



GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING



LIESL EICHLER CLARK
DIRECTOR

August 20, 2019

VIA E-MAIL

Karegnondi Water Authority
4001 Fisher Road
Jeddo, Michigan 48032

WSSN: 03563

Dear Water Supply Owner/Operator:

SUBJECT: Karegnondi Water Authority
2019 Monthly Per- and Polyfluoroalkyl Substances (PFAS) Results

Karegnondi Water Authority is participating in the Michigan Department of Environment, Great Lakes, and Energy (EGLE) (formerly the Michigan Department of Environmental Quality) state-funded monthly PFAS monitoring effort for community water supplies utilizing surface water as a source, that were tested during the statewide PFAS sampling effort in 2018. The most recent results for PFAS samples collected from Karegnondi Water Authority, WSSN # 03563 (water supply) on the date(s) indicated are included below. A copy of the laboratory report is enclosed for your review.

Date Collected	Sampling Location	PFOS + PFOA (parts per trillion (ppt))	LHA (ppt) PFOS + PFOA	Total Tested PFAS (ppt)
6/26/2019	IN001 - Influent ²	ND	70	ND

ND – The parameter was not detected based on the laboratory’s analytical report.
See Official lab results for test method used. ¹US EPA Method 537. ²PFAS Isotope Dilution Method.

Currently, there is no regulatory drinking water standard for any of the PFAS chemicals. However, in May 2016, the United States Environmental Protection Agency (USEPA) established a non-regulatory Lifetime Health Advisory (LHA) for two of these chemicals, perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). The LHA for PFOS and PFOA is 70 ppt combined, or individually if only one of them is present.

Your water supply may have returned results greater than non-detect (ND) for one or more of the PFAS analytes tested (other than PFOS or PFOA). Neither EGLE nor the USEPA currently have any guidance values for these other analytes. If additional guidance and/or comparison values are developed for PFOS, PFOA, or other PFAS chemicals in the future, we may reevaluate the recommendations below.

The concentrations of PFOS and PFOA in these samples are below the USEPA LHA of 70 ppt. We provide the following recommendations:

1. Inform the public as soon as possible of these sample results through posting on your website or other means. EGLE, in collaboration with the Michigan Department of Health and Human Services (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; click on “news and education.”
2. Evaluate options to modify operations to reduce PFAS in the water supply should levels approach the existing LHA. For example, this could be accomplished by minimizing use of wells with elevated PFAS levels or through the installation of treatment technology capable of reducing PFAS prior to distribution.
3. Please continue with your regularly scheduled monitoring.

The results of the 2019 sampling will be posted online on the Michigan PFAS Action Response Team (MPART) website within 48 hours of this notification. The results will be found online by going to the MPART website address listed below; click on “Testing and Treatment,” scroll down to “Drinking Water,” and select “Statewide Testing Initiative.”

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

- **State of Michigan MPART** website serving as the main resource for public information on PFAS contamination in Michigan: www.michigan.gov/pfasresponse
- **USEPA** website including basic information, USEPA actions, and links to informational resources: <http://www.epa.gov/pfas>
- **ATSDR** website including health information, exposure, and links to additional resources: www.atsdr.cdc.gov/pfas

To speak to a MDHHS toxicologist, call toll-free at 1-800-648-6942.

Thank you for your continued collaboration with this investigation. The ongoing partnership between EGLE 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.

Karegnondi Water Authority

Page 3

August 20, 2019

If you have any questions concerning this sampling, please contact me at the telephone number below; by email at EGLE-PFAS-DrinkingWater@Michigan.gov; or by mail at EGLE-Drinking Water and Environmental Health Division (DWEHD), P.O. Box 30817, Lansing, Michigan 48909-8311.

Sincerely,

Lois Elliott Graham

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

Enclosure

cc: Mr. Jim Henry, Genesee County Health Department
Mr. Steven Crider, Supervisor, Drinking Water Unit, MDHHS
Mr. Dennis Eagle, EGLE
Mr. Bob London, EGLE



July 25, 2019

Vista Work Order No. 1901931

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 July 02, 2019 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. 1901931

Case Narrative

Sample Condition on Receipt:

One aqueous sample was received in good condition and within the method temperature requirements. The sample was received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The sample was extracted and analyzed for a selected list of PFAS using Modified EPA Method 537. The results for PFHxS, PFOA, PFOS, MeFOSAA, and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recovery of PFPeS was >130%. This analyte was not detected in the sample. All other analyte recoveries were within the method acceptance criteria.

The recoveries of all internal standards in the QC and field samples were within the acceptance criteria.

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	12
Certifications.....	13
Sample Receipt.....	16

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1901931-01	SWIN1906261345GSC	28-Jun-19 13:45	02-Jul-19 09:26	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9G0080-BLK1	Column:	BEH C18
Project:	MDEQ State Municipal Sampling						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFPeA	2706-90-3	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFBS	375-73-5	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
4:2 FTS	757124-72-4	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFHxA	307-24-4	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFPeS	2706-91-4	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFHpA	375-85-9	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFHxS	355-46-4	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
6:2 FTS	27619-97-2	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFOA	335-67-1	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFHpS	375-92-8	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFNA	375-95-1	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFOSA	754-91-6	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFOS	1763-23-1	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFDA	335-76-2	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
8:2 FTS	39108-34-4	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFNS	68259-12-1	ND	2		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
MeFOSAA	2355-31-9	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
EtFOSAA	2991-50-6	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFAUnA	2058-94-8	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFDS	335-77-3	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFDoA	307-55-1	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFTTrDA	72629-94-8	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
PFTeDA	376-06-7	ND	4		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C3-PFPeA	IS	93	60 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C3-PFBS	IS	113	60 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-4:2 FTS	IS	118	20 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-PFHxA	IS	95	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C4-PFHpA	IS	92	60 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C3-PFHxS	IS	104	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-6:2 FTS	IS	91	40 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-PFOA	IS	93	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C5-PFNA	IS	94	50 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C8-PFOSA	IS	57	20 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C8-PFOS	IS	88	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-PFDA	IS	81	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1

Sample ID: Method Blank **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9G0080-BLK1	Column:	BEH C18
Project:	MDEQ State Municipal Sampling						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	110	40 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
d3-MeFOSAA	IS	63	50 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
d5-EtFOSAA	IS	66	50 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-PFUnA	IS	76	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-PFDoA	IS	63	30 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	1
13C2-PFTeDA	IS	72	20 - 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:27	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: OPR

PFAS Isotope Dilution Method

Client Data					Laboratory Data						
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9G0080-BS1	Column:	BEH C18				
Project:	MDEQ State Municipal Sampling										

Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	44	40	109	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFPeA	2706-90-3	44	40	110	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFBS	375-73-5	44	40	110	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
4:2 FTS	757124-72-4	45	40	114	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFHxA	307-24-4	46	40	114	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFPeS	2706-91-4	56	40	139	70 - 130	H	B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFHpA	375-85-9	48	40	119	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFHxS	355-46-4	40	40	101	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
6:2 FTS	27619-97-2	44	40	109	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFOA	335-67-1	44	40	109	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFHpS	375-92-8	45	40	114	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFNA	375-95-1	43	40	108	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFOSA	754-91-6	44	40	110	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFOS	1763-23-1	41	40	102	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFDA	335-76-2	45	40	112	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
8:2 FTS	39108-34-4	48	40	120	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFNS	68259-12-1	42	40	106	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
MeFOSAA	2355-31-9	44	40	111	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
EtFOSAA	2991-50-6	40	40	101	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFUnA	2058-94-8	46	40	116	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFDS	335-77-3	41	40	102	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFDoA	307-55-1	45	40	111	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFTTrDA	72629-94-8	48	40	119	60 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
PFTeDA	376-06-7	45	40	112	70 - 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96	60- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C3-PFPeA	IS	95	60- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C3-PFBS	IS	102	60- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-4:2 FTS	IS	109	20- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-PFHxA	IS	94	70- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C4-PFHpA	IS	86	60- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C3-PFHxS	IS	102	60- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-6:2 FTS	IS	108	40- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-PFOA	IS	96	60- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C5-PFNA	IS	96	50- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1

Sample ID: OPR				PFAS Isotope Dilution Method					
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9G0080-BS1	Column:	BEH C18		
Project:	MDEQ State Municipal Sampling								
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOA	IS	59	20- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C8-PFOS	IS	102	60- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-PFDA	IS	82	60- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-8:2 FTS	IS	111	40- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
d3-MeFOSAA	IS	71	50- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
d5-EtFOSAA	IS	77	50- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-PFUnA	IS	77	60- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-PFDoA	IS	70	30- 130		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1
13C2-PFTeDA	IS	76	20- 150		B9G0080	10-Jul-19	0.25 L	18-Jul-19 10:16	1

Data Reported per Michigan DEQ instructions.

Sample ID: SWIN1906261345GSC

PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1901931-01	Column:	BEH C18
Project:	MDEQ State Municipal Sampling	Date Collected:	26-Jun-19 13:45	Date Received:	02-Jul-19 09:26		
Location:	KAREGNONDI03563IN001						

Analyte	CAS Number	Conc. (ng/L)	RL	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFPeA	2706-90-3	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFBS	375-73-5	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
4:2 FTS	757124-72-4	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFHxA	307-24-4	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFPeS	2706-91-4	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFHpA	375-85-9	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFHxS	355-46-4	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
6:2 FTS	27619-97-2	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFOA	335-67-1	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFHpS	375-92-8	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFNA	375-95-1	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFOSA	754-91-6	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFOS	1763-23-1	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFDA	335-76-2	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
8:2 FTS	39108-34-4	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFNS	68259-12-1	ND	2		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
MeFOSAA	2355-31-9	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
EtFOSAA	2991-50-6	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFUnA	2058-94-8	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFDS	335-77-3	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFDoA	307-55-1	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFTTrDA	72629-94-8	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
PFTeDA	376-06-7	ND	4		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96	60 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C3-PFPeA	IS	86	60 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C3-PFBS	IS	96	60 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-4:2 FTS	IS	107	20 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-PFHxA	IS	91	70 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C4-PFHpA	IS	89	60 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C3-PFHxS	IS	100	60 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-6:2 FTS	IS	99	40 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-PFOA	IS	90	60 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C5-PFNA	IS	84	50 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C8-PFOSA	IS	57	20 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C8-PFOS	IS	90	60 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-PFDA	IS	73	60 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1

Sample ID: SWIN1906261345GSC **PFAS Isotope Dilution Method**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1901931-01	Column:	BEH C18
Project:	MDEQ State Municipal Sampling	Date Collected:	26-Jun-19 13:45	Date Received:	02-Jul-19 09:26		
Location:	KAREGNONDI03563IN001						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	89	40 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
d3-MeFOSAA	IS	63	50 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
d5-EtFOSAA	IS	76	50 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-PFUnA	IS	79	60 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-PFDoA	IS	73	30 - 130		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	1
13C2-PFTeDA	IS	75	20 - 150		B9G0080	10-Jul-19	0.24 L	18-Jul-19 14:03	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
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
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.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-21
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Massachusetts Department of Environmental Protection	N/A
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1521520
New Hampshire Environmental Accreditation Program	207718-B
New Jersey Department of Environmental Protection	190001
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	016
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	10272
Washington Department of Ecology	C584-19
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
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA TO-9A

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 1613/1613B
1,4-Dioxane (1,4-Diethyleneoxide) analysis by GC/HRMS	EPA 522
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	ISO 25101 2009

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
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



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: 1901931 Temp: 0.1 °C
 Storage ID: R-13; WR-2 Storage Secured: Yes No

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

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

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

Relinquished by (printed name and signature) Garth Cousineau Date 07/01/19 Time 1700 Received by (printed name and signature) B. Bogdan & Beth Bogdan Date 07/02/19 Time 0926

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 Ph: (916) 673-1520; Fax: (916) 673-0106				Method of Shipment:		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments				
ATTN: <u>Jennifer Miller</u>				Tracking No.:		Quantity	Type	Matrix	List of 21	List of 21 w/Isomers	List of 24	List of 24 w/Isomers	List of 28		Other: Please List Below	PCOA/PPOS	UCMR3 PFAS List 6	PFAS List 14
Sample ID	Date	Time	Location/Sample Description															
SWIN1906261345GSC	6/26/19	1345	KAREGNONDI03563IN001	2	P	AQ			X									TZ INFLUENT

Special Instructions/Comments: _____
 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 Bottle Preservation Type: T = Thiosulfate, Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 O = Other: _____ TZ = Trizma: _____ SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Sample Log-In Checklist

1901931

Page # 1 of 1

Vista Work Order #: _____ TAT std

Samples Arrival:	Date/Time <u>07/02/19 0926</u>	Initials: <u>UBSB</u>	Location: <u>WR-2</u>				
Logged In:	Date/Time <u>07/03/19 1616</u>	Initials: <u>KE</u>	Location: <u>R-13: A4</u>				
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> On Trac	<input type="checkbox"/> GSO	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice		<input type="checkbox"/> None		
Temp °C: <u>0.1</u>	(uncorrected)	Probe used: Y / <input checked="" type="checkbox"/> N		Thermometer ID: <u>IR-3</u>			
Temp °C: <u>0.1</u>	(corrected)						

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill <u>1 of 2</u> Trk # <u>4894 6696 0721</u>	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			
Preservation Documented:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
	<input type="checkbox"/> Na ₂ S ₂ O ₃	<input checked="" type="checkbox"/> Trizma	<input type="checkbox"/> None
Shipping Container	<input checked="" type="checkbox"/> Vista	<input type="checkbox"/> Client	<input checked="" type="checkbox"/> Retain
	<input type="checkbox"/> Return	<input type="checkbox"/> Dispose	

Comments: