ WF2 ☐ NA	KE 8/28/18

Airbill/Trk # 4377 0528 5287 (1 of 2)

Shipping container ☑ Vista ☐ Client ☑ Retain ☐ Return ☐ Dispose — By Initials/Date: KE 8/28/18

Section 3: Sample Log In

	YES Initials/Date	NO Initials/Date
COC identifies sample ID, date and time of collection, collector's name	KE 8/28/18	☐ Anomaly form required
COC identifies sample matrix and test method	KE 8/28/18	☐ Anomaly form required
All samples present and accounted for on COC	KE 8/28/18	☐ Anomaly form required
Sample IDs are legible on COC and Bottles	KE 8/28/18	☐ Anomaly form required
Samples conform to the description on the COC	KE 8/28/18	☐ Anomaly form required
Samples are within hold, intact and suitable for testing	KE 8/28/18	☐ Anomaly form required
Preservation documented as required: ☐ $Na_2S_2O_3$ ☒ Trizma ☐ NA	KE 8/28/18	
Samples stored ☒ WR2 Shelf: A3/F4 ☐ WF2 Shelf: _____ ☐ R1	By Initials/Date:	

Section 4: Comments

	Initials/Date
☐ Sample Inventory Form Attached NA	—

ID.: LR – SLC *Rev No.: 1* *Rev Date: 21 August 2018* *Page:* 1 of 1

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

C. HEIDI GRETHER
DIRECTOR

October 29, 2018

VIA E-MAIL

CRYSTAL FALLS TWP - TOWNLINE
P. O. BOX 329
CRYSTAL FALLS, MICHIGAN 49920

WSSN: 06630

Dear Water Supply Owner/Operator:

SUBJECT: CRYSTAL FALLS TWP - TOWNLINE
Per- and Polyfluoroalkyl Substances (PFAS)

As you may be aware, the Michigan PFAS Action Response Team (MPART) has undertaken a proactive effort to investigate sources and locations of PFAS contamination in Michigan, to protect our drinking water, and to inform the public about PFAS. This involves the work of ten state departments, in coordination with local and federal officials.

One vital piece of this effort is the ongoing collaboration between the Michigan Department of Environmental Quality (MDEQ) and our water supply partners. It is through your generous participation that we are able to set and achieve our goal: to proactively test all community water supplies and schools that are classified as non-transient non-community water supplies for PFAS contamination. Once complete, this study will be an invaluable tool in determining the extent of PFAS in Michigan's drinking water, and empowering the MPART in the pursuit of their mission. We thank you for your continuing partnership, collaboration, and dedication to the residents of our great state.

This letter is intended to provide the results of PFAS analyses in samples collected from the CRYSTAL FALLS TWP - TOWNLINE, WSSN # 06630 (water supply) on the date(s) indicated below.

The table below summarizes the sampling results. A copy of the laboratory report is enclosed for your review. The analyses of these samples reported less than 10 parts per trillion (ppt) for perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). Your water supply may have returned results greater than non-detect (ND) for the total amount of PFAS analytes tested for. An ND result means the analyte was not detected. Neither the MDEQ nor the United States Environmental Protection Agency (USEPA) have any guidance values for these other analytes at this time. If additional guidance and/or comparison values are developed for these or other PFAS chemicals in the future, we may reevaluate this water supply.

Date Collected	Sampling Location	PFOS + PFOA (ppt)	LHA (ppt) PFOS + PFOA	Total Tested PFAS (ppt)
8/24/2018	CH002	ND	70	ND
8/24/2018	CH002	ND	70	ND

ND – The parameter was not detected based on the laboratory's analytical report.
See Official lab results for test method used.

Currently, there is no regulatory drinking water standard for any of the PFAS chemicals. However, in May 2016 the USEPA established a non-regulatory Lifetime Health Advisory (LHA) for two of these chemicals, PFOS and PFOA. The LHA for PFOS and PFOA is 70 ppt combined, or individually if only one of them is present. The USEPA recommends that this LHA applies to both short-term (i.e., weeks to months) scenarios during pregnancy and lactation, as well as to lifetime-exposure scenarios. The LHA is the level, or amount, below which no harm is expected from these chemicals. The Michigan Department of Health and Human Services (MDHHS), as well as the MDEQ, have used this LHA of 70 ppt to inform decisions on actions that should be taken or are recommended to reduce exposure and prevent increased risk to public health from these PFAS contaminants. The USEPA has not set health advisory levels for the other PFAS compounds because not enough is known about them.

Additional information on the health effects of PFAS can be found on the Agency for Toxic Substances and Disease Registry (ATSDR) website listed at the end of this correspondence.

The concentrations of PFOS and PFOA in these samples are well below the USEPA LHA of 70 ppt and are not expected to result in adverse health effects as long as the concentrations are shown to remain below the LHA over time.

Because of the detection of low levels found in the water supply, we have the following recommendations for your consideration. These recommendations are essentially the same actions we have advised public water systems to follow for the past 30-plus years when a new contaminant has been confirmed as present in their drinking water.

1. Inform the public of these sample results through posting on your website or other means. The MDEQ, in collaboration with the MDHHS, has developed a toolkit containing communication templates to help notify the consumers of your water supply on the presence of PFAS in the drinking water and the response measures that are being initiated. This is a resource available to you if you choose and can be modified to fit your needs. The toolkit is available at www.michigan.gov/pfasresponse and click on "visit news and education."

2. Please continue with your regularly scheduled monitoring. The MDEQ recommends you also continue monitoring for PFAS on an annual basis to demonstrate the concentrations are consistently and reliably below any existing LHA.

These recommendations are based on the best available and most current information and may change depending on additional information related to site conditions; the availability of new data; or other new information as it becomes available. We may recommend further action at that time.

As part of the MDEQ's proactive statewide sampling initiative, the results of this sampling will be posted online on the MPART website within 48 hours of this notification. The results can be found online by going to the MPART website address listed below, and by clicking on "Michigan PFAS Sites," and scrolling down and selecting "Public Water Supply Information." We recommend you inform your consumers as soon as possible. If you need assistance, please contact me.

For information on PFOS, PFOA, and other PFAS, including possible health outcomes, you may visit these websites:

- **State of Michigan PFAS Action Response Team** (MPART) website serving as the main resource for public information on PFAS contamination in Michigan: www.michigan.gov/pfasresponse
- **United States Environmental Protection Agency** (USEPA) website including basic information, USEPA actions, and links to informational resources: www.epa.gov/pfas
- **Agency for Toxic Substances and Disease Registry** (ATSDR) website including health information, exposure, and links to additional resources: www.atsdr.cdc.gov/pfas

Thank you once again for your continued collaboration with this investigation. The ongoing partnership between the MDEQ and Michigan's public water supplies plays an integral role in the state's continued efforts to ascertain and address the incidence of PFAS in drinking water for Michiganders.

If you have any questions concerning this sampling, please contact me at the telephone number below; by email at DEQ-PFAS-DrinkingWater@michigan.gov; or by mail at DEQ-DWMAD, P.O. Box 30817, Lansing, Michigan 48909-8311.

Sincerely,

Lois Elliott Graham

Lois Elliott Graham, R.S., M.S.A.
Drinking Water and Municipal Assistance Division
810-730-8674

Enclosure
cc: Mr. Daren Deyaert, Dickinson-Iron District Health Department
Mr. Steven Crider, Supervisor, Drinking Water Unit, MDHHS
Mr. Chuck Thomas, MDEQ