

Evaluation of Lapeer Wastewater
Treatment Plant (WWTP) Biosolids
Land Application
Sites 08N10E33-CL01

Lapeer County, Michigan

Project Number: 60588767

Prepared for
Michigan Department of Environment,
Great Lakes, and Energy

April 2021



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1. Introduction

This technical memorandum summarizes and reports the findings of site investigations conducted at land application Site 08N10E33-CL01 (Site CL01) (**Figure 1a**). The purpose of the investigation was to determine the impact, if any, from the land application of Per- and Polyfluoroalkyl Substances (PFAS)-impacted biosolids from the Lapeer Wastewater Treatment Plant (WWTP) in the soil, groundwater, and adjacent surface water bodies.

The field investigation activities were designed to characterize soil, surface water, and groundwater conditions and collect data to evaluate the risk to human health and the environment from applying potential PFAS-impacted biosolids. A review of existing data was used to guide the scope of this investigation. Field investigation activities at Site CL01 included soil, surface water (including tile drain) and groundwater sampling activities.

Note, in addition to Site CL01, Site 08N11E33-SK01 (Site SK01), Site 08N11E16-TG01 (Site TG01) and 08N11E16-TG02 (Site TG02) were also investigated by EGLE for PFAS impacts from Lapeer WWTP biosolids (**Figure 1b**). Investigations at Site SK01 and Sites TG01/TG02 have been previously published in reports “Evaluation of Lapeer WWTP Biosolids Site 08N11E33-SK01” (EGLE 2018a) and “Evaluation of Lapeer WWTP Biosolids Sites 08N11E16-TG01 and 08N11E16-TG02” (EGLE 2018b), respectively.

2. Background

Site CL01 is a 50-acre field located northeast of East Oregon Street and Industrial Drive in Lapeer, Michigan. The South Branch of the Flint River flows along the western edge of Site CL01. The Lapeer WWTP is located approximately 500 feet west of Site CL01, on the other side of the Flint River. The Cutting Drain runs along the eastern edge of Site CL01. Application to apply biosolids from the Lapeer WWTP to Site CL01 was first received by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Water Resources Division (WRD) in 2000. Records indicate Site CL01 received 1,423 dry tons (dT) of biosolids from 11 applications from the Lapeer WWTP from 2000 through 2014. Applications were mostly consistent covering the entire acreage of Site CL01 and were moderate to heavy ranging from 85.4 to 211 dT per year and application rates of 1.57 to 4.22 dT per acre. The average application rate was 2.79 dT per acre. The application of biosolids to Site CL01 is attached in **Table 1**.

The investigation conducted by AECOM on behalf of EGLE was performed in accordance with applicable AECOM, EGLE, and US Environmental Protection Agency (USEPA) guidance documents, including the Scope of Work and Quality Assurance Project Plan (QAPP).

The USEPA has classified PFAS as emerging contaminants that are regulated by EGLE under Part 201, Environmental Remediation, and Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, Act 451 of 1994, as amended and their respective administrative rules, specifically Rule 299.44-299.50 (Generic Cleanup Criteria) and Rule 323.1057 (Rule 57) (Toxic Substances) of the Michigan Administrative Code. PFAS are a complex family of more than 4,750 human-made fluorinated organic chemicals. Due to their unique chemical properties, PFAS have been used in many industries and consumer products since the late 1950s. The Interstate Technology Regulatory Council (ITRC) has identified four

(4) primary sources of PFAS: fire training/fire response sites, industrial sites, landfills, and wastewater treatment plants/biosolids.

Preliminary surface water and fish tissue sampling on the Flint River by EGLE in 2013 and 2014 found concentrations of perfluorooctane sulfonic acid (PFOS) above Michigan's Rule 57 Water Quality Standard (WQS) and the Michigan Department of Health and Human Services (MDHHS) screening values for fish tissue. As a result, in 2015 the MDHHS released an updated "Eat Safe Fish" guidance where PFOS was the driver for the fish consumption advisory for several species on the Flint River downstream of Mott Dam. Subsequent surface water and fish collection was conducted in 2016 to investigate the potential sources of PFAS in the river. The results indicated that there was a PFAS source upstream of Holloway Dam. In 2017, additional monitoring was conducted upstream of the Holloway Dam. Sampling was conducted in major tributaries of the Flint River and in the three (3) major WWTPs that discharged wastewater to the area of concern in the Flint River. Analysis of the Lapeer WWTP effluent in May of 2017 identified the Lapeer WWTP as a significant source of PFOS to the Flint River. Subsequently, an industrial user to the WWTP was identified as a significant contributor of PFOS to the City's sewer system.

The elevated levels of PFOS in the Lapeer WWTP effluent caused concern of potential PFAS-impacted biosolids. EGLE requested the Lapeer WWTP analyze their biosolids for PFAS on August 24, 2017. Results indicated PFOS was present in biosolids at elevated concentrations of 2,100 micrograms per kilogram ($\mu\text{g}/\text{Kg}$). EGLE WRD subsequently suspended the Lapeer WWTP's authorization to land apply biosolids on September 29, 2017. To evaluate the potential impact of PFAS-contaminated biosolids to agricultural fields where land-application of biosolids by the Lapeer WWTP has occurred, EGLE conducted a file review and identified 38 fields approved for biosolids application by the City of Lapeer since 1997. Access to records of land application prior to 1997 is limited.

At Site CL01, EGLE conducted an initial, limited investigation on December 2017 that included three (3) surface soil samples and one (1) surface water sample from the pond located centrally along the eastern edge of Site CL01 (**Figure 2**). The soils were collected using Incremental Sampling Methodology (ISM) by collecting triplicate samples from a one-acre decision unit (DU) with each sample being composed of 50 aliquots. The results indicated the highest PFAS compound detected was PFOS, with an average soil concentration of 500 $\mu\text{g}/\text{Kg}$. In addition, PFOS in the surface water sample was reported at 2,000 nanograms per liter (ng/L), exceeding the WQS for a surface water body not used as a drinking water source of 12 ng/L for PFOS. The analytical results from the December 2017 sampling event are presented in **Table 2**, and the laboratory report is attached in **Appendix C**. The presence of elevated PFOS detected in the surface soil and pond indicated the potential for PFOS contamination in the adjacent groundwater and other surface waters.

AECOM initially sampled the influent, effluent, and biosolids from the Lapeer WWTP on May 9, 2018. The Lapeer WWTP has an approved Industrial Pretreatment Program (IPP) and authorization to discharge treated municipal wastewater under NPDES permit number MI0020460. The influent, effluent and biosolids have been sampled frequently since May 2017 during approximately 30 sampling events. The results from the sampling events are summarized below, listed as the range of values detected by year. The effluent samples from the Lapeer WWTP periodically exceeded the Rule 57 WQS for PFOS of 12 ng/L but did not exceed the Rule 57 WQS of 12,000 ng/L for PFOA. PFOS results in influent, effluent, and biosolids have steadily decreased due to source reduction efforts, including pretreatment for PFOS at an industrial user that discharges to the Lapeer WWTP. Note, solids were sampled from two different storage locations. The results from both sampling locations were grouped together as biosolids in the summary table below. One (1) set of samples were collected from the former digester tanks, including the sample collected in May 2018 from the drying bed, and

are representative of the biosolids collected in 2017. The second set of final treated solids samples were collected from the north and south storage tanks in the beginning of November 2019. Biosolids samples from both storage locations were collected in 2020.

Sample Location	Sample Year	PFOA¹ (detection range)	PFOS¹ (detection range)
Influent	2017	4.3	560
Influent	2018	3.7 – 330	8.6 – 1200
Influent	2019	3.6 – 7.8	9.1 – 98
Influent	2020	2.4 – 5.5	6.5 – 21
Effluent	2017	6.4 – 19	440 – 2,000
Effluent	2018	4.0 – 120	15 – 770
Effluent	2019	5.1 – 9.1	9.9 – 46
Effluent	2020	5.0 – 8.4	8.0 – 22
Biosolids	2017	< 39	2100
Biosolids	2018	< 5.58	1680
Biosolids	2019	8.8	160
Biosolids	2020	5.4 – 9.4	72 – 120

¹Units for aqueous samples are in nanograms per liter (ng/L) or parts per trillion (ppt), and for the solids are in micrograms per kilogram (µg/Kg) or parts per billion (ppb).

The analytical results from sampling the influent, effluent, and biosolids at the Lapeer WWTP represents only the conditions at the time of sampling. There is not enough historic information to accurately estimate the concentrations of PFOA and PFOS within the Lapeer WWTP in the past, including the biosolids. It is documented that PFOA and PFOS were much more widely used in the past. As a result, concentrations in all environmental matrices found in agricultural fields, where Lapeer WWTP biosolids were land applied in the past may not be closely correlated to current concentrations found within the WWTP. However, biosolids associated with IPP WWTPs are expected to have higher PFAS concentrations than those from non-IPP WWTPs. In May 2018, AECOM conducted an initial, limited investigation at the Lapeer Site CL01 that included nine (9) surface soil samples, five (5) surface water samples, three (3) tile drain samples, and six (6) groundwater samples (two [2] samples from temporary monitoring wells and four [4] samples from permanently installed monitoring wells). In December 2018, an additional 12 surface soil samples were collected throughout Site CL01, and four (4) additional groundwater samples were collected from the four (4) existing permanent monitoring wells (**Figure 3**).

3. Hydrogeology/Geology

The geology and topography of Site CL01 is the result of glacial activity. The glacial aquifers consist of sand and gravel that are part of a thick sequence of Pleistocene glacial deposits (**Figure 8**). The area is composed of moraines and lake plains of coarse-textured till and lacustrine deposits that are predominately composed of clay and silt. Soil borings installed during the investigation generally encountered surficial lean clay within the top 25 feet below ground surface (bgs), followed by silty sand below the clay. Soil boring logs are provided in **Appendix A**.

The USDA Natural Resources Conservation Service Web Soil Survey identified five (5) primary types of surface soils from where soil samples were collected. The surface soils are described

as the Celina loam (CeB), Del Ray silt loam (DrA/DrB), Lenawee silty clay loam (Le), Morley clay loam (MuC3), and Uby sandy loam (UbA). The Celina loam covers the majority of Site CL01 and was deposited as knolls on moraines consisting of a loamy till. The Del Ray silt loam was deposited as flats and knolls on lake plains, consisting of clayey glaciolacustrine deposits. The Lenawee silty clay loam was deposited as flats on lake plains consisting of clayey glaciolacustrine deposits. The Morley clay loam was deposited as moraines consisting of severely eroded clayey till. Lastly, the Uby sandy loam was deposited as outwash plains and knolls on till plains consisting of a loamy till. Site CL01 soils are shown in **Figure 2** and described in **Appendix B**.

Regional groundwater flow is expected to generally be towards surface water bodies such as ponds and streams. The general groundwater elevation map based on EGLE-provided shallow groundwater elevation data is provided in **Figure 7** and indicates groundwater generally flows to the northwest. The primary groundwater discharge point is the South Branch of the Flint River, located along the western Site CL01 boundary.

4. Scope of Work

Soil, surface water, tile drain, and groundwater samples were collected from Site CL01 to evaluate the potential PFAS impact from Lapeer WWTP biosolids. The soil, surface water (including tile drain), and groundwater samples were submitted to Vista Analytical Laboratories and analyzed for EGLE's recommended minimum analyte list of 24 PFAS compounds provided below, using an isotope dilution method. Soil samples were additionally sent to Test America Laboratories for total organic carbon (TOC) analysis using the Lloyd Kahn Method.

PFAS Name	Carbon Chain length (C#)	Acronym	CAS #
Perfluorobutanoic Acid ¹	C4	PFBA	375-22-4
Perfluoropentanoic Acid ¹	C5	PFPeA	2706-90-3
Perfluorohexanoic Acid ¹	C6	PFHxA	307-24-4
Perfluoroheptanoic Acid ¹	C7	PFHpA	375-85-9
Perfluorooctanoic Acid ¹	C8	PFOA	335-67-1
Perfluorononanoic Acid ¹	C9	PFNA	375-95-1
Perfluorodecanoic Acid ¹	C10	PFDA	335-76-2
Perfluoroundecanoic Acid ¹	C11	PFUnDA	2058-94-8
Perfluorododecanoic Acid ¹	C12	PFDoDA	307-55-1
Perfluorotridecanoic Acid ¹	C13	PFTrDA	72629-94-8
Perfluorotetradecanoic Acid ¹	C14	PFTeDA	376-06-7
Perfluorobutane Sulfonic Acid ²	C4	PFBS	375-73-5
Perfluoropentane Sulfonic Acid ²	C5	PFPeS	2706-91-4
Perfluorohexane Sulfonic Acid ²	C6	PFHxS	355-46-4
Perfluoroheptane Sulfonic Acid ²	C7	PFHpS	375-92-8
Perfluorooctane Sulfonic Acid ²	C8	PFOS	1763-23-1
Perfluorononane Sulfonic Acid ²	C9	PFNS	474511-07-4

PFAS Name	Carbon Chain length (C#)	Acronym	CAS #
Perfluorodecane Sulfonic Acid ²	C10	PFDS	335-77-3
Perfluorooctane Sulfonamide ³	C8	FOSA	754-91-6
4:2 Fluorotelomer Sulfonic Acid ⁴	C4	4:2 FTSA	757124-72-4
6:2 Fluorotelomer Sulfonic Acid ⁴	C6	6:2 FTSA	27619-97-2
8:2 Fluorotelomer Sulfonic Acid ⁴	C8	8:2 FTSA	39108-34-4
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid ⁵	C8	EtFOSAA	2991-50-6
N-Methyl Perfluorooctane Sulfonamidoacetic Acid ⁶	C8	MeFOSAA	2355-31-9

¹Perfluoroalkyl Carboxylic Acids (PFCAs) Family is composed of the following PFAS: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnDA, PFDODA, PFTrDA, PFTeDA

²Perfluoroalkane Sulfonic Acids (PFASs) Family is composed of the following PFAS: PFBS, PFPeS, PFHxS, PFHpS, PFOS, PFNS, PFDS

³Perfluoroalkane Sulfonamides (FASAs) Family is composed of the following PFAS: FOSA

⁴(n:2) Fluorotelomer Sulfonic Acids (FTSAs) Family is composed of the following PFAS: 4:2 FTSA, 6:2 FTSA, 8:2 FTSA

⁵N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (EtFASAs) Family is composed of the following PFAS: EtFOSAA

⁶N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (MeFASAs) Family is composed of the following PFAS: MeFOSAA

5. Surface Soil

The locations of soil samples were selected based on previous studies, soil types, surface water flow and were generally biased with the intent of obtaining the highest possible concentrations as a worst-case scenario. Surface soil samples were collected during three (3) events from Site CL01: May 2018, October 2018 (crop and soil sampling event), and December 2018. The results and sampling descriptions are detailed below.

5.1 May 2018 Event

Three (3) one-acre Decision Units (DUs) were identified for soil sampling in May 2018. Three (3) surface soil samples were collected using ISM within each DU (i.e., samples A, B, C), for a total of nine (9) soil samples. ISM is a structured sampling method designed to obtain a sample representative of the entire volume of environmental media targeted for sampling. An increased number of aliquots are collected in a random systematic approach throughout the DU. Further, ISM sampling has additional sampling standards on the particle size, and the analytical laboratory has prescribed procedures on how the sample is homogenized and sub-sampled. ISM was utilized for samples at DU1, DU2 and DU3. The biosolids were assumed to have been applied consistently at a depth of eight (8) inches across the agricultural fields based on information provided by EGLE. As a result, soil samples were collected from a depth of six (6) to eight (8) inches using a 1-inch diameter soil core sampler. A total of 50 aliquots (approximately 24 grams each) were collected for each soil sample resulting in a total mass of approximately 1,200 grams per sample. Initial recovery with the soil coring tool was poor due to hard, dry, clayey soil or gravelly conditions. Field procedures were adjusted, and a spear head spade was used to remove the first six (6) inches of surface soil. This allowed the soil coring tool to advance the six (6) to eight (8) inches, and improved the accuracy of depth, soil quantity and time needed to complete sampling.

The various soil types identified in the USDA Natural Resources Conservation Service Web Soil Survey could influence the adsorption of PFAS. In order for the sampling to be representative of the entire Site CL01, the soil samples were taken from areas with various soil types as

described in **Section 3** that covered at least 50% of the entire Site CL01. DU1 was located centrally along the western edge of the field, within the Del Ray silt loam. DU2 was located centrally along the eastern edge of Site CL01 near the pond, within the Lenawee silty clay loam. Note, the location of DU2 was moved to a drier area located approximately 100 feet to the southeast of the original proposed location due to seasonal flooding. DU3 was located in the northwest region of the field, within the Del Ray silt loam. The analytical results are summarized in the table below and in **Table 3** and **Figure 3**.

Soil Sample ID	Soil Sample Location	Sample Date	Sample Depth	Total PFAS ¹	PFOA ¹	PFOS ¹
CL1DU10100180501N	CL01-DU1-A	5/1/2018	6-8" ISM	83.0	0.861	77.2
CL1DU10200180501N	CL01-DU1-B	5/1/2018	6-8" ISM	95.32	0.913	89.7
CL1DU10300180501N	CL01-DU1-C	5/1/2018	6-8" ISM	106.76	1.05	91.8
CL1DU20100180501N	CL01-DU2-A	5/1/2018	6-8" ISM	124.92	1.53	117
CL1DU20200180501N	CL01-DU2-B	5/1/2018	6-8" ISM	146.18	1.41	137
CL1DU20300180501N	CL01-DU2-C	5/1/2018	6-8" ISM	163.70	1.65	152
CL1DU30100180502N	CL01-DU3-A	5/2/2018	6-8" ISM	146.40	1.47	138
CL1DU30200180502N	CL01-DU3-B	5/2/2018	6-8" ISM	182.46	1.83	172
CL1DU30300180502N	CL01-DU3-C	5/2/2018	6-8" ISM	138.46	1.28	124

¹Units are in micrograms per kilogram (µg/Kg) or parts per billion (ppb)

All nine (9) soil samples collected from the three (3) DUs detected PFAS with total PFAS concentrations ranging from 83.0 to 182.46 µg/Kg. Of the 24 PFAS compounds analyzed, the following 16 compounds were detected in the samples: PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnDA, PFDODA, PFHxS, PFOS, PFDS, 6:2 FTS, PFOSA and MeFOSAA. PFOS was detected in all nine (9) samples with concentrations of 77.2 to 172 µg/Kg. All nine (9) soil samples detected lower PFOA with concentrations varying from 0.861 to 1.83 µg/Kg. The areas of highest PFAS soil impact were located at DU2 and DU3. These DUs are associated with the Lenawee silty clay loam and Del Rey silt loam, respectively. Note, the December 2017 EGLE soil samples were also collected from the Del Rey silt loam where the mean PFOS concentration was significantly higher (i.e., 500 µg/Kg).

The TOC analytical results ranged from 13,000 to 23,000 milligrams per kilogram (mg/Kg) with average TOC values for DU1, DU2 and DU3 of 15,000, 21,000, and 15,333 mg/Kg, respectively. The maximum TOC values are associated with DU2 and the Lenawee silty clay loam. **Table 7a** summarizes the total PFAS, TOC data, and soil classification per sample, and **Figure 3** shows the total PFAS, PFOA, and PFOS concentrations per sample and soil classifications on Site CL01.

5.2 October 2018 Event (Crop Sampling)

An additional crop and soil sampling event were conducted in October 2018 to try to evaluate the potential PFAS uptake in corn grown within the soil area that was initially investigated during EGLE's December 2017 surface soil sampling event. In order to conduct random crop and soil sampling, the 2017 EGLE Soil Sampling Area (**Figure 2**) was identified as one (1) DU and divided into a 49-segmented grid of 30 by 30 ft blocks. Of the 49 blocks, a total of ten (10) were chosen at random where three (3) locations (i.e. 1, 2, 3) were selected within each block for co-located whole corn plant and soil sampling. The soil sample was collected from zero (0) to 12 inches bgs, and the whole plants were typically cut above the aerial root structure (i.e., corn prop roots). Each of the 10 soil samples from the 1, 2 and 3 locations were combined into three (3) Field Soil Composite (FSC) samples noted as samples FSC 1, FSC 2 and FSC 3. All

30 corn plant samples were collected in individual bags in order to provide flexibility on how to process the samples in the future. The soil and crop sampling procedures followed by AECOM field staff are further detailed in the “Corn and Crop Sampling Scope of Work” (AECOM, 2018). The soil and crop samples were sent for processing and analysis to Michigan State University (MSU). After hold times were exceeded by a year, the MSU lab sent the soil samples, which were kept frozen, to Vista Analytical Laboratories on October 25, 2019 for PFAS analysis. The analytical results of the three (3) FSC samples are summarized in the table below and in **Table 3**. The crop samples were later transferred to MDHHS for processing and analysis. Note, corn grown on Site CL01 in 2018 was used for ethanol production.

Soil Sample ID	Sample Date	Sample Depth	Total PFAS ¹	PFOA ¹	PFOS ¹
FCS 1_20181020	10/20/2018	0-12”	81.8	0.874	78.2
FCS 2_20181020	10/20/2018	0-12”	96.8	< 0.984	93.6
FCS 3_20181020	10/20/2018	0-12”	100.1	< 0.985	96.9

¹Units are in micrograms per kilogram (µg/Kg) or parts per billion (ppb)

The three (3) FSC samples reported comparable total PFAS concentrations to the May and December 2018 soil sampling results, ranging from 81.8 to 100.1 µg/Kg. PFOS was the highest detected compound, with concentrations of 78.2 to 96.9 µg/Kg. The crop sample results are pending.

5.3 December 2018 Event

A total of 12 DUs were identified for composite soil sampling in December 2018. Composite sampling is a technique that physically combines several spatially discrete aliquots from a body of material into a single sample for analysis. The 12 composite samples were collected within a 50 by 50 foot (ft) grid, which were each composed of nine (9) aliquots, from a depth of six (6) to eight (8) inches bgs, using a ¾” diameter soil core sampler. All nine (9) aliquots from each DU were homogenized into one (1) composite sample for each area. The biosolids were assumed to have been applied consistently at a depth of eight (8) inches across the agricultural fields based on information provided by EGLE.

The 12 DUs were selected in areas to increase the PFAS concentration data within Site CL01 and provide conformational data compared to the May 2018 sampling event. The composite sampling method was evaluated for a potential screening method that could be used as a substitute to more labor intensive and costly ISM sampling on agricultural fields. The following soil samples were collected within the Del Ray silt loam near the May 2018 DU3: SS01, SS02, SS03 and SS04. Soil samples SS05 and SS06 were collected within the Uby sandy loam, in the northwest corner of the field. Soil samples SS07 and SS08 were collected with the Del Ray silt loam and Morley clay loam, within the northeast corner of the field. Soil samples SS09 and SS10 were collected within the Morley clay loam, northeast of the May 2018 DU1 and DU2. Soil samples SS11 and SS12 were collected within the Lenawee silty clay loam, south of the May 2018 DU2. The analytical results are summarized in the table below and in **Table 3** and **Figure 3**.

Soil Sample ID	Soil Sample Location	Sample Date	Sample Depth	Total PFAS ¹	PFOA ¹	PFOS ¹
CL01SS011812130910SK	CL01-SS01	12/13/2018	6-8"	58.6	< 0.996	57.3
CL01SS021812130945SK	CL01-SS02	12/13/2018	6-8"	108	1.24	103
CL01SS031812131000SK	CL01-SS03	12/13/2018	6-8"	102.6	1.32	95.9
CL01SS041812131020SK	CL01-SS04	12/13/2018	6-8"	41.8	< 1.00	40.7
CL01SS051812131055SK	CL01-SS05	12/13/2018	6-8"	20.8	< 0.997	20.8
CL01SS061812131120SK	CL01-SS06	12/13/2018	6-8"	29.3	< 0.999	28.4
CL01SS071812131155SK	CL01-SS07	12/13/2018	6-8"	70.8	< 0.989	67.4
CL01SS081812131220SK	CL01-SS08	12/13/2018	6-8"	55.9	< 0.991	53.8
CL01SS091812131255SK	CL01-SS09	12/13/2018	6-8"	173	1.67	159
CL01SS101812131315SK	CL01-SS10	12/13/2018	6-8"	112	1.15	108
CL01SS111812131455SK	CL01-SS11	12/13/2018	6-8"	138	1.64	131
CL01SS121812131545SK	CL01-SS12	12/13/2018	6-8"	151.6	1.96	141

¹Units are in micrograms per kilogram (µg/Kg) or parts per billion (ppb)

All 12 soil samples had detectable PFAS, with total PFAS concentrations ranging from 20.8 to 173 µg/Kg. Of the 24 PFAS compounds analyzed, the following eight (8) compounds were detected in the samples: PFPeA, PFHxA, PFOA, PFDA, PFOS, PFDS, 6:2 FTS, and 8:2 FTS. PFOS was detected in all 12 samples with concentrations of 20.8 to 159 µg/Kg. Six (6) of the 12 soil samples detected PFOA concentrations ranging from 1.15 to 1.96 µg/Kg. Soil samples SS01, SS04, SS05, SS06, SS07, and SS08 reported PFOA concentrations below detection limits. Soil sample SS012 reported the highest total PFAS concentration of 151.6 µg/Kg and is located within the Lenawee silty clay loam near the on-site pond. It should be noted that the May 2018 EGLE surface water sample (SW3) from the on-site pond reported high total PFAS of 2,542 ng/L (further details in **Section 7.1**). The December 2018 soil samples were not analyzed for TOC as the previous May 2018 samples did not show high TOC concerns. Overall, the soil PFAS concentrations detected in the December 2018 event, were within the ranges of those from May and October 2018.

6. Surface Water Sampling

Surface water samples were collected from five (5) locations on Site CL01. Three (3) additional standing surface water samples were collected from approximate tile drain locations at Site CL01 as the tile drains were difficult to identify in the field. The results and sampling descriptions are detailed below.

6.1 Surface Water Sampling

Surface water samples were collected from five (5) locations around Site CL01. The first surface water sample (SW1) was collected from the South Branch of the Flint River, upstream of Site CL01 and the Lapeer WWTP, near the southwest corner of Site CL01. The second surface water sample (SW2) was collected upstream of Site CL01, stepping out from the southeast edge of the field, from the tile drain that runs along the east side of the property. The third surface water sample (SW3) was collected from the small pond located centrally along the

eastern Site CL01 boundary. SW3 was also collected as a resample of EGLE's 2017 surface water sample from the pond on the east side of Site CL01. The fourth surface water sample (SW4) was collected in the South Branch of the Flint River at Site CL01's northwestern edge boundary, downstream of Site CL01 and downgradient of the fourth monitoring well (MW4). The fifth surface water sample (SW5) was collected downstream of Site CL01 at the northeast edge of the field. The analytical results are listed in the table below and in **Table 4** and **Figure 4**.

Surface Water Sample ID	Sample Date	Collection Site	Total PFAS ¹	PFOA ¹	PFOS ¹
CL1SW0100180509N	5/9/2018	CL01-SW1	8.47	1.11	1.04
CL1SW0200180509N	5/9/2018	CL01-SW2	7.28	0.998	< 2.45
CL1SW0300180508N	5/8/2018	CL01-SW3	2,542	101	2,060
CL1SW0400180508N	5/8/2018	CL01-SW4	20.88	1.24	1.47
CL1SW0500180508N	5/8/2018	CL01-SW5	45.2	3.62	19.0

¹Units are in nanograms per liter (ng/L) or parts per trillion (ppt)

All five (5) surface water samples were below Rule 57 WQS for PFOA (12,000 ng/L) with detections ranging from 0.998 to 101 ng/L. The Rule 57 WQS for PFOS (12 ng/L) was exceeded in SW3 and SW5 with detections of 2,060 and 19.0 ng/L, respectively. SW3 detected significantly higher total PFAS, at 2,542 ng/L compared to the other four (4) surface water samples with values for total PFAS ranging from 7.28 to 45.2 ng/L. SW3 was collected from the on-site pond located on the east central side of Site CL01. The SW3 total PFAS detection of 2,542 ng/L is comparable with the 2017 EGLE on-site pond sample of 2,704 ng/L.

6.2 Tile Drain Sampling

Three (3) additional surface water samples were collected from approximate tile drain locations based on EGLE-provided GPS coordinates and other evidence, such as disturbance of the surface water (e.g. ripples), that suggested flow from the tiles into the surface water. The first tile drain sample (DR1) was collected at the southwest corner of Site CL01. Field staff were unable to locate any physical evidence of a tile drain along the 10-foot high natural embankment in that area. The sample was collected from the surface of the South Branch of the Flint River where it came closest to the embankment. The second tile drain sample (DR2) was located along the northwest side of Site CL01, south of MW4. The GPS coordinate location had no observable tile drain; however, field staff did identify a drainage swale containing surface water runoff located just north of surface soil DU2 and DU3, which also appeared to be connected for some parts of the year with the on-site pond from the east side of Site CL01. The third tile drain sample (DR3) was collected from the drain along the northeast side of Site CL01, north of the pond. The GPS coordinate location had no observable tile drain; however, field staff did identify a drain containing surface water along the eastern edge of the field. The analytical results are listed in the table below and in **Table 4** and **Figure 4**.

Tile Drain Sample ID	Sample Date	Collection Site	Total PFAS ¹	PFOA ¹	PFOS ¹
CL1DR0100180508N	5/8/2018	CL01-DR1	8.99	1.32	1.34
CL1DR0200180509N	5/9/2018	CL01-DR2	2,495	95.2	1,860
CL1DR0300180508N	5/8/2018	CL01-DR3	27.4	2.50	12.9

All three (3) tile drain samples were below the Rule 57 WQS for PFOA (12,000 ng/L), with PFOA values ranging from 1.32 to 95.2 ng/L. DR2 and DR3 exceeded Rule 57 WQS for PFOS (12 ng/L) with detections of 1,860 and 12.9 ng/L, respectively. DR1 was below Rule 57 WQS

for PFOS with a concentration of 1.34 ng/L. DR2 detected significantly higher total PFAS compared to DR1 and DR3. DR2 is in the vicinity of the groundwater sample CL1-TMW2, which reported the maximum detected total PFAS concentration. It is likely that the shallow groundwater sampled in CL1-TMW2 discharges to the surface water near DR2 and may also be hydraulically connected with the on-site pond.

7. Groundwater

Between May 3 to 7, 2018, AECOM and Job Site Services (JSS) installed four (4) permanent monitoring wells (MW1, MW2, MW3 and MW4) and two (2) temporary monitoring wells (TMW1 and TMW2) throughout Site CL01. Before any intrusive work was performed, a utility clearance was conducted by MISS DIG, Michigan's one-call utility locating service. In addition, a third party, Underground Detectives of Toledo, OH, conducted a sub-surface investigation. All boring locations at Site CL01 were marked by AECOM and cleared by Underground Detectives. All boring locations at Site CL01 were cleared. No anomalies were encountered that would suggest any of the sampling locations needed to be relocated.

The scope of work proposed four (4) permanent monitoring wells to be installed in areas outside of the active farming area and where data was needed within the farm fields. Temporary monitoring wells were to be installed in areas of active farming for the purpose of collecting a groundwater sample. Due to seasonal flooding, the original location proposed for TMW2 was moved to a drier area approximately 100 feet to the southeast of the original proposed location. The new location of TMW2 remained in the actively farmed field. To prevent a disruption in farming, the temporary monitoring wells, TMW1 and TMW2, were later removed after sampling. Permanent and temporary monitoring well locations are shown on **Figure 2**.

7.1 Permanent Monitoring Wells

For the permanent monitoring well installation, JSS completed the soil borings by hand auguring the first five (5) feet bgs and then using a Geoprobe 7820DT to drill to depth. Both hand auguring and 3-inch dual tube systems were continuously used to core soils. Cored soils were logged using the Unified Soil Classification System (USCS) from the surface to total depth. Soil boring logs are provided in **Appendix A**. Once water was encountered, a final dual tube sample was collected approximately five (5) feet past the vadose zone to confirm groundwater. Once confirmed, hollow stem auger drilling was utilized to over drill the soil boring to approximately four (4) feet below the water table to the final depth. The borings ranged in depth from 20 to 35 feet bgs.

Monitoring wells were installed through the annulus of the hollow stem augers as the augers were extracted from the ground. Monitoring wells were constructed of 2-inch diameter, Schedule 40, polyvinyl chloride (PVC) well casing, and 5-foot long, 10-slot well screens. An appropriately sized filter sand pack was installed around each well screen to approximately 1-foot above the screened interval. The screens were placed in the first wet sand layer below the surficial clay to ensure groundwater sampling success once installed. A 2-foot thick bentonite seal, hydrated in-place, was placed on top of the filter sand pack to isolate the well screen from the remaining borehole. Bentonite chips were then used to seal the remaining annular space within three (3) feet of the ground surface. Each monitoring well was completed at the ground surface with a stickup steel locking protective cover set in concrete surrounded by three (3) safety bollards for protection from any farming equipment. An expandable J-plug was provided for each monitoring well.

The permanent monitoring well locations are generally located at the upgradient and downgradient edges of the parcel to provide vertical and horizontal groundwater flow information for PFAS. MW1 is located on the southeast corner of Site CL01, acting as an upgradient well as groundwater flows from the southeast to the northwest. MW2 and MW3 are located downgradient from MW1, centrally along the eastern and western edges of Site CL01. Monitoring wells MW2 and MW3 were co-located with decision units DU2 and DU1, respectively, to evaluate potential impacts to the groundwater from the surface soils. In addition, MW2 also evaluated potential impacts to groundwater from the on-site pond at Site CL01. MW4 is located on the northwest edge of Site CL01, acting as the downgradient well in the northern region.

7.2 Temporary Monitoring Wells

For the temporary monitoring well installation, JSS completed the soil borings by hand auguring the first five (5) feet bgs and then using a Geoprobe 7820DT to drill to depth. Both hand auguring and 3-inch dual tube systems were continuously used to core soils. Cored soils were logged using the Unified Soil Classification System (USCS) from the surface to total depth. Soil boring logs are provided in **Appendix A**. Once water was encountered, a final dual tube sample was collected approximately five (5) feet past the vadose zone to confirm groundwater. Once final depth was reached, the dual tube system was removed from the boring. After JSS confirmed that the borehole did not collapse, a 1-inch diameter, Schedule 40, PVC well casing and a 5-foot long, 10-slot well screen was installed. An expandable J-plug was provided for each monitoring well. After the May 2018 sampling of TWM1 and TMW2, the PVC from each temporary monitoring well was pulled and removed. The boreholes were filled with bentonite chips and allowed for natural collapse.

Temporary monitoring wells TMW1 and TMW2 were set within the active farmland and located between the upgradient MW1 and downgradient MW4. TMW1 was installed in a gravelly clay layer with the screen set at 18-23 feet bgs. This location was selected to evaluate potential groundwater impact from surface soils previously sampled by EGLE in December 2017 that contained elevated concentrations of PFOS. TMW2 was installed in a gravelly sand layer with the screen set at four (4) to nine (9) feet bgs, likely a perched groundwater zone. This location was co-located with DU3 to evaluate potential groundwater impact from surface soils.

7.3 Groundwater Sampling

In May 2018, six (6) groundwater samples were collected within Site CL01 from all permanent and temporary monitoring wells (**Figure 2**). In December 2018, all four (4) permanent monitoring wells were sampled again for additional data. The monitoring wells were allowed to equilibrate for a total of one (1) month after the installation and development. Before collecting the groundwater samples, static water levels were measured using an electronic water tape from the top of the well casing of each of the wells. Each monitoring well was purged, and groundwater samples were collected for PFAS analysis in laboratory supplied containers. Water quality parameters (i.e., temperature, specific conductance, pH, dissolved solids, oxidation-reduction potential, and turbidity) were recorded following AECOM groundwater Standard Operating Procedures using a YSI Pro DDS water quality meter. Temporary and permanent monitoring well details are summarized in **Table 6**. The analytical data are summarized in the table below and in **Table 5** and **Figure 5a**.

Well Sample IDs	Sample Date	Screen Interval (ft bgs)	Total PFAS ¹	PFOA ¹	PFOS ¹
CL01-TMW1	5/3/2018	18-23	15.9	0.871	15.0
CL01-TMW2	5/4/2018	4-9	41,823	1,930	35,300
CL01-MW1	5/10/2018	24-29	< 2.40	< 2.40	< 2.40
CL01-MW2	5/10/2018	29-34	7.95	0.702	4.09
CL01-MW3	5/10/2018	24-29	3.75	< 2.47	2.39
CL01-MW4	5/10/2018	14-19	455	43.2	13.9
CL01-MW1	12/14/2018	24-29	< 1.98	< 1.98	< 1.98
CL01-MW2	12/14/2018	29-34	41.76	5.10	8.43
CL01-MW3	12/14/2018	24-29	3.98	< 1.91	< 1.91
CL01-MW4	12/14/2018	14-19	542	60.8	18.0

¹Units are in nanograms per liter (ng/L) or parts per trillion

The sample collected from TMW1 did not exceed Part 201 Residential and Nonresidential Drinking-Water Criteria (DWC) for PFOA, PFOS, PFNA, PFHxS, PFHxA, and PFBS of 8, 16, 6, 51, 400,000, and 420 ng/L, respectively (**Table 5**). In TMW2, Part 201 DWC were exceeded for the following compounds: PFOA, PFOS, PFNA, PFHxS, and PFBS, with the detections of 1,930, 35,300, 241, 115 and 531 ng/L, respectively. The highest total PFAS concentration in groundwater was detected in TMW2 of 41,823 ng/L. It should be noted that TMW2 was screened from four (4) to nine (9) feet bgs, likely in a perched groundwater zone.

Part 201 DWC were not exceeded in samples collected from MW1, MW2 and MW3. Part 201 DWC was exceeded at MW4. Both samples collected from MW4 (in May and December 2018) reported PFOA values over the Part 201 DWC (8 ng/L) of 43.2 and 60.8 ng/L, respectively. The MW4 sample collected in December 2018 also detected PFOS over the Part 201 DWC (16 ng/L) with a concentration of 18.0 ng/L.

In both samples collected, MW1 was non-detect for total PFAS concentrations. MW2 and MW3 reported the following total PFAS detections in the May and December 2018 samples: 7.95 and 41.76 ng/L, and 3.75 and 3.98 ng/L, respectively. MW4 detected notably higher total PFAS concentrations in both sampling events: 455 ng/L in May 2018, and 542 ng/L in December 2018.

Based on static groundwater levels measured in the four (4) permanent monitoring wells, the groundwater flow direction is to the northwest (**Figure 6, Table 6**) towards the South Branch of the Flint River. This is consistent with the regional groundwater flow direction shown in **Figure 6**.

8. QA/QC Results

Laboratory reports for soil, surface water, groundwater, Lapeer WWTP, and crop soil (i.e., 1903833, 1800898, 1800935, 1800937, 1804141, 1804142, 1800938, 1804142, and 1903472) from Vista Analytical Laboratories and report 460-1519581-1 from Test America Laboratory were subjected to data quality review (**Appendix C**). The reports were evaluated for data completeness, holding times and sample preservation, method and field blanks, ongoing precision and recovery (OPR), field duplicate precision, extracted internal standard recoveries, and reporting issues.

The initial calibration and continuing calibration verifications met the method acceptance criteria. A method blank and ORP sample was extracted and analyzed with each preparation batch. No analytes were detected in the method blank above half (1/2) the Limit of Quantification (LOQ). The OPR recoveries were within the method acceptance criteria. No quality issues were identified for any of the samples, and all the results were considered usable.

9. Investigation-Derived Waste (IDW)

Investigation-derived waste (IDW) generated during the investigation included the following:

- Disposable material such as Geoprobe® liners, personal protective equipment (PPE), plastic sheeting, etc.
- PVC temporary monitoring wells
- Drill cuttings
- Excess soil leftover from sampling activities
- Well development water
- Purge water
- Decontamination water

Disposable sampling materials, PPE, and the temporary monitoring well PVC were containerized and disposed of as ordinary solid waste. Drill cuttings, excess soil from sampling, well development water, purge water, and decontamination water were discharged to the ground surface adjacent to where the material was generated.

10. Pathway and Receptors Evaluation

An exposure pathway includes five (5) components: the source of contamination, environmental media and transport mechanism, the point of exposure, route of exposure, and receptor population. A pathway is considered potentially complete if all five components are present, and one or more hazardous substances are detected. The human health risk associated with a potentially complete exposure pathway is acceptable if concentrations do not exceed the applicable criteria and background concentrations (Rule 299.1013(3)). Ecological risks are acceptable if concentrations do not exceed WQS or soil screening values. Potentially complete groundwater exposure pathways associated for Site CL01 and corresponding Part 201 cleanup criteria are:

- Part 201 Residential and Nonresidential Drinking Water Criteria (DWC):
 - PFOA = 8 ng/L
 - PFOS = 16 ng/L
 - Perfluorononanoic acid (PFNA) = 6 ng/L
 - Perfluorohexane sulfonic acid (PFHxS) = 51 ng/L
 - Perfluorohexanoic acid (PFHxA) = 400,000 ng/L
 - Perfluorobutane sulfonic acid (PFBS) = 420 ng/L

- Groundwater-Surface Water Interface (GSI) Criteria: PFOA = 12,000 ng/L and PFOS = 12 ng/L

Additionally, EGLE only regulates PFOA and PFOS in the surface water. Criteria under the Michigan Rule 57 WQS were developed to protect humans, wildlife, and aquatic life. Potentially complete surface water exposure pathways associated with Site CL01 and corresponding Rule 57 WQS are:

PFAS	Human Noncancer Value (nondrinking water source)	Human Noncancer Value (drinking water source)	Final Chronic Value	Final Acute Value	Aquatic Maximum Value
PFOS ¹	12	11	140,000	1,600,000	780,000
PFOA ¹	12,000	420	880,000	15,000,000	7,700,000

¹Units are in nanograms per liter (ng/L) or parts per trillion (ppt). These units are considered equivalent.

Potentially complete soil exposure pathways associated with Site CL01 and corresponding Part 201 cleanup criteria (if available) are:

- Direct Contact Criteria (DCC; criteria not available).
- Human exposure by consuming impacted vegetation (gardening, farming; screening levels not available).

Potential receptors associated with groundwater are:

- People who use impacted groundwater for drinking water.

Potential receptors associated with surface water are:

- People using the drains and streams and other impacted surface waters for recreation and fishing.
- Fish and other aquatic life.

Potential receptors associated with soil are:

- Residents living at or near impacted soil areas.
- Non-residential use of impacted soil areas, such as farming and commercial use.

10.1 Surface Soil Evaluation

On-site farm workers may encounter surficial soils with detectable PFAS concentrations; however, no Part 201 DCC have been established for any PFAS compounds, including PFOS and PFOA. All 21 soil samples collected from the May and December 2018 sampling events detected some PFAS compounds, with total PFAS concentrations ranging from 20.8 to 182.46 µg/Kg. PFOS was the main compound detected in all 21 samples with concentrations ranging from 20.8 to 172 µg/Kg. Of the 21 samples, 15 detected concentrations of PFOA with concentrations between 0.861 to 1.96 µg/Kg (**Table 3**).

Studies have shown that PFAS does have the potential for plant uptake. Depending on the plant type and PFAS compound, the accumulation of PFAS is not evenly distributed throughout the major components of the plant. Some of the PFAS will accumulate more in the roots, while

others accumulate in the leaves or fruits. However, exposure to PFAS via plant uptake through direct or indirect ingestion of PFAS-impacted plants may also be possible. Crops used for animal feed production (e.g., silage) may potentially allow the PFAS to bioaccumulate in the livestock. Currently, there are no PFAS criteria for plants; however, a consumption advisory could be developed in the future like those for fish. **Section 6** details a crop sampling event that included the sampling of 30 individual corn plant samples for future PFAS analysis. Note, during the 2018 growing season, corn was planted at Site CL01 for ethanol production.

10.2 Surface Water Evaluation

PFAS concentrations were detected in all five (5) surface water and all three (3) tile drain samples. All eight (8) samples detected PFOA values less than the Rule 57 WQS (12,000 ng/L), ranging from 1.11 to 101 ng/L. All three (3) tile drain samples detected PFOS, with two (2) exceedances of the Rule 57 WQS (12 ng/L): CL01-DR2 at 1860 ng/L and CL01-DR3 at 12.9 ng/L. Of the five (5) surface water samples, CL01-SW1 and CL01-SW4 detected PFOS values less than the Rule 57 WQS (12 ng/L), while CL1-SW2 reported a non-detectable concentration of PFOS. Both CL01-SW3 and CL01-SW5 detected concentrations that exceeded the Rule 57 WQS for PFOS (12 ng/L) of 2,060 and 19.0 ng/L, respectively (**Table 4**).

Based on the Rule 57 WQS exceedances there is the potential for exposure to PFAS from ingestion of PFAS-impacted fish due to bioaccumulation of PFOS in fish tissue. A fish advisory for several fish species is currently in place for the South Branch of the Flint River due to elevated PFOS concentrations in the fish.

10.3 Groundwater Evaluation

Twenty-five (25) private/household wells (i.e., residential wells) were identified close to Site CL01 (**Figure 7**) using the EGLE Wellogig database. The EGLE Wellogig database does not include all the well records; however, a review of additional, historic scanned well logs were also performed. Most of the residential wells were either upgradient or side gradient and to the east of Site CL01. From the results of this investigation, there is no unacceptable risk to the surrounding residential wells, because only groundwater samples collected from MW4 and TMW2 (i.e., perched groundwater zones) exceeded PFOA and PFOS Part 201 DWC (**Table 5**). The City of Lapeer also provides municipal water to many of the residents adjacent to the Site CL01. In addition, groundwater samples collected as part of EGLE's Statewide Public Water Supply Sampling Program near the biosolids application site were non-detect for PFAS.

11. Summary and Discussion

AECOM conducted a field investigation to determine the impact, if any, from the land application of biosolids suspected of containing high levels of PFAS concentrations from the Lapeer WWTP. This investigation expands EGLE's knowledge of PFAS at land application sites that may be associated with industrially impacted biosolids. Further, the investigation allows for comparison of PFAS in the soil, groundwater, and adjacent surface water bodies at Site CL01 to other agricultural fields associated with land application of biosolids not considered to be industrially impacted from non-IPP and IPP WWTPs. Land application field investigations will also help guide understanding of fate and transport of PFAS in environmental matrices and supplement fate and transport modeling analysis being conducted on this topic.

The soil, surface water (including tile drains), and groundwater sampling results indicate high PFAS concentrations in the soil and surface water, and lower PFAS concentrations in the

groundwater, with the exception of TMW2 and MW4, when compared to applicable criteria or other agricultural sites, due to the land applications of biosolids and are summarized in **Table 3**, **Table 4**, and **Table 5**. PFAS was detected in all 21 surface soil samples, all five (5) surface water and all three (3) tile drain locations, three (3) of the four (4) permanent monitoring wells, and both temporary monitoring wells from the May and December 2018 events. The laboratory reports are included in **Appendix C**.

PFAS such as PFBA, PFPeA, PFHxA, PFHpA, PFBS, and PFPeS have a shorter carbon chain length and are referred to as short-chain PFAS. While PFAS such as PFHxS, PFOA, and PFOS have longer fluorinated carbon chain lengths referred to as long-chain PFAS. The carbon chain length for PFBA and PFBS is four (4), and eight (8) for PFOA and PFOS. The shorter the carbon chain length for PFAS, the more mobile they are in the environment. As a result, long-chain PFAS are expected to concentrate and be present in the biosolids and soils at higher concentrations, while short-chain PFAS to be more frequently detected in the aqueous phases such as surface water, tile drains, and groundwater. The detection limits for the solid phase (i.e., biosolids and soil) are in micrograms per kilogram ($\mu\text{g/Kg}$) or parts per billion (ppb). For the aqueous phase (i.e., influent, effluent, surface water, tile drains, and groundwater), the detection limits are in nanograms per liter (ng/L) or parts per trillion (ppt). As a result, PFAS that are non-detect in the solid phase may still be present at lower concentrations below the detection limit and may be detected in the aqueous phases.

PFAS properties, including fate and transport in the environment, are still being studied and are currently not fully understood. Equations developed to estimate leachability and migration of PFAS have not been empirically verified at this time. EGLE is currently evaluating additional agricultural fields and performing subsurface modeling to better understand the fate and transport of PFOA and PFOS in the environment.

11.1 Soil

Based on EGLE's assessment of WWTPs, long-chain PFAS (e.g., PFOS and PFOA) accumulate at higher concentrations in sludge and biosolids. As a result, a lower mass of short-chain PFAS are expected to be present in the land-applied biosolids when compared to long-chain PFAS. The December 2017, May 2018, October 2018 and December 2018 soil sampling results indicated that PFOS was the PFAS compound detected at highest concentrations in all four (4) sampling events.

EGLE initially collected three (3) soil samples from the southeast region of Site CL01 in December 2017. The results detected total PFAS concentrations ranging from 457 to 599 $\mu\text{g/Kg}$ and PFOS detections ranging of 420 to 560 $\mu\text{g/Kg}$. The May and December 2018 soil sampling events collected an additional nine (9) and 12 soil samples throughout Site CL01, respectively. The 2018 soil sampling results reported total PFAS concentrations ranging from 83 to 182.46 $\mu\text{g/Kg}$ in May and from 20.8 to 151.6 $\mu\text{g/Kg}$ in December. Additionally, PFOS concentrations detected in the May and December 2018 soil samples ranged from 20.8 to 172 $\mu\text{g/Kg}$. The three (3) FSC samples collected during the October 2018 corn and soil sampling event reported total PFAS ranging from 81.8 to 100.1 $\mu\text{g/Kg}$, which are comparable to the total PFAS values from the May and December 2018 soil sampling events.

PFAS, especially the long-chain PFAS compounds, are known to adsorb more strongly to fine particles such as silt and clay, which contain more TOC. All May 2018 samples were collected from the Del Ray silt loam or Lenawee silty clay loam, both consisting of clayey glaciolacustrine deposits. The December 2018 soil samples were not analyzed for TOC. However, the two (2) soil samples with the lowest total PFAS concentrations were SS05 and SS06, which were collected from the Ubyly sandy loam – a loamy till with low clay composition. This indicates that

site-specific environmental conditions could play a very significant role in environmental impacts in addition to the land application of biosolids PFAS concentrations.

A discussion about the PFAS concentrations in surface water, tile drains, and groundwater in relation to the soil samples is provided in **Sections 11.2, 11.3** and **11.4** below.

11.2 Surface Water

PFAS concentrations detected in surface water are likely related to surface runoff and potential discharge of shallow groundwater into the nearby surface water bodies. In December 2017, EGLE initially collected a surface water sample (SW-1) from the on-site pond at Site CL01. The pond detected a total PFAS concentration of 2,704 ng/L and PFOA and PFOS concentrations of 130 and 2,000 ng/L, respectively. In May 2018, an additional five (5) surface water samples and three (3) tile drain samples were collected from Site CL01 (**Figure 2**).

SW1 was collected from the South Branch of the Flint River, upstream near the southwest corner of Site CL01 and detected a total PFAS concentration of 8.47 ng/L. SW2 was collected upstream along the southeast edge of Site CL01, opposite from SW1, and reported a total PFAS concentration of 7.28 ng/L. SW3 was collected from the on-site pond, as a resample of EGLE's 2017 pond sample. SW3 reported a total PFAS concentration of 2,542 ng/L, comparable to the EGLE 2017 result of 2,704 ng/L. SW4 was collected in the South Branch of the Flint River at Site CL01's northwestern edge boundary, downstream of Site CL01 and downgradient of MW4, and reported a lower total PFAS value of 20.88 ng/L. Lastly, SW5 was collected from the northeast edge of the field downstream of Site CL01 and detected a total PFAS concentration of 42.5 ng/L.

The Rule 57 WQS for PFOS (12 ng/L) was exceeded in SW3 and SW5 with detections of 2,060 and 19 ng/L, respectively. SW3 reported the highest total PFAS concentration of 2,704 ng/L, with total PFAS values ranging from 7.28 to 45.2 ng/L for the remaining four (4) surface water samples. The elevated total PFAS and PFOS concentrations in the on-site pond are likely related to a combination of surface runoff and discharge of shallow, perched groundwater.

11.3 Tile Drain

DR1, which was collected at the southwest corner of Site CL01, downstream of SW1, detected a total PFAS concentration of 8.99 ng/L, with comparable results to SW1. DR2 was collected from a drainage swale just north of surface soil DU3 and detected total PFAS and PFOS concentrations of 2,495 and 1,860 ng/L, respectively. DR3 was collected from a tile drain containing surface water along the northeast side of Site CL01 and reported a total PFAS concentration of 2.74 ng/L and PFOS concentration of 12.9 ng/L.

All three (3) tile drain samples were below the Rule 57 WQS for PFOA (12,000 ng/L), with PFOA concentrations ranging from 1.32 to 95.2 ng/L. DR2 and DR3 exceeded the Rule 57 WQS for PFOS (12 ng/L) with detections of 1,860 and 12.9 ng/L, respectively. DR2 detected significantly higher total PFAS compared to DR1 and DR3. DR2 is in the vicinity of the groundwater sample CL1-TMW2, with the maximum detected total PFAS concentration. It is likely that the shallow groundwater sampled in CL1-TMW2 discharges to the surface water near DR2 and could be hydraulically connected to the on-site pond.

11.4 Groundwater

In order to evaluate the potential impact of PFAS-contaminated biosolids in fields where they were land applied by the City of Lapeer, EGLE conducted a file review and identified 38 fields used by the City of Lapeer for land application of biosolids since 1997. In addition to Site CL01,

Site 08N11E33-SK01 (Site SK01), Site 08N11E16-TG01 (Site TG01) and 08N11E16-TG02 (Site TG02) were also investigated by EGLE for PFAS impacts from Lapeer WWTP biosolids (**Figure 1b**). Investigations at Site SK01 and Sites TG01/TG02 have been previously published in reports “Evaluation of Lapeer WWTP Biosolids Site 08N11E33-SK01” (EGLE 2018a) and “Evaluation of Lapeer WWTP Biosolids Sites 08N11E16-TG01 and 08N11E16-TG02” (EGLE 2018b), respectively. However, the Part 201 DWC has been updated since these reports were published in 2018, and therefore an additional review and discussion of groundwater data from Site SK01 and Sites TG01/TG02 has been included in this report. The groundwater sampling results for Lapeer Sites CL01, SK01, TG01/TG02 are discussed below, based on the new Part 201 DWC.

11.4.1 Site CL01

A total of four (4) permanent and two (2) temporary monitoring wells were installed on Site CL01 (**Figure 5a, Table 6**). The permanent monitoring wells were installed in areas outside of the active farming area where groundwater data was needed within the farm fields. The temporary monitoring wells were installed in areas of active farming for the purpose of collecting a groundwater sample before removal in order not to obstruct farming activities. The temporary monitoring wells were sampled once for a total of two (2) samples, while the four (4) permanent monitoring wells were sampled twice for a total of eight (8) samples.

The highest total PFAS concentration detected was at temporary monitoring well TMW2 (41,823 ng/L) where perched groundwater was encountered in a 1-foot thick sand lens within a clay unit at a depth of approximately 6 feet bgs. The four (4) permanent monitoring wells, MW1 through MW4, and other temporary monitoring well TMW1 were installed in a sand layer overlain by 15 to 30 feet of lean clay. With the exception of TMW2 and MW4, all of the groundwater results were below the Part 201 DWC for PFOA, PFOS, PFNA, PFHxS, PFHxA, and PFBS of 8, 16, 6, 51, 400,000, and 420 ng/L, respectively. The wells with detections below Part 201 DWC reported total PFAS concentrations ranging from non-detect (< 1.91 ng/L) to 41.76 ng/L.

TMW2 exceeded the Part 201 DWC for PFOA, PFNA, PFBS, PFHxS and PFOS, while MW4 exceeded the Part 201 DWC for PFOA in both samples and PFOS in one (1) of the samples. The PFOA and PFOS concentrations detected in MW4 may be the result of elevated PFAS concentrations in surface soils situated in the northern part of Site CL01 that were not sampled or groundwater that has migrated to this location. The screened interval in MW4 is also the second shallowest from 14 to 19 feet bgs, after TMW2 which was screened from (4) to nine (9) feet bgs.

Based on review of well records near Site CL01, residential wells are located immediately upgradient of the Site CL01. The residential wells are screened at depths between 100 and 160 feet bgs with clay thickness generally in excess of 30 feet overlying the well screens. The PFAS results from the permanent and temporary monitoring well samples suggest that Part 201 DWC exceedances are limited to the shallower, perched groundwater zones. Given that the residential well locations are upgradient of Site CL01, the residential well screens are deep in the aquifer with significant overlying clay, and the current groundwater sample results, there does not appear to be a potential risk to neighboring drinking water wells.

11.4.2 Site SK01

Site SK01 is located approximately six (6) miles east of Site CL01, and at the time of sampling was an actively farmed corn field for ethanol production. Site SK01 received six (6) applications (approximately 700 dT total) of biosolids from the City of Lapeer since 1997, with an average

application rate of 2.67 dT per acre. Based on conversations with the landowner, biosolids were only applied to the western portion of the Site SK01 (**Figure 1b**).

Between April 30 and May 1, 2018, six (6) temporary monitoring wells (TMW1, TMW2, TMW3, TMW4, TMW5, and TMW6) were installed by JSS within the actively farmed field for the purpose of collecting groundwater samples (**Figure 5b, Table 6**). All temporary monitoring wells were installed using the same procedures mentioned in **Section 7.2**. At the request of the property owner, each temporary monitoring well was pulled after sampling was complete, with no materials left in the ground overnight. TMW2, TMW5, and TMW4 were co-located with the soil sampling decision units DU1, DU2 and DU3, respectively, to evaluate potential impacts to the groundwater from the surface soils. TMW1 was selected as an upgradient boundary point and TMW3 and TMW6 were selected as downgradient locations along the western Site boundary and to evaluate discharge into the Lake Pleasant Drain.

Soil borings installed during the investigation generally encountered gravelly sands and loamy till (**Table 7b**), underlain by clay at depths ranging from 8.5 to 16 feet bgs. However, at TMW1 a shallow, clayey sand with gravel was encountered, but no clay was observed deeper in the boring to the total depth of 20 feet bgs. Based on EGLE-provided shallow groundwater elevation data, groundwater flow is expected to flow to the west, southwest, with the primary groundwater discharge point of the Lake Pleasant Drain, located along the western Site boundary.

All temporary wells reported PFAS concentrations below Part 201 DWC, except for TMW5. TMW5 was in the southwest region of the Site and reported total PFAS concentration of 169.12 ng/L, which included a PFOA concentration of 8.58 ng/L, exceeding the Part 201 DWC for PFOA of 8 ng/L. The remaining temporary wells reported total PFAS concentrations ranging from 1.91 to 61.52 ng/L. TMW1 was set in the southeast region of the Site and detected a relatively low total PFAS of 13.56 ng/L. TMW2 was installed centrally along the eastern edge of the Site and detected a total PFAS concentration of 61.52 ng/L. TMW3 was set in the northwest corner of the Site and detected the second lowest total PFAS concentration of 5.25 ng/L. TMW4 was installed approximately 500 feet southeast of TMW3, still within the northwest region of the Site and detected the lowest total PFAS value of 1.91 ng/L. Lastly, TMW6 was installed along the southwest edge of the Site and detected a total PFAS of 13.96 ng/L.

The PFAS concentrations detected in the groundwater samples are likely related to the shallow sandy lithology on Site SK01. PFAS are known to adsorb more strongly to fine particles such as silt and clay. Based on the review of EGLE Wellogic well records near the Site, the residential wells are screened at depths between 75 and 400 feet bgs, with most wells screened below 200 feet. There is clay that overlies the well screens that has a thickness generally in excess of 70 feet. The shallowest residential well, 75 feet bgs, has over 50 feet of clay above its well screen.

Given that the groundwater PFAS results from five (5) of the six (6) temporary monitoring wells reported concentrations below Part 201 DWC and the residential well locations have well screens that are deep in the aquifer with significant overlying clay, it does not suggest a potential risk to the nearby drinking water wells.

11.4.3 Sites TG01 and TG02

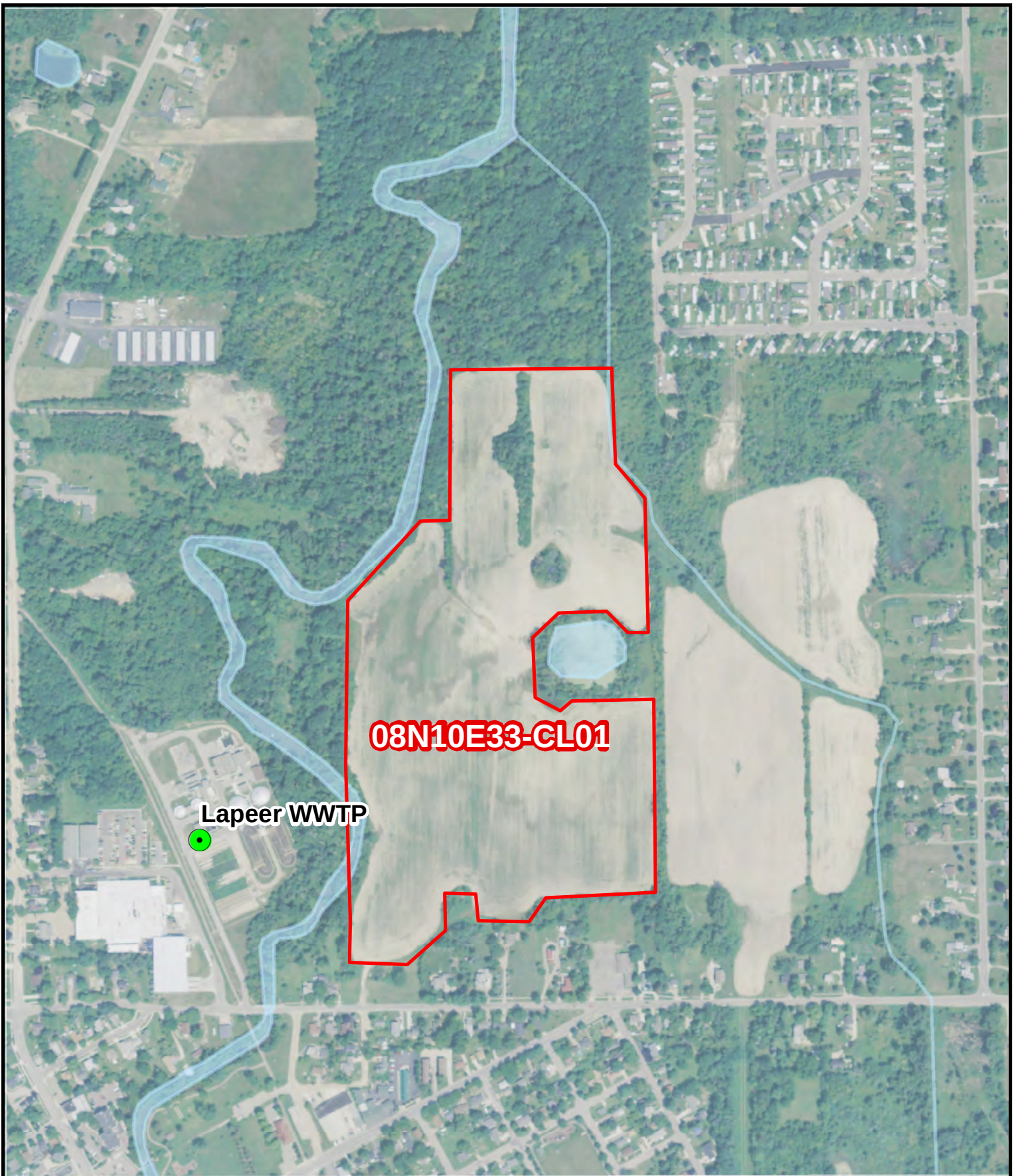
Sites TG01 and TG02 are located approximately three (3) miles north of Site SK01, and at the time of sampling were actively farmed soybean fields. Sites TG01 and TG02 have received a total of four (4) applications (approximately 548 dT total) of biosolids from the City of Lapeer since 1994, with an average application rate of 3.67 dT per year. Based on conversations with the landowner, biosolids were only applied to the eastern portion of Site TG01 and all of Site TG02 (**Figure 1b** and **5c**).

Between May 1 and 2, 2018, six (6) temporary monitoring wells (TMW1, TMW2, TMW3, TMW4, TMW5, and TMW6) were installed by JSS within the actively farmed field for the purpose of collecting groundwater samples (**Figure 5c, Table 6**). However, groundwater could only be collected from one location (TMW3) due to insufficient water. Saturated soil samples were collected from the remaining five (5) locations. All temporary monitoring wells were installed using the same procedures mentioned in **Section 7.2**. At the request of the property owner, each temporary monitoring well was pulled after sampling was complete, with no materials left in the ground overnight. The soil borings installed during the investigation generally encountered loamy, gravelly sand (**Table 7b**). Based on EGLE-provided shallow groundwater elevation data, groundwater flow is expected to flow to the northwest towards Elk Lake. TMW3 was located in the southwest corner of Site TG01, southeast of the pond. The proximity to the pond may account for the quantity of groundwater available for sampling.

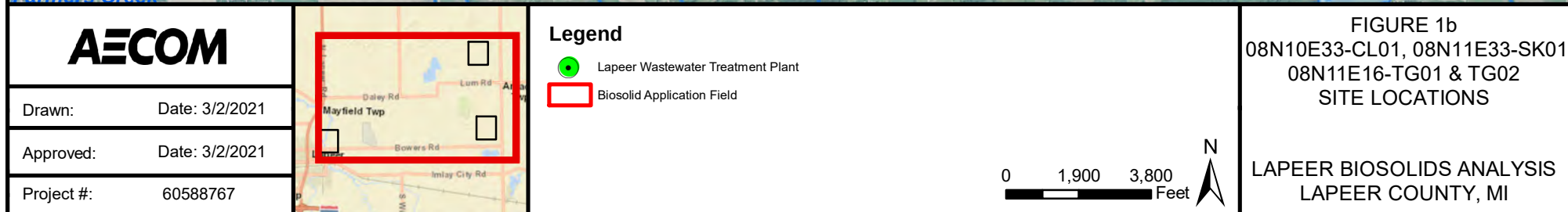
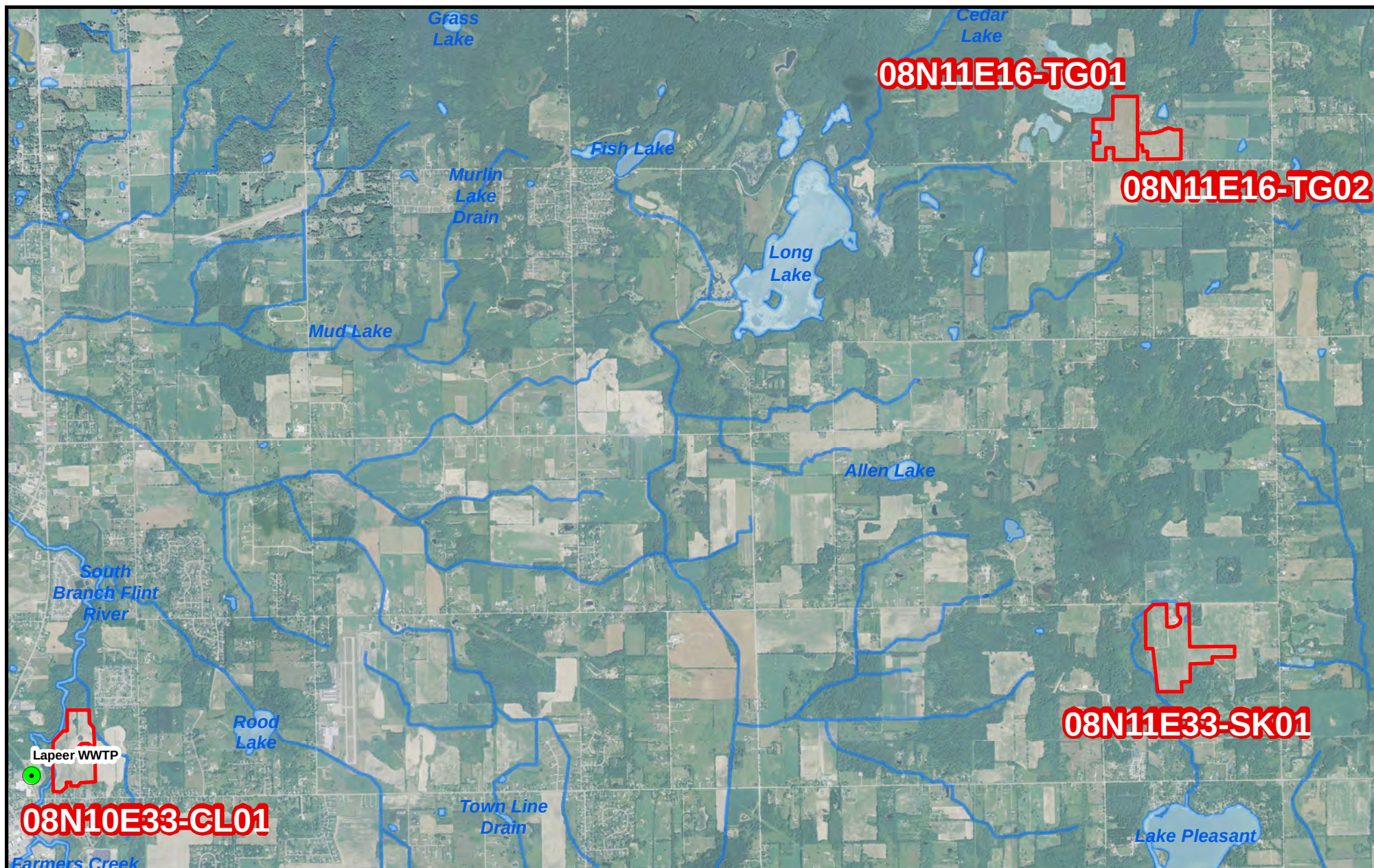
The groundwater sample collected from TMW3 reported PFAS concentrations below the Part 201 DWC. TMW3 reported a total PFAS concentration of 5.31 ng/L, with PFOA and PFOS concentrations of 1.80 and 1.39 ng/L, respectively. The PFAS concentrations detected in TMW3 is likely related to the lack of PFAS-impacted biosolids applied to the western region of Site TG01 where TMW3 is located. Based on the review of EGLE Wellogic well records near Sites TG01 and TG02, six (6) of the seven (7) residential wells were located immediately upgradient of the Sites and the seventh is ¼-mile away on the northeast side of Elk Lake. The residential wells are screened at depths between 215 and 300 feet bgs, into bedrock, with clay thickness generally in excess of 70 feet overlying the well screens.

Given that the groundwater PFAS results from TMW3 detected concentrations below Part 201 DWC, the residential well locations are upgradient of the Site with well screens deep in the aquifer into bedrock, there is no indication that the residential wells near Sites TG01 and TG02 would be at risk of PFAS contamination.

Figures



			Legend Waste Water Treatment Plant Biosolids Application Field Surface Water 		FIGURE 1a 08N10E33-CL01 LAPEER BIOSOLIDS APPLICATION FIELD OVERVIEW LAPEER BIOSOLIDS ANALYSIS LAPEER COUNTY, MI
Drawn:	Date: 2/4/2021				
Approved:	Date: 2/4/2021				
Project #:	60588767				



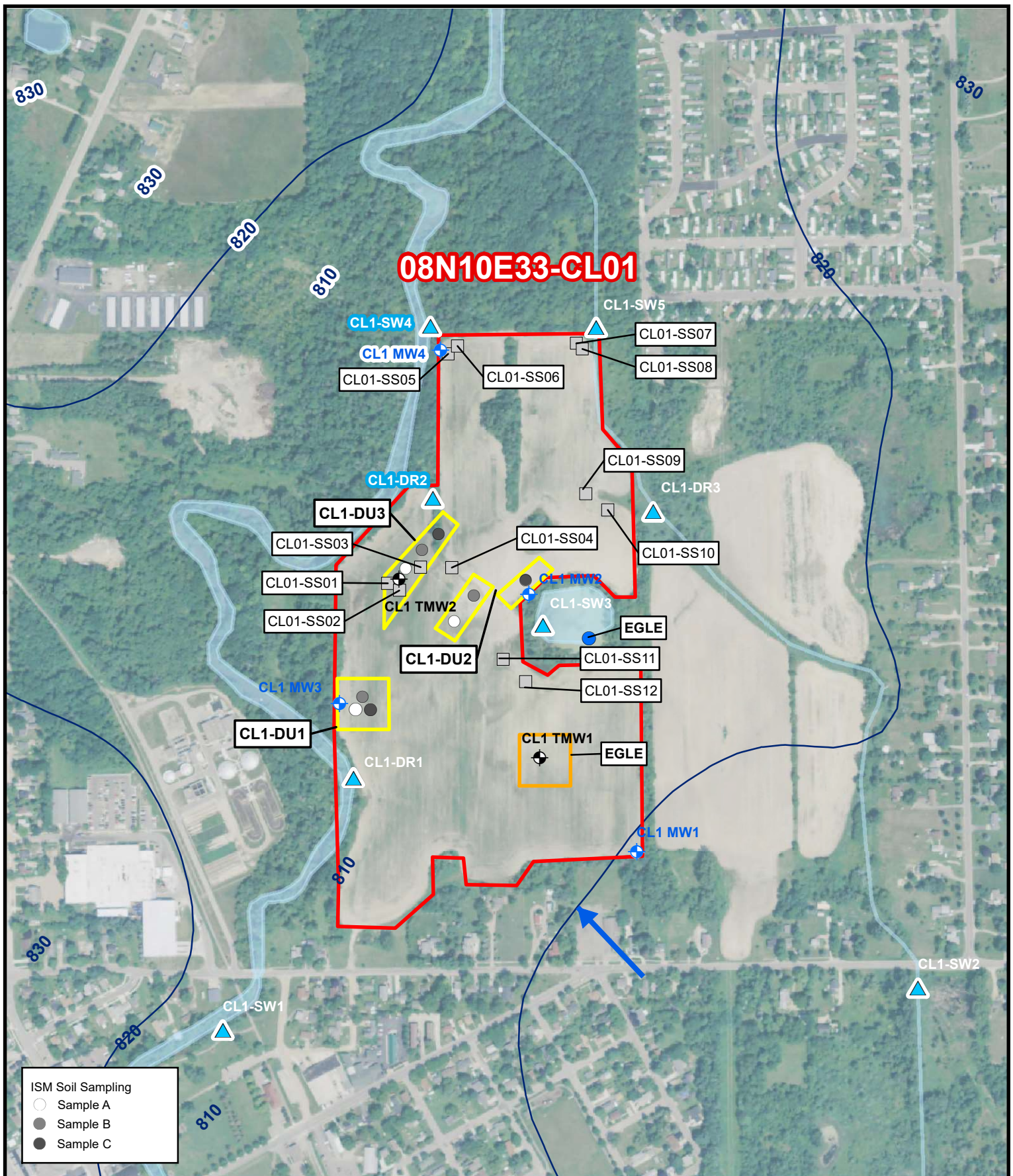
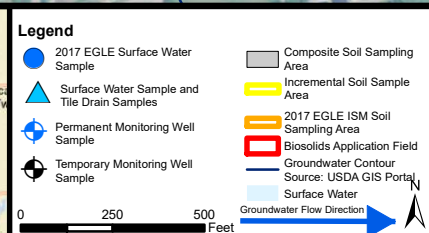
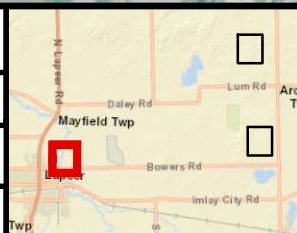
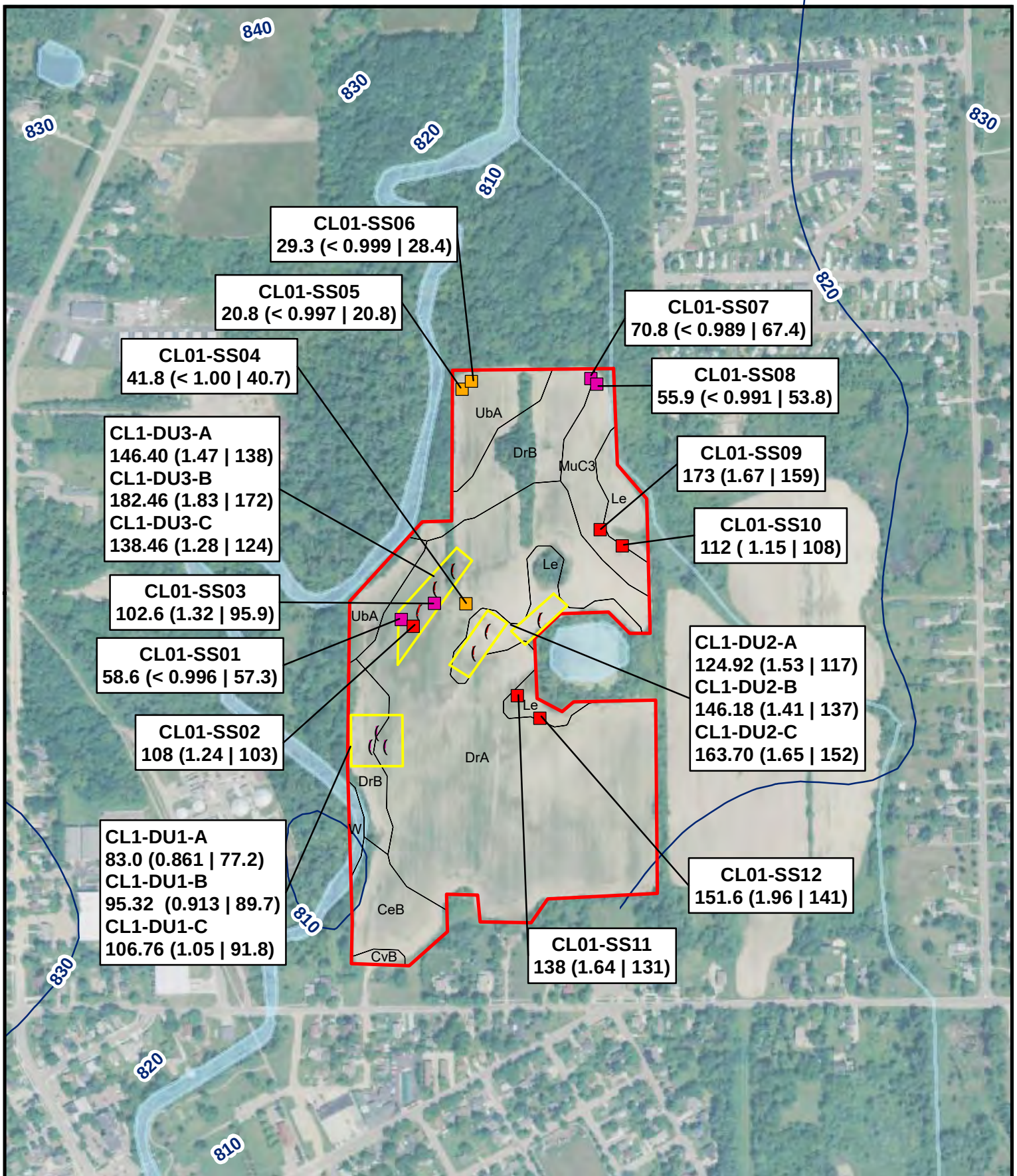


FIGURE 2
08N10E33-CL01
SAMPLE LOCATIONS

LAPEER BIOSOLIDS ANALYSIS
LAPEER COUNTY, MI

AECOM	
Drawn:	Date: 3/2/2021
Approved:	Date: 3/2/2021
Project #:	60588767





AECOM

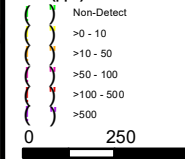
Drawn: Date: 3/2/2021

Approved: Date: 3/2/2021

Project #: 60588767



Sampling Results
50' x 50' Soil Sampling Grid
PFOS (ppb)



Incremental Soil Sample Area
Biosolids Application Field
Soil Type
Surface Water

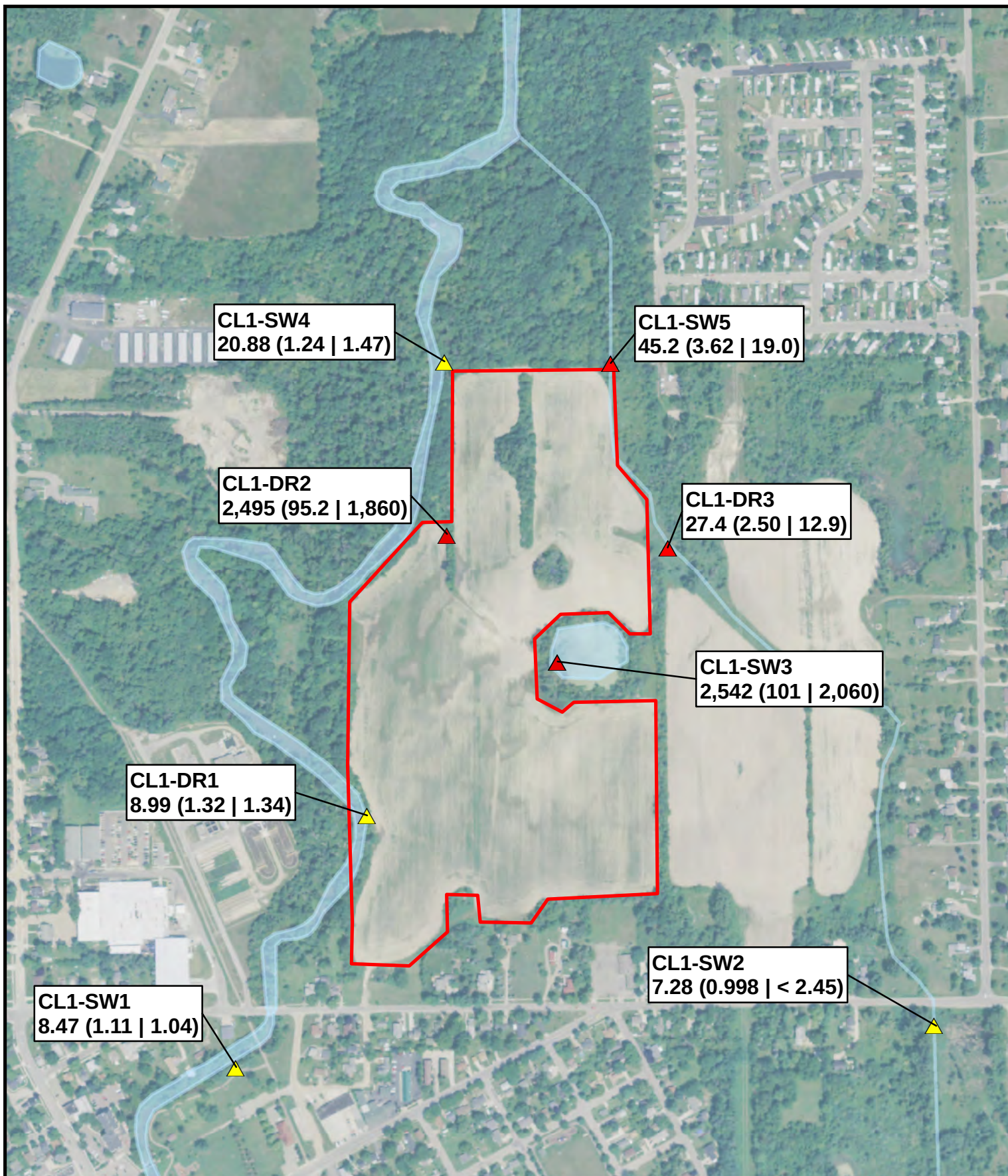
Sample Location
Total PFAS (PFOA | PFOS)

*results reported in units of ppb

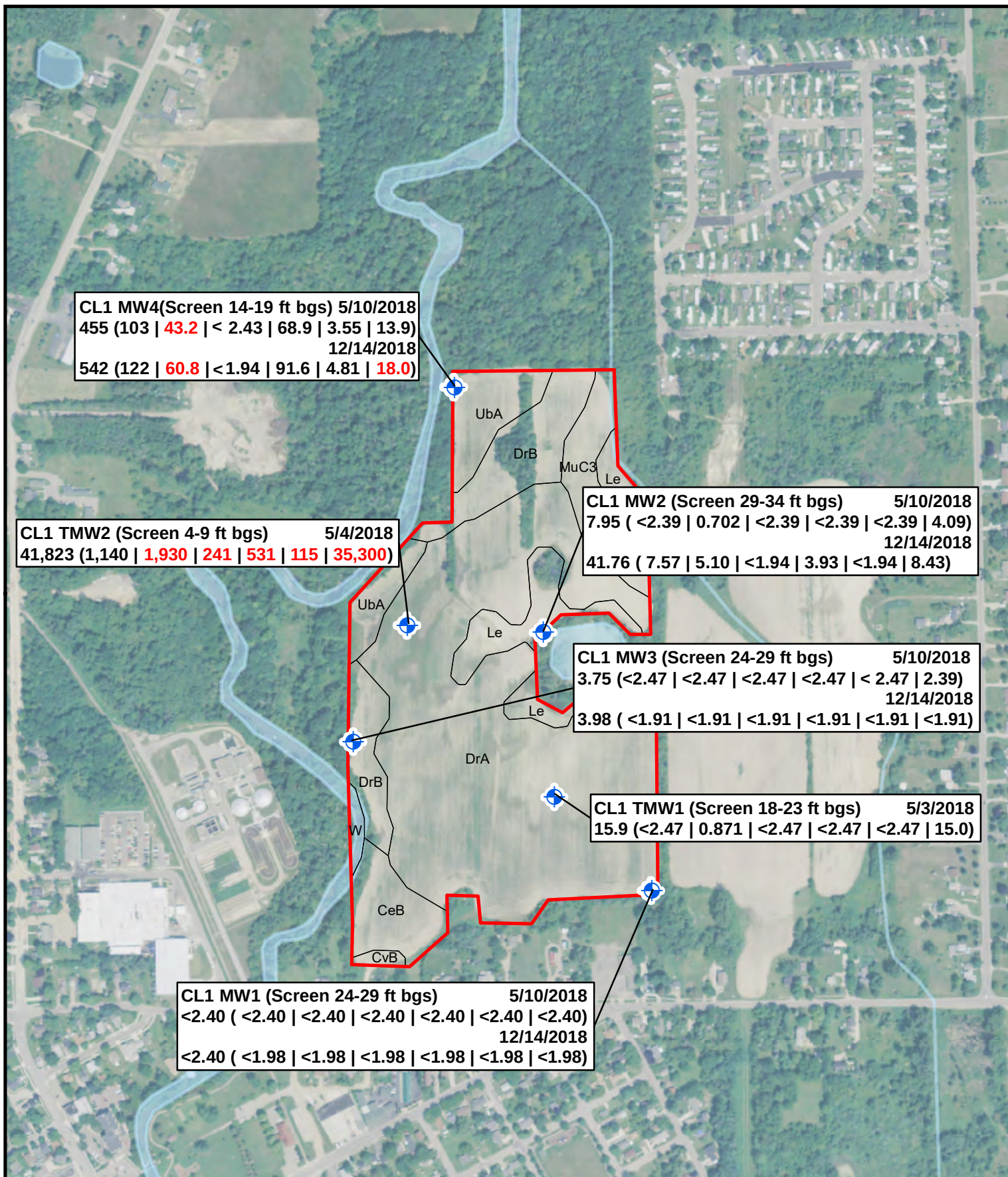


FIGURE 3
08N10E33-CL01
MAY & DECEMBER 2018
SOIL SAMPLING RESULTS

LAPEER BIOSOLIDS ANALYSIS
LAPEER COUNTY, MI



			Sampling Results Surface Water Sample PFOS (ppt) ▲ Non-Detect ▲ >0 - 12 ▲ >12 ■ Biosolids Application Field ■ Surface Water 0 250 500 Feet		FIGURE 4 08N10E33- CL01 SURFACE WATER AND TILE DRAIN SAMPLING RESULTS LAPEER BIOSOLIDS ANALYSIS LAPEER COUNTY, MI
Drawn:	Date: 2/8/2021				
Approved:	Date: 2/8/2021				
Project #:	60588767				



			Legend Monitoring Well Sample Biosolids Application Field Surface Water Soil Type Sample Location (Screen 4-9 ft bgs) Total PFAS (PFHxA PFOA PFNA PFBS PFHxS PFOS) Michigan Part 201 Residential & Nonresidential Drinking Water Criteria (DWC), ng/L PFHxA = 400,000 PFOA = 8 PFNA = 6 PFBS = 420 PFHxS = 51 PFOS = 16 red text indicates exceedance of Part 201 DWC All sample results are in ng/L	FIGURE 5a 08N10E33-CL01 GROUNDWATER SAMPLING RESULTS LAPEER BIOSOLIDS ANALYSIS LAPEER COUNTY, MI
Drawn:	Date: 3/1/2021			
Approved:	Date: 3/1/2021			
Project #:	60588767			

08N11E33-SK01

SK1-TMW3 (Screen 3-8 ft bgs)
5.25 (<2.5 | 0.62 | <2.5 | 1.05 | <2.5 | 0.93)

SK1-TMW4 (Screen 10-15 ft bgs)
1.91 (<2.4 | <2.4 | <2.4 | 1.32 | <2.4 | <2.4)

SK1-TMW2 (Screen 11-16 ft bgs)
61.52 (<2.4 | <2.4 | <2.4 | 44.90 | 3.07 | 9.80)

SK1-TMW5 (Screen 6-11 ft bgs)
169.12 (48.80 | **8.58** | <2.4 | 9.97 | 17.50 | 15.20)

SK1-TMW1 (Screen 13-18 ft bgs)
13.56 (<2.4 | <2.4 | <2.4 | 11.20 | <2.4 | 1.30)

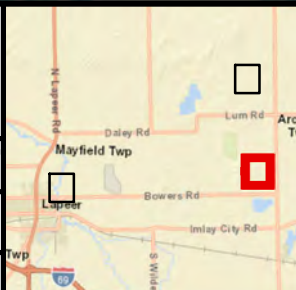
SK1-TMW6 (Screen 7-12 ft bgs)
13.96 (<2.5 | 0.65 | <2.5 | 4.76 | 0.69 | <2.5)

AECOM

Drawn: Date: 3/1/2021

Approved: Date: 3/1/2021

Project #: 60588767



Legend



Monitoring Well



Biosolids Application Field



Soil Type

Sample Name (Screen #-# ft bgs)

Total PFAS (PFHxA | PFOA | PFNA | PFBS | PFHxS | PFOS)

red text indicates exceedance of Part 201 DWCC

All sample results are in ng/L

Michigan Part 201 Residential & Nonresidential

Drinking Water Criteria (DWCC), ng/L

PFHxA = 400,000

PFOA = 8

PFNA = 6

PFBS = 420

PFHxS = 51

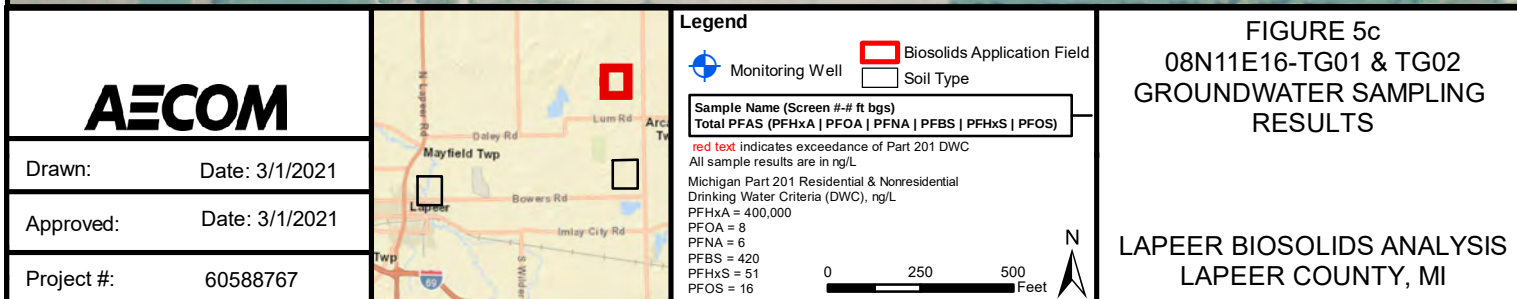
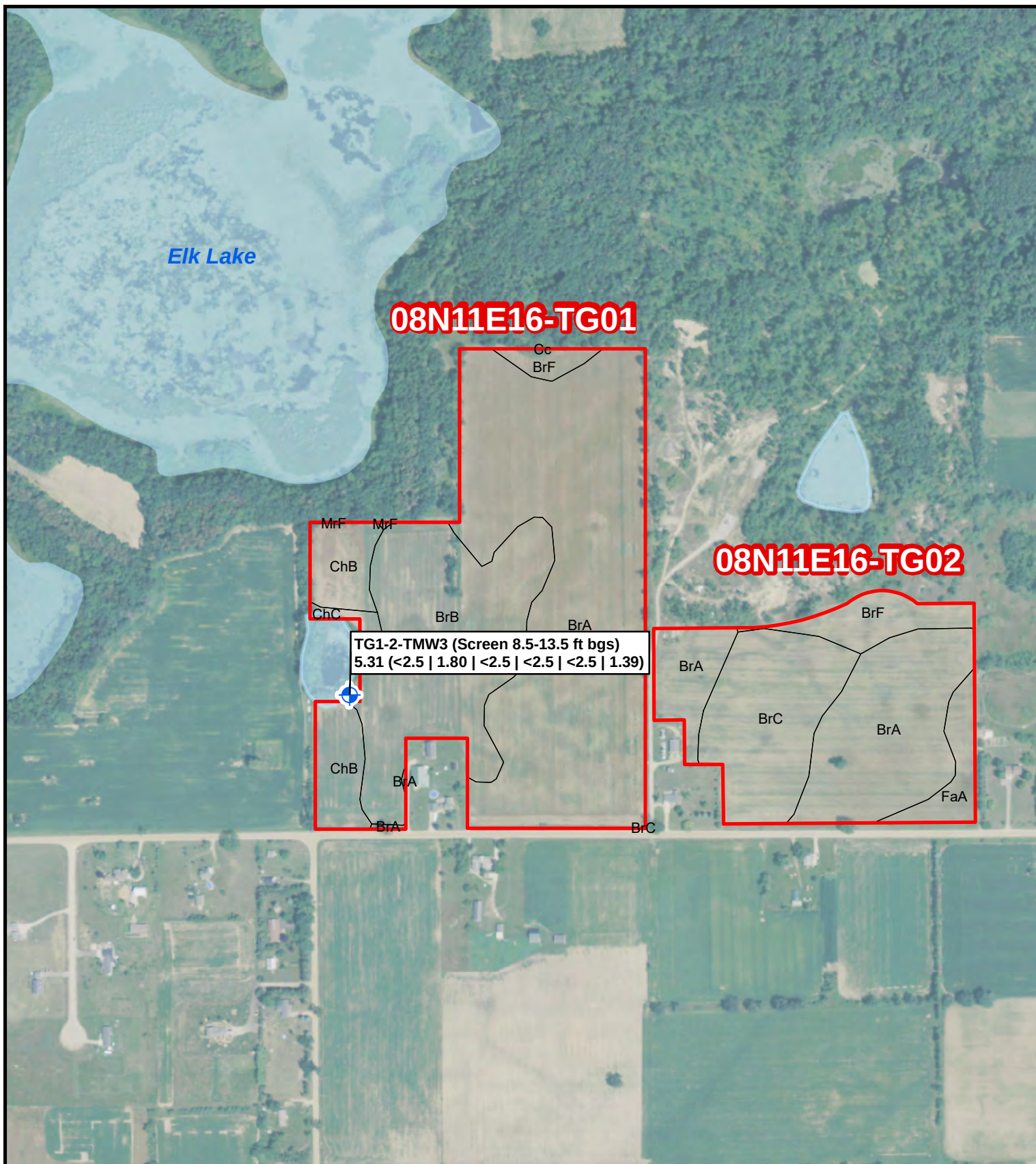
PFOS = 16

0 260 520 Feet



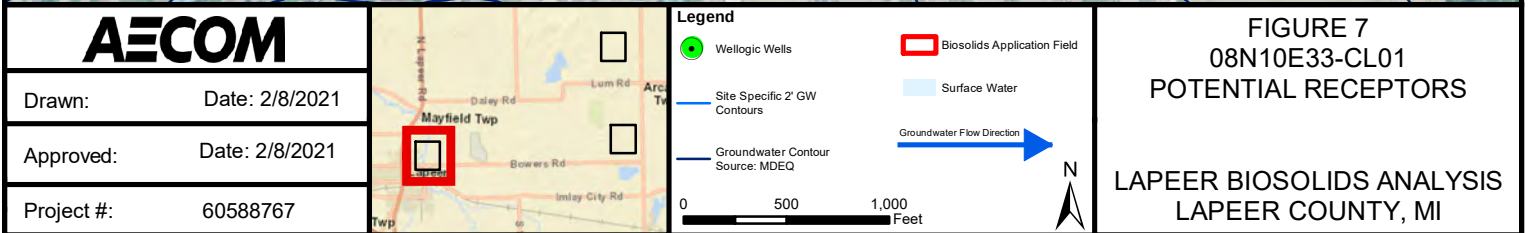
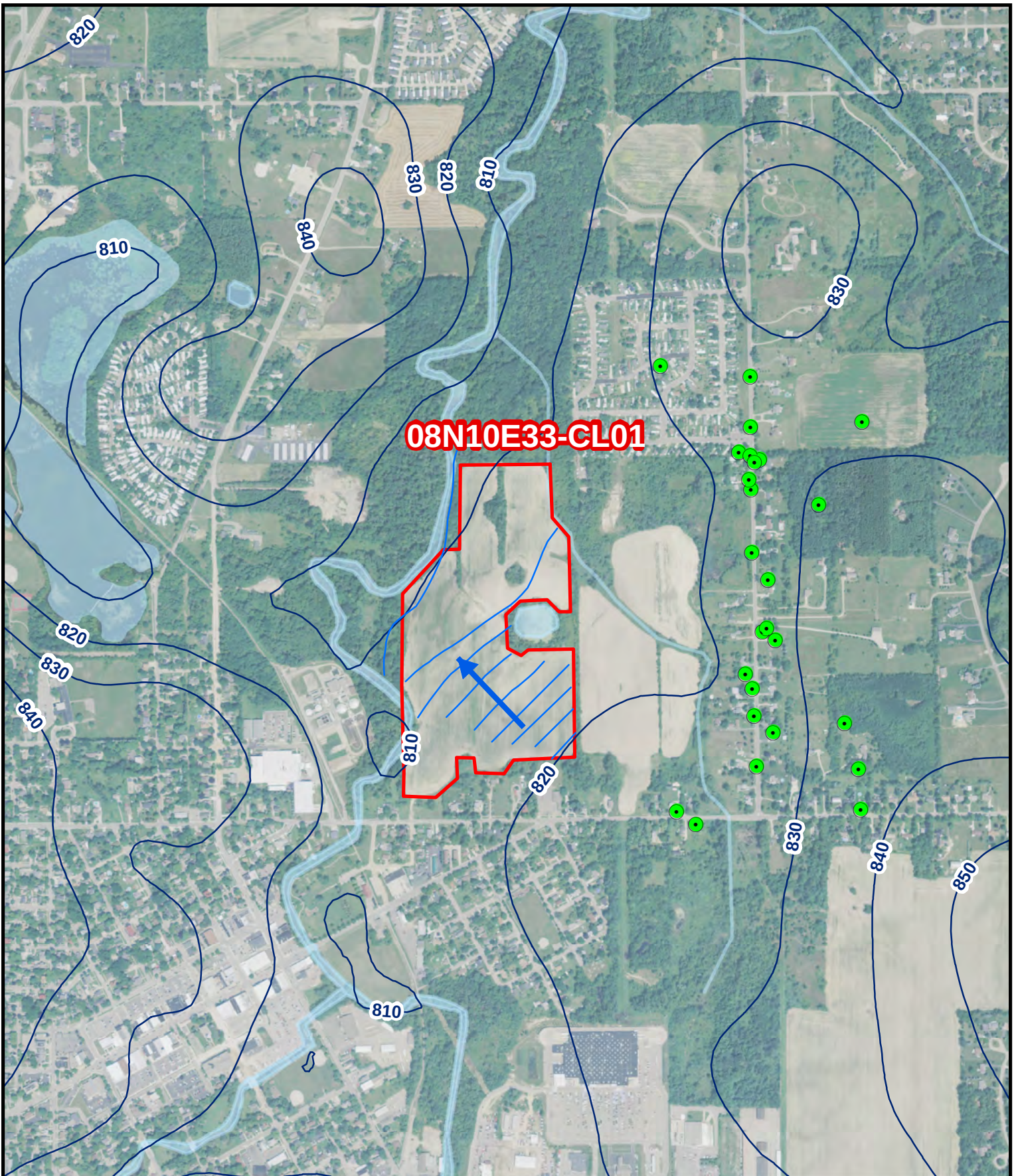
FIGURE 5b 08N11E33-SK01 GROUNDWATER SAMPLING RESULTS

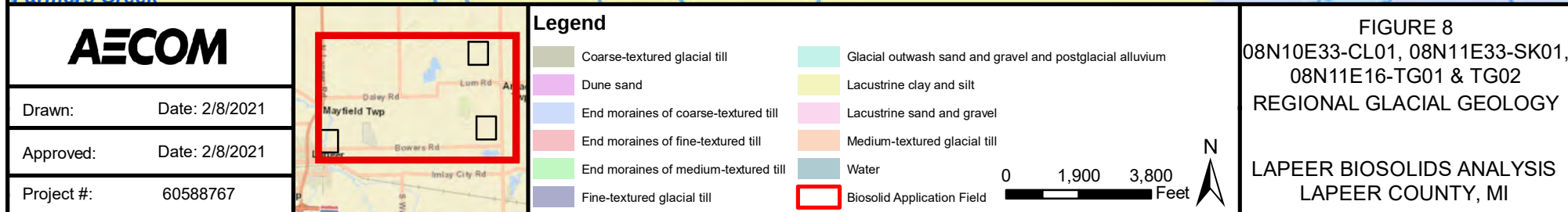
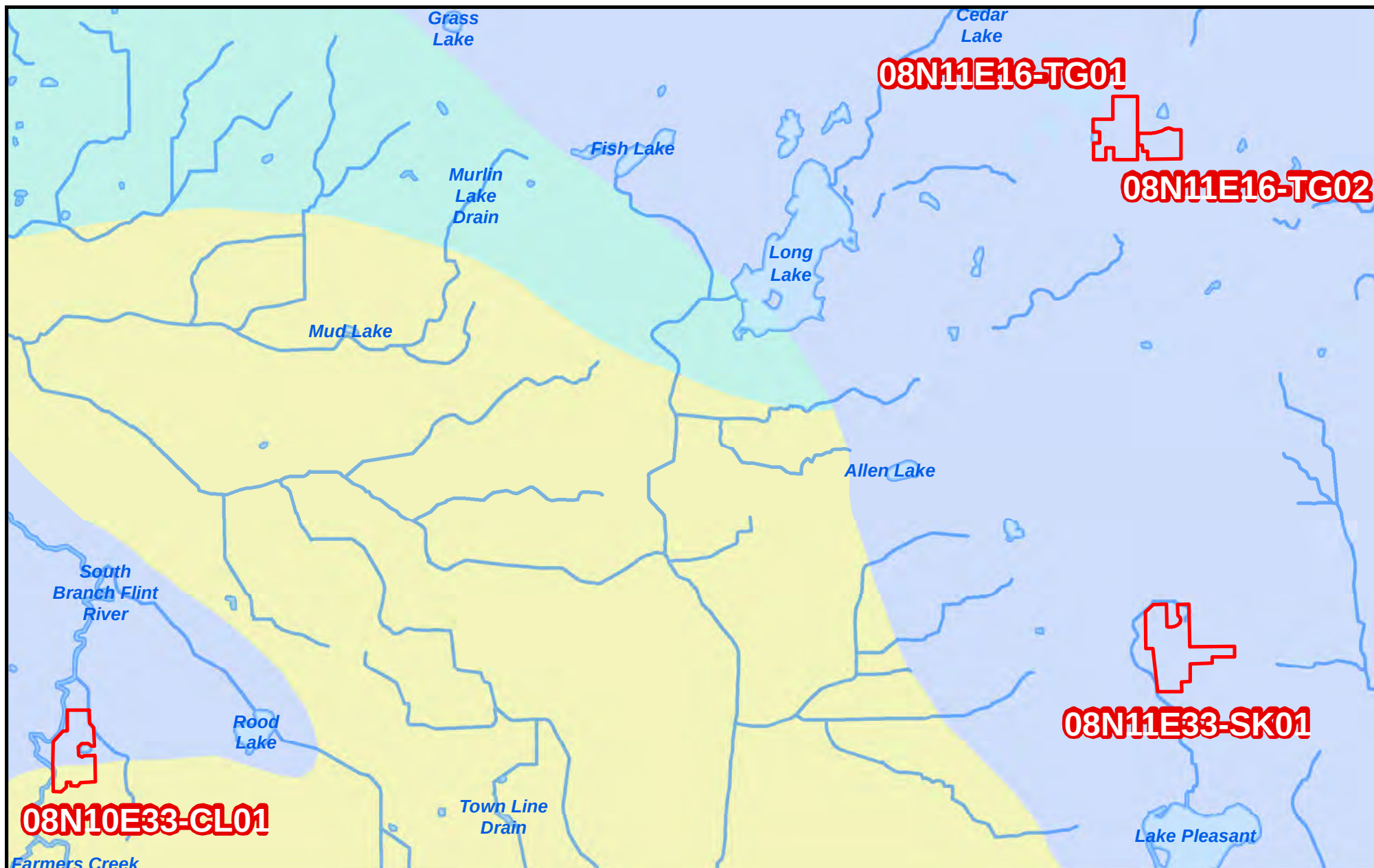
LAPEER BIOSOLIDS ANALYSIS
LAPEER COUNTY, MI





			Legend Permanent Monitoring Well Sample (Depth to Water GW Elevation) Temporary Monitoring Well Sample Biosolids Application Field Groundwater Contour Surface Water 826.30 GW Elevation (ft above mean sea level) GW Flow Direction	FIGURE 6 08N10E33-CL01 LOCAL GROUNDWATER CONTOURS LAPEER BIOSOLIDS ANALYSIS LAPEER COUNTY, MI
Drawn:	Date: 2/8/2021			
Approved:	Date: 2/8/2021			
Project #:	60588767			





Tables

Table 1
Parcel IDs: 08N10E33-CL01, 08N11E33-SK01, 08N11E16-TG01 and TG02
Biosolids Application Data

Year	Site ID	Dry Ton (dT) Land Applied	Acres Used	Acres Approved	Dry Ton (dT) / Acre	Dates of Land Application
Site 08N10E33-CL01 Biosolids Application Data						
2014	08N10E33-CL01	119.5	50	50	2.39	Not provided
2013	08N10E33-CL01	28.7	14	50	2.05	12/13/13 & 12/14/13
2008	08N10E33-CL01	78.5	50	50	1.57	4/9/08 & 4/10/08
2008	08N10E33-CL01	143.5	50	50	2.87	5/10/08, 5/16/08 & 5/17/08
2007	08N10E33-CL01	137	50	50	2.74	5/24/07, 5/25/07, 5/29/07 - 5/31/07
2006	08N10E33-CL01	147.5	50	50	2.95	5/2/06 - 5/6/06
2005	08N10E33-CL01	134.5	50	50	2.69	4/21/05, 4/22/05, 5/6/05 - 5/9/05
2004	08N10E33-CL01	211	50	50	4.22	4/16/04, 4/17/04, 4/19/04 - 4/21/04
2003	08N10E33-CL01	189	50	50	3.78	Not provided
2002	08N10E33-CL01	148	50	50	2.96	11/2/01, 11/5/01 - 11/7/01, 11/10/01
2000	08N10E33-CL01	85.4	35	50	2.44	11/16 & 11/17/99
Total Dry Tons (dT) Applied:		1423	Average Application Rate (dT/Acre):		2.79	
Site 08N10E33-SK01 Biosolids Application Data						
2007	08N12E10-SK01	153.12	58	75	2.64	11/22/06, 11/24/06
2004	08N11E27-SK01	164.45	55	75	2.99	10/20/03 - 10/23/03
2001	08N11E33-SK01	193.04	63.5	75	3.04	11/1/00, 11/2/00, 5/9/01, 5/10/01
1998	08N12E07-SK01	73.71	39	75	1.89	11/19/1997
1997	08N11E31-SK02	115.92	36	75	3.22	9/9/1997
Total Dry Tons (dT) Applied:		700	Average Application Rate (dT/Acre):		2.76	
Sites 08N11E16-TG01 & TG02 Biosolids Application Data						
2017	08N11E16-TG01	111.73	61	70	1.93	10/5/16, 10/7/16, 10/10/16, 11/3-11/5/16
2016	08N11E16-TG01	89.5	50	70	1.79	5/4/16 - 5/6/16
2016	08N11E16-TG02	79.2	24	24	3.3	5/7/16, 5/9/16, 5/10/16
2015	08N11E16-TG01	NR	27	70	NR	Not provided
2015	08N11E16-TG02	NR	24	24	NR	Not provided
2014	08N11E16-TG01	267.4	35	70	7.64	Not provided
Total Dry Tons (dT) Applied:		548	Average Application Rate (dT/Acre):		3.67	

Notes:

dT = dry tons

NR = No Records

Table 2
Parcel ID: 08N10E33-CL01
EGLE PFAS Soil and Surface Water Analytical Results Summary

Soil Sample ID	Sample Date	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTTrDA	PFTeDA	PFHxDA	PFODA	PFBS	PFHxS	PFHpS	PFOS	PFDS	PFOSA
B-1	12/19/2017	457	2.60	3.50	3.40	1.60	4.20	1.70	4.90	1.10	1.70	0.31	0.51	0.110	ND	0.880	1.00	0.610	420	6.00	2.50
B-2	12/20/2017	599	2.00	3.10	3.20	1.60	4.40	1.80	5.90	1.30	2.10	0.34	0.72	0.140	ND	0.890	1.10	0.780	560	7.70	1.90
B-3	12/21/2017	557	2.20	3.50	3.10	1.80	4.30	1.80	5.10	1.10	1.90	0.28	0.51	0.120	ND	1.00	1.10	0.690	520	6.80	1.70

All soil values are in micrograms per kilogram (**ug/Kg**) or parts per billion (**ppb**)
"ND" = Values Below Detection Limit
Bolded values indicate detection

	Perfluoroalkyl Carboxylic Acids (PFCAs)
	Perfluoroalkane Sulfonic Acids (PFSA s)
	Perfluoroalkane Sulfonamides (FASAs)

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid

PFNA = Perfluorononanoic acid
PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid
PFDoDA = Perfluorododecanoic acid
PFTTrDA = Perfluorotridecanoic acid

PFTeDA = Perfluorotetradecanoic acid
PFHxDA = Perfluorohexadecanoic acid
PFODA = Perfluorooctadecanoic acid
PFBS = Perfluorobutane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid

PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFDS = Perfluorodecane sulfonic acid
FOSA = Perfluorooctane sulfonamide

Surface Water Sample ID	Sample Date	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTTrDA	PFTeDA	PFHxDA	PFODA	PFBS	PFHxS	PFHpS	PFOS	PFDS	PFOSA
SW-1	12/21/2017	2,704	81.0	130	150	70.0	130	18.0	9.40	ND	ND	ND	ND	ND	ND	96.0	14.0	5.90	2,000	ND	ND

All surface water values are in nanograms per liter (**ng/L**) or parts per trillion (**ppt**)
"ND" = Values Below Detection Limit
Bolded values indicate detection

	Perfluoroalkyl Carboxylic Acids (PFCAs)
	Perfluoroalkane Sulfonic Acids (PFSA s)
	Perfluoroalkane Sulfonamides (FASAs)

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid

PFNA = Perfluorononanoic acid
PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid
PFDoDA = Perfluorododecanoic acid
PFTTrDA = Perfluorotridecanoic acid

PFTeDA = Perfluorotetradecanoic acid
PFHxDA = Perfluorohexadecanoic acid
PFODA = Perfluorooctadecanoic acid
PFBS = Perfluorobutane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid

PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFDS = Perfluorodecane sulfonic acid
FOSA = Perfluorooctane sulfonamide

Rule 57 Water Quality Standards (WQS) (ng/L)

	PFOA	PFOS
Human Noncancer Value (HNV) (non-drinking water source)	12,000	12
Final Chronic Value (FCV)	880,000	140,000
Final Acute Value (FAV)	15,000,000	1,600,000
Aquatic Maximum Value (AMV)	7,700,000	780,000

#	Concentration exceeds Rule 57 WQS: HNV
#	Concentration exceeds Rule 57 WQS: FCV and HNV
#	Concentration exceeds Rule 57 WQS: FAV, FCV and HNV
#	Concentration exceeds Rule 57 WQS: AMV, FAV, FCV and HNV

Table 3
Parcel ID: 08N10E33-CL01
Soil PFAS Analytical Results Summary

Sample ID	Sample Site	Sample Date	Depth (inches bgs)	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFNS	PFOS	PFDS	4:2 FTS	6:2 FTS	8:2 FTS	PFOSA	EtFOSAA	MeFOSAA	TOC
CL1DU10100180501N	CL01-DU1-A	5/1/2018	6 - 8	83.0	0.530	0.732	< 1.14	0.342	0.861	0.401	1.17	0.434	0.533	< 1.14	< 1.14	< 1.14	< 1.14	< 1.14	< 1.14	< 1.14	77.2	0.822	< 1.14	< 1.14	< 1.14	< 1.14	< 1.14	< 1.14	15,000
CL1DU10200180501N	CL01-DU1-B	5/1/2018	6 - 8	95.32	0.425	0.611	< 0.910	0.361	0.913	0.394	1.45	< 0.910	0.559	< 0.910	< 0.910	< 0.910	< 0.910	< 0.910	< 0.910	< 0.910	89.7	0.908	< 0.910	< 0.910	< 0.910	< 0.910	< 0.910	< 0.910	13,000
CL1DU10300180501N	CL01-DU1-C	5/1/2018	6 - 8	106.76	0.571	0.742	< 1.17	0.388	1.05	0.417	1.32	0.452	0.663	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	91.8	0.871	< 1.17	8.49	< 1.17	< 1.17	< 1.17	< 1.17	17,000
CL1DU20100180501N	CL01-DU2-A	5/1/2018	6 - 8	124.92	0.497	0.914	< 1.38	0.434	1.53	0.631	1.39	< 1.38	0.427	< 1.38	< 1.38	< 1.38	< 1.38	0.504	< 1.38	< 1.38	117	1.59	< 1.38	< 1.38	< 1.38	< 1.38	< 1.38	< 1.38	20,000
CL1DU20200180501N	CL01-DU2-B	5/1/2018	6 - 8	146.18	0.646	0.930	1.02	0.452	1.41	0.489	1.56	< 1.17	0.543	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	< 1.17	137	1.81	< 1.17	< 1.17	< 1.17	0.319	< 1.17	< 1.17	23,000
CL1DU20300180501N	CL01-DU2-C	5/1/2018	6 - 8	163.70	0.572	1.08	1.10	0.539	1.65	0.552	1.69	0.466	0.567	< 1.22	< 1.22	< 1.22	< 1.22	0.466	< 1.22	< 1.22	152	1.99	< 1.22	< 1.22	< 1.22	0.558	< 1.22	0.469	20,000
CL1DU30100180502N	CL01-DU3-A	5/2/2018	6 - 8	146.40	0.558	1.01	< 1.20	0.578	1.47	0.633	1.46	< 1.20	0.816	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	< 1.20	138	1.55	< 1.20	< 1.20	< 1.20	0.329	< 1.20	< 1.20	17,000
CL1DU30200180502N	CL01-DU3-B	5/2/2018	6 - 8	182.46	0.508	0.912	1.02	0.596	1.83	0.644	1.72	0.438	0.648	< 1.23	< 1.23	< 1.23	< 1.23	< 1.23	< 1.23	< 1.23	172	1.35	< 1.23	< 1.23	< 1.23	0.409	< 1.23	0.380	14,000
CL1DU30300180502N	CL01-DU3-C	5/2/2018	6 - 8	138.46	0.518	0.744	0.722	0.503	1.28	0.592	1.38	< 1.26	0.602	< 1.26	< 1.26	< 1.26	< 1.26	< 1.26	< 1.26	< 1.26	124	1.01	< 1.26	7.11	< 1.26	< 1.26	< 1.26	< 1.26	15,000
CL01SS011812130910SK	CL01-SS01	12/13/2018	6 - 8	58.6	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	1.25	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 1.49	57.3	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	N/A
CL01SS021812130945SK	CL01-SS02	12/13/2018	6 - 8	108	< 1.00	1.12	< 1.00	< 1.00	1.24	< 1.00	1.63	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.51	103	1.09	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	N/A
CL01SS031812131000SK	CL01-SS03	12/13/2018	6 - 8	102.6	< 0.989	0.921	1.08	< 0.989	1.32	< 0.989	0.966	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 1.48	95.9	1.29	< 0.989	1.12	< 0.989	< 0.989	< 0.989	< 0.989	N/A
CL01SS041812131020SK	CL01-SS04	12/13/2018	6 - 8	41.8	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.51	40.7	1.12	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	N/A
CL01SS051812131055SK	CL01-SS05	12/13/2018	6 - 8	20.8	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 1.50	20.8	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	< 0.997	N/A
CL01SS061812131120SK	CL01-SS06	12/13/2018	6 - 8	29.3	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	0.919	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 1.50	28.4	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	< 0.999	N/A
CL01SS071812131155SK	CL01-SS07	12/13/2018	6 - 8	70.8	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	1.71	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 1.48	67.4	1.64	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	< 0.989	N/A
CL01SS081812131220SK	CL01-SS08	12/13/2018	6 - 8	55.9	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	1.13	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	< 1.49	53.8	0.993	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	< 0.991	N/A
CL01SS091812131255SK	CL01-SS09	12/13/2018	6 - 8	173	< 0.984	1.51	1.39	< 0.984	1.67	< 0.984	2.06	< 0.984	< 0.984	< 0.984	< 0.984	< 0.984	< 0.984	< 0.984	< 0.984	< 1.48	159	1.56	< 0.984	4.59	0.930	< 0.984	< 0.984	< 0.984	N/A
CL01SS101812131315SK	CL01-SS10	12/13/2018	6 - 8	112	< 0.990	< 0.990	< 0.990	< 0.990	1.15	< 0.990	1.75	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 1.48	108	1.34	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	N/A
CL01SS111812131455SK	CL01-SS11	12/13/2018	6 - 8	138	< 0.996	1.08	1.01	< 0.996	1.64	< 0.996	1.37	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 1.49	131	1.84	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	< 0.996	N/A
CL01SS121812131545SK	CL01-SS12	12/13/2018	6 - 8	151.6	< 0.998	< 0.998	0.979	< 0.998	1.96	< 0.998	1.44	< 0.998	< 0.998	< 0.998	< 0.998	< 0.998	< 0.998	< 0.998	< 0.998	< 1.50	141	1.27	< 0.998	4.93	< 0.998	< 0.998	< 0.998	< 0.998	N/A
FSC 1/ 343226_20181024	FCS 1	10/24/2018	0 - 12	532	11.8	12.7	10.6	9.35	23.5	6.73	2.95	< 2.10	< 2.10	< 2.10	< 2.10	3.52	< 2.10	< 2.10	< 2.10	< 2.10	451	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	N/A
FSC 2/ 343227_20181024	FCS 2	10/24/2018	0 - 12	542	12.7	13.7	11.3	10.0	24.3	5.54	3.04	< 2.10	< 2.10	< 2.10	< 2.10	3.54	< 2.10	< 2.10	< 2.10	< 2.10	458	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	N/A
FSC 3/ 343228_20181024	FCS 3	10/24/2018	0 - 12	507	17.0	16.3	13.2	8.95	23.6	5.50	3.52	< 2.09	< 2.09	< 2.09	< 2.09	3.66	< 2.09	1.51	< 2.09	< 2.09	414	< 2.09	< 2.09	< 2.09	< 2.09	< 2.09	< 2.09	< 2.09	N/A

All PFAS values are in micrograms per kilogram (**ug/Kg**) or parts per billion (**ppb**)
All TOC values are in milligram per kilogram (**mg/Kg**) or parts per million (**ppm**)
"<" = Values Below Detection Limit (**DL**)
Bolded values indicate detection
N/A = Not Analyzed
bgs = below ground surface

	Perfluoroalkyl Carboxylic Acids (PFCAs)
	Perfluoroalkane Sulfonic Acids (PFSA s)
	Perfluoroalkane Sulfonamides (FASAs)
	Fluorotelomer Sulfonic Acids (FTSAs)
	N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (EtFASAA s)
	N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (MeFASAA s)

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid

PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid
PFDoDA = Perfluorododecanoic acid
PFTTrDA = Perfluorotridecanoic acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutane sulfonic acid

PFPeS = Perfluoropentanesulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFNS = Perfluorononanesulfonic acid
PFDS = Perfluorodecane sulfonic acid

FOSA = Perfluorooctane sulfonamide
4:2 FTSA = 4:2 Fluorotelomer sulfonic acid
6:2 FTSA = 4:2 Fluorotelomer sulfonic acid
8:2 FTSA = 4:2 Fluorotelomer sulfonic acid
EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid

Table 4
Parcel ID: 08N10E33-CL01
Surface Water PFAS Analytical Results Summary

Sample ID	Sample Date	Depth	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDaDA	PFTTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFNS	PFOS	PFDS	4:2 FTS	6:2 FTS	8:2 FTS	PFOSA	EtFOSAA	MeFOSAA
CL1DR0100180508N	5/8/2018	surface	8.99	2.58	0.918	< 2.46	0.683	1.32	< 2.46	< 2.46	< 2.46	< 2.46	< 2.46	< 2.46	1.22	< 2.46	< 2.46	0.927	< 2.46	1.34	< 2.46	< 2.46	< 2.46	< 2.46	< 2.46	< 2.46	
CL1DR0200180509N	5/9/2018	surface	2,495	78.6	113	135	61.1	95.2	23.5	30.1	2.41	< 2.51	< 2.51	< 2.51	80.8	1.39	8.82	3.95	< 2.51	1860	1.17	< 2.51	< 2.51	< 2.51	< 2.51	< 2.51	
CL1DR0300180508N	5/8/2018	surface	27.4	3.73	5.29	< 2.43	< 2.43	2.50	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	2.93	< 2.43	< 2.43	< 2.43	< 2.43	12.9	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	
CL1SW0100180509N	5/9/2018	surface	8.47	2.80	0.927	< 2.40	0.581	1.11	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	1.07	< 2.40	< 2.40	0.946	< 2.40	1.04	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	
CL1SW0200180509N	5/9/2018	surface	7.28	2.12	2.87	< 2.45	< 2.45	0.998	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	1.29	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	
CL1SW0300180508N	5/8/2018	surface	2,542	48.9	81.5	92.4	47.7	101	14.6	9.17	< 2.45	< 2.45	< 2.45	< 2.45	68.5	1.72	11.6	5.03	< 2.45	2060	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	< 2.45	
CL1SW0400180508N	5/8/2018	surface	20.88	3.31	3.67	4.13	4.59	1.24	< 2.44	< 2.44	< 2.44	< 2.44	< 2.44	< 2.44	1.55	< 2.44	< 2.44	0.918	< 2.44	1.47	< 2.44	< 2.44	< 2.44	< 2.44	< 2.44	< 2.44	
CL1SW0500180508N	5/8/2018	surface	45.2	4.31	6.55	4.64	2.23	3.62	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	3.51	< 2.47	1.35	< 2.47	< 2.47	19.0	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	

All values are in nanograms per liter (ng/L) or parts per trillion (ppt)
"<" = Values Below Detection Limit (DL)

Bolded values indicate detection

	Perfluoroalkyl Carboxylic Acids (PFCAs)
	Perfluoroalkane Sulfonic Acids (PFSA
	Perfluoroalkane Sulfonamides (FASAs)
	Fluorotelomer Sulfonic Acids (FTSAs)
	N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (EtFASAA
	N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (MeFASAA

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid

PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid
PFDaDA = Perfluorododecanoic acid
PFTTrDA = Perfluorotridecanoic acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutane sulfonic acid

PFPeS = Perfluoropentanesulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
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FOSA = Perfluorooctane sulfonamide
4:2 FTSA = 4:2 Fluorotelomer sulfonic acid
6:2 FTSA = 4:2 Fluorotelomer sulfonic acid
8:2 FTSA = 4:2 Fluorotelomer sulfonic acid
EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid

Rule 57 Water Quality Standards (WQS) (ng/L)

	PFOA	PFOS
Human Noncancer Value (HNV) (non-drinking water source)	12,000	12
Final Chronic Value (FCV)	880,000	140,000
Final Acute Value (FAV)	15,000,000	1,600,000
Aquatic Maximum Value (AMV)	7,700,000	780,000

#	Concentration exceeds Rule 57 WQS: HNV
#	Concentration exceeds Rule 57 WQS: FCV and HNV
#	Concentration exceeds Rule 57 WQS: FAV, FCV and HNV
#	Concentration exceeds Rule 57 WQS: AMV, FAV, FCV and HNV

Table 5
Parcel IDs: 08N10E33-CL01, 08N10E33-SK01, 08N11E16-TG01 and TG02
Groundwater PFAS Analytical Results Summary

Sample ID	Field Site	Sample Date	Well Screen (ft bgs)	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFNS	PFOS	PFDS	4:2 FTS	6:2 FTS	8:2 FTS	PFOSA	EtFOSAA	MeFOSAA
CL1TMW0118180503N	CL01	5/3/2018	18-23	15.9	< 2.47	< 2.47	< 2.47	< 2.47	0.871	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	15.0	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	
CL1TMW0205180504N	CL01	5/4/2018	4-9	41,823	492	944	1,140	662	1,930	241	385	10.0	3.62	< 2.47	< 2.47	531	4.90	115	43.5	< 2.47	35,300	2.03	< 2.47	2.07	< 2.47	12.1	4.62	< 2.47
CL1MW0124180510N	CL01	5/10/2018	24-29	ND	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	< 2.40	
CL1MW0229180510N	CL01	5/10/2018	29-34	7.95	1.11	1.43	< 2.39	0.613	0.702	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	4.09	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	
CL1MW0324180510N	CL01	5/10/2018	24-29	3.75	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	< 2.47	2.39	< 2.47	< 2.47	1.36	< 2.47	< 2.47	< 2.47	
CL1MW0414180510N	CL01	5/10/2018	14-19	455	80.2	107	103	31.5	43.2	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	68.9	< 2.43	3.55	< 2.43	< 2.43	13.9	< 2.43	< 2.43	4.03	< 2.43	< 2.43	< 2.43	
CL01MW11812140955LEM	CL01	12/14/2018	24-29	ND	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	
CL01MW21812141100LEM	CL01	12/14/2018	29-34	41.76	5.21	8.48	7.57	3.04	5.10	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	3.93	< 1.94	< 1.94	< 1.94	< 1.94	8.43	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	
CL01MW31812141325LEM	CL01	12/14/2018	24-29	3.98	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	< 1.91	3.98	< 1.91	
CL01MW41812141220LEM	CL01	12/14/2018	14-19	542	79.0	121	122	44.3	60.8	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	91.6	< 1.94	4.81	< 1.94	< 1.94	18.0	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	< 1.94	
SK1TMW113180501N	SK01	5/1/2018	13-18	13.6	1.06	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	11.2	< 2.39	< 2.39	< 2.39	< 2.39	1.30	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	
SK1TMW211180501N	SK01	5/1/2018	11-16	61.5	2.33	0.939	< 2.39	0.479	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	44.9	< 2.39	3.07	< 2.39	< 2.39	9.80	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	< 2.39	
SK1TMW308180430N	SK01	4/30/2018	3-8	5.25	1.63	< 2.53	< 2.53	< 2.53	0.624	< 2.53	< 2.53	< 2.53	< 2.53	< 2.53	< 2.53	1.05	< 2.53	< 2.53	< 2.53	< 2.53	0.929	< 2.53	< 2.53	1.02	< 2.53	< 2.53	< 2.53	
SK1TMW410180430N	SK01	4/30/2018	10-15	1.91	0.587	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	1.32	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	
SK1TMW506180430N	SK01	4/30/2018	6-11	169.1	23.7	22.3	48.8	20.8	8.58	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	9.97	2.27	17.5	< 2.41	< 2.41	15.2	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	< 2.41	
SK1TMW606180501N	SK01	5/1/2018	7-12	13.96	7.86	< 2.48	< 2.48	< 2.48	0.649	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	4.76	< 2.48	0.693	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	< 2.48	
TG1SW0300180509N	TG01/TG02	5/9/2018	8.5-13.5	14.93	2.55	< 2.49	< 2.49	1.37	0.531	0.577	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	< 2.49	9.90	< 2.49	< 2.49	< 2.49	

All values are in nanograms per liter (ng/L) or parts per trillion (ppt)
"<" = Values Below Detection Limit (DL)
Bolded values indicate detection
N/A = Not Analyzed
ND = Non-Detect
ft bgs = feet below ground surface

EGLE Part 201 Drinking Water Criteria (DWC) (ng/L)
PFOA = 8; PFOS = 16; PFNA =6; PFHxS=51
PFHxA = 400,000; PFBS = 420

EGLE Part 201 Groundwater Surfacewater Interface (GSI) Criteria (ng/L)
(Surface water not used for drinking water - Non-drink)
PFOA = 12,000
PFOS = 12

	Perfluoroalkyl Carboxylic Acids (PFCAs)
	Perfluoroalkane Sulfonic Acids (PFSA s)
	Perfluoroalkane Sulfonamides (FASAs)
	Fluorotelomer Sulfonic Acids (FTSAs)
	N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (EtFASAA s)
	N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (MeFASAA s)

PFBA = Perfluorobutanoic acid
PFPeA = Perfluoropentanoic acid
PFHxA = Perfluorohexanoic acid
PFHpA = Perfluoroheptanoic acid
PFOA = Perfluorooctanoic acid
PFNA = Perfluorononanoic acid

PFDA = Perfluorodecanoic acid
PFUnDA = Perfluoroundecanoic acid
PFDoDA = Perfluorododecanoic acid
PFTrDA = Perfluorotridecanoic acid
PFTeDA = Perfluorotetradecanoic acid
PFBS = Perfluorobutane sulfonic acid

PFPeS = Perfluoropentanesulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFNS = Perfluorononanesulfonic acid
PFDS = Perfluorodecane sulfonic acid

FOSA = Perfluorooctane sulfonamide
4:2 FTSA = 4:2 Fluorotelomer sulfonic acid
6:2 FTSA = 4:2 Fluorotelomer sulfonic acid
8:2 FTSA = 4:2 Fluorotelomer sulfonic acid
EtFOSAA = N-Ethyl perfluorooctane sulfonamidoacetic acid
MeFOSAA = N-Methyl perfluorooctane sulfonamidoacetic acid

#	Concentration exceeds DWC criteria
#	Concentration exceeds GSI criteria
#	Concentration exceeds both DWC and GSI criteria

Table 6

Parcel IDs: 08N10E33-CL01, 08N10E33-SK01, 08N11E16-TG01 and TG02
 Temporary and Monitoring Wells: Construction and Groundwater Elevations

Well ID	Well Size / Material	Screen Interval (ft BTOC)	Depth to Water (ft BTOC)	Top of Casing Elevation (ft AMSL)	Screen Interval Elevation (ft AMSL)	Groundwater Elevation (ft AMSL)
Site 08N10E33-CL01 Temporary and Permanent Monitoring Wells						
MW1	2" PVC	24-29	9.02	835.32	808.32-803.32	826.3
MW2	2" PVC	29-34	12.23	824.38	792.38-787.38	812.15
MW3	2" PVC	24-29	12.42	824.33	797.33-792.33	811.91
MW4	2" PVC	14-19	13.38	824	807.00-802.00	810.62
TMW1	1" PVC	18-23	23.8	--	--	--
TMW2	1" PVC	4-9	4.19	--	--	--
Site 08N10E33-SK01 Temporary Monitoring Wells						
TMW1	1" pvc	13-18	11	--	--	--
TMW2	1" pvc	11-16	11	--	--	--
TMW3	1" pvc	3-8	6.5	--	--	--
TMW4	1" pvc	10-15	13	--	--	--
TMW5	1" pvc	6-11	8.5	--	--	--
TMW6	1" pvc	7-12	8	--	--	--
Sites 08N11E16-TG01 & TG02 Temporary Monitoring Well*						
TMW3	1" pvc	8.5-13.5	12.05	--	--	--

Notes:

AMSL = Above Mean Sea Level

BTOC = Below Top of Casing

ft = feet

PVC = Polyvinyl Chloride

" -- " = Not Recorded (temporary monitoring wells were not surveyed for top of casing, screen interval or groundwater elevation data)

* only TMW3 from Sites TG01/TG02 produced water, all other temporary monitoring wells were dry

Table 7a
Parcel ID: 08N10E33-CL01
PFAS and TOC Soil Analytical Results Summary

Soil Sample ID	Sample Date	Depth (in bgs)	Total PFAS	Total TOC	Soil Survey	Soil Survey Description
Site 08N10E33-CL01 (May Sampling Event)						
CL1DU10100180501N	5/1/2018	6 - 8	83.0	15,000	DrA/DrB	Del Ray silt loam (0-6% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU10200180501N	5/1/2018	6 - 8	95.32	13,000	DrA/DrB	Del Ray silt loam (0-6% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU10300180501N	5/1/2018	6 - 8	106.76	17,000	DrA/DrB	Del Ray silt loam (0-6% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU20100180501N	5/1/2018	6 - 8	124.92	20,000	Le	Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU20200180501N	5/1/2018	6 - 8	146.18	23,000	Le	Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU20300180501N	5/1/2018	6 - 8	163.70	20,000	Le	Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU30100180502N	5/2/2018	6 - 8	146.40	17,000	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU30200180502N	5/2/2018	6 - 8	182.46	14,000	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL1DU30300180502N	5/2/2018	6 - 8	138.46	15,000	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
Site 08N10E33-CL01 (December Sampling Event)						
CL01SS011812130910SK	12/13/2018	6 - 8	58.6	N/A	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS021812130945SK	12/13/2018	6 - 8	108	N/A	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS031812131000SK	12/13/2018	6 - 8	102.6	N/A	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS041812131020SK	12/13/2018	6 - 8	41.8	N/A	DrA	Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS051812131055SK	12/13/2018	6 - 8	20.8	N/A	UbA	Ubly sandy loam, Landform: Outwash plains, knolls on till plains, Parent material: Loamy till
CL01SS061812131120SK	12/13/2018	6 - 8	29.3	N/A	UbA	Ubly sandy loam, Landform: Outwash plains, knolls on till plains, Parent material: Loamy till
CL01SS071812131155SK	12/13/2018	6 - 8	70.8	N/A	DrB/MuC3	Del Ray silt loam (2-6% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits Morley clay loam, Landform: Moraines, Parent material: Clayey till (severely eroded)
CL01SS081812131220SK	12/13/2018	6 - 8	55.9	N/A	DrB/MuC3	Del Ray silt loam (2-6% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits Morley clay loam, Landform: Moraines, Parent material: Clayey till (severely eroded)
CL01SS091812131255SK	12/13/2018	6 - 8	173	N/A	MuC3/Le	Morley clay loam, Landform: Moraines, Parent material: Clayey till (severely eroded) Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS101812131315SK	12/13/2018	6 - 8	112	N/A	MuC3/Le	Morley clay loam, Landform: Moraines, Parent material: Clayey till (severely eroded) Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS111812131455SK	12/13/2018	6 - 8	138	N/A	Le/DrA	Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits
CL01SS121812131545SK	12/13/2018	6 - 8	151.6	N/A	Le/DrA	Lenawee silty clay loam, Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits Del Ray silt loam (0-2% slopes), Landform: Flats on lake plains, Parent material: Clayey glaciolacustrine deposits

in bgs = Inches below ground surface

ND = Non Detect

N/A = Not Analyzed

TOC = Total Organic Carbon

PFAS soil concentrations are reported as ug/Kg or ppb

TOC concentrations reported as ug/Kg or ppb

DrA = Del Ray silt loam (0-2% slopes)

DrB = Del Ray silt loam (2-6% slopes)

Le = Lenawee silty clay loam

MuC3 = Morley clay loam

UbA = Ubly sandy loam

Table 7b
Parcel IDs: 8N10E33-SK01, 08N11E16-TG01 and TG02
PFAS and TOC Soil Analytical Results Summary

Soil Sample ID	Sample Date	Depth (in bgs)	Total PFAS	Total TOC	Soil Survey	Soil Survey Description
Site 08N10E33-SK01 PFAS and TOC Soil Summary						
SK1DU10100180427N	4/27/2018	6 - 8	13.97	8,900	CaA	Capac fine sandy loam (0 - 2% slopes), Landform: Knolls on till plains, Parent material: Loamy till
SK1DU10200180427N	4/27/2018	6 - 8	14.01	8,100	CaA	Capac fine sandy loam (0 - 2% slopes), Landform: Knolls on till plains, Parent material: Loamy till
SK1DU10300180427N	4/27/2018	6 - 8	13.57	7,400	CaA	Capac fine sandy loam (0 - 2% slopes), Landform: Knolls on till plains, Parent material: Loamy till
SK1DU20100180427N	4/27/2018	6 - 8	9.39	5,500	ChB/ChC	Chelsea loamy sand (0 - 6% slopes), Landform: Outwash plains, Parent material: Sandy glaciofluvial deposits Chelsea loamy sand (6 - 12% slopes), Landform: Moraines, Parent material: Sandy glaciofluvial deposits
SK1DU20200180427N	4/27/2018	6 - 8	9.56	6,400	ChB/ChC	Chelsea loamy sand (0 - 6% slopes), Landform: Outwash plains, Parent material: Sandy glaciofluvial deposits Chelsea loamy sand (6 - 12% slopes), Landform: Moraines, Parent material: Sandy glaciofluvial deposits
SK1DU20300180427N	4/27/2018	6 - 8	9.51	7,300	ChB/ChC	Chelsea loamy sand (0 - 6% slopes), Landform: Outwash plains, Parent material: Sandy glaciofluvial deposits Chelsea loamy sand (6 - 12% slopes), Landform: Moraines, Parent material: Sandy glaciofluvial deposits
SK1DU30100180427N	4/27/2018	6 - 8	1.89	6,300	CaB	Capac fine sandy loam (2 - 6% slopes), Landform: Knolls on till plains, Parent material: Loamy till
SK1DU30200180427N	4/27/2018	6 - 8	5.45	7,200	CaB	Capac fine sandy loam (2 - 6% slopes), Landform: Knolls on till plains, Parent material: Loamy till
SK1DU30300180427N	4/27/2018	6 - 8	2.15	6,500	CaB	Capac fine sandy loam (2 - 6% slopes), Landform: Knolls on till plains, Parent material: Loamy till
Sites 08N11E16-TG01 & TG02 PFAS and TOC Soil Summary						
TG1DU10100180426N	4/27/2018	6 - 8	5.96	11,000	BrA	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits
TG1DU10200180427N	4/27/2018	6 - 8	9.57	10,000	BrA	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits
TG1DU10300180427N	4/27/2018	6 - 8	14.71	9,400	BrA	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits
TG1DU20100180430N	4/30/2018	6 - 8	22.22	8,600	BrA/BrC	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits Boyer loamy sand (6 - 12% slopes), Landform: Steam terraces, moraines, Parent material: Loamy outwash and/or sandy outwash over sandy and gravelly outwash
TG1DU20200180430N	4/30/2018	6 - 8	13.18	7,300	BrA/BrC	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits Boyer loamy sand (6 - 12% slopes), Landform: Steam terraces, moraines, Parent material: Loamy outwash and/or sandy outwash over sandy and gravelly outwash
TG1DU20300180430N	4/30/2018	6 - 8	3.30	8,400	BrA/BrC	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits Boyer loamy sand (6 - 12% slopes), Landform: Steam terraces, moraines, Parent material: Loamy outwash and/or sandy outwash over sandy and gravelly outwash
TG1DU30100180426N	4/26/2018	6 - 8	3.61	8,800	BrA	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits
TG1DU30200180426N	4/26/2018	6 - 8	18.33	7,600	BrA	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits
TG1DU30300180426N	4/26/2018	6 - 8	8.69	7,000	BrA	Boyer loamy sand (0 - 2% slopes), Landform: Knolls on outwash plains, Parent material: Sandy and/or loamy over sandy and gravelly glaciofluvial deposits

in bgs = Inches below ground surface

ND = Non Detect

N/A = Not Analyzed

TOC = Total Organic Carbon

PFAS soil concentrations are reported as ug/Kg or ppb

TOC concentrations reported as ug/Kg or ppb

CaA = Capac fine sandy loam (0 - 2% slopes)

CaB = Capac fine sandy loam (2 - 6% slopes)

ChB = Chelsea loamy sand (0 - 6% slopes)

ChC = Chelsea loamy sand (6 - 12% slopes)

BrA = Boyer loamy sand (0 - 2% slopes)

BrC = Boyer loamy sand (6 - 12% slopes)

Appendix A



FIELD BOREHOLE LOG

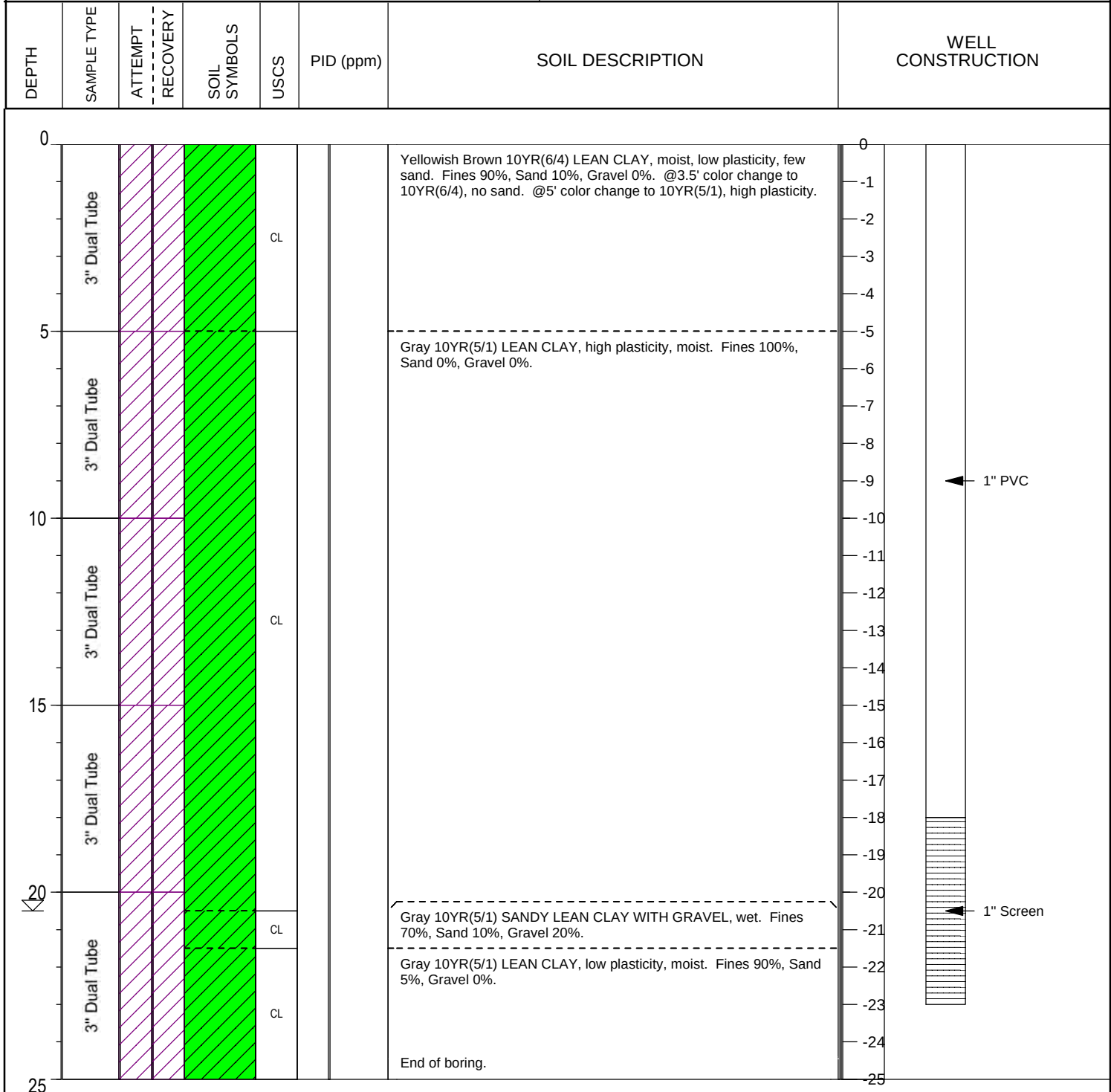
BOREHOLE NO: **CL1-TMW1**
TOTAL DEPTH: **25'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube**
HOLE DIAMETER: **3.25"**
DATE START: **5/3/18 0700**
DATE END: **5/3/18 0900**



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

BOREHOLE NO: **CL1-TMW2**
TOTAL DEPTH: **10'**

PROJECT INFORMATION						DRILLING INFORMATION		
PROJECT: Lapeer Plating						CONTRACTOR: Job Site Services		
SITE LOCATION: Lapeer, MI						CREW CHIEF: Dave Mokma		
PROJECT NO.: 60570635						DRILL RIG TYPE: Geoprobe 7720DT		
PROJECT MANAGER: John Cuthbertson						DRILLING METHOD: 3" Dual Tube		
LOGGED BY: Stan Krenz						HOLE DIAMETER: 3.25"		
CREATED BY: Stan Krenz						DATE START: 5/4/18 0720		
						DATE END: 5/4/18 0815		
DEPTH	SAMPLE TYPE	ATTEMPT RECOVERY	SOIL SYMBOLS	USCS	PID (ppm)	SOIL DESCRIPTION	WELL CONSTRUCTION	
0	3" Dual Tube		SP			Very Dark Grayish Brown 10YR(3/2) POORLY GRADED SAND, moist, few fines. Fines 20%, Sand 80%, Gravel 0%.	0	
			SW			Brownish Yellow 10YR(6/6) WELL GRADED SAND WITH GRAVEL, moist, few gravel. Fines 0%, Sand 80%, Gravel 20%.	-1	
	3" Dual Tube		CL			Brownish Yellow 10YR(6/6) LEAN CLAY, moist, low plasticity. Fines 100%, Sand 0%, Gravel 0%.	2	
5					SW			Brownish Yellow 10YR(6/6) WELL GRADED SAND WITH GRAVEL, moist, few gravel. Fines 0%, Sand 80%, Gravel 20%.
	3" Dual Tube		CL			Gray 10YR(5/1) LEAN CLAY, high plasticity, moist. Fines 100%, Sand 0%, Gravel 0%.	7	
10						End of boring.	-10	

1" PVC

1" Screen

NOTES:

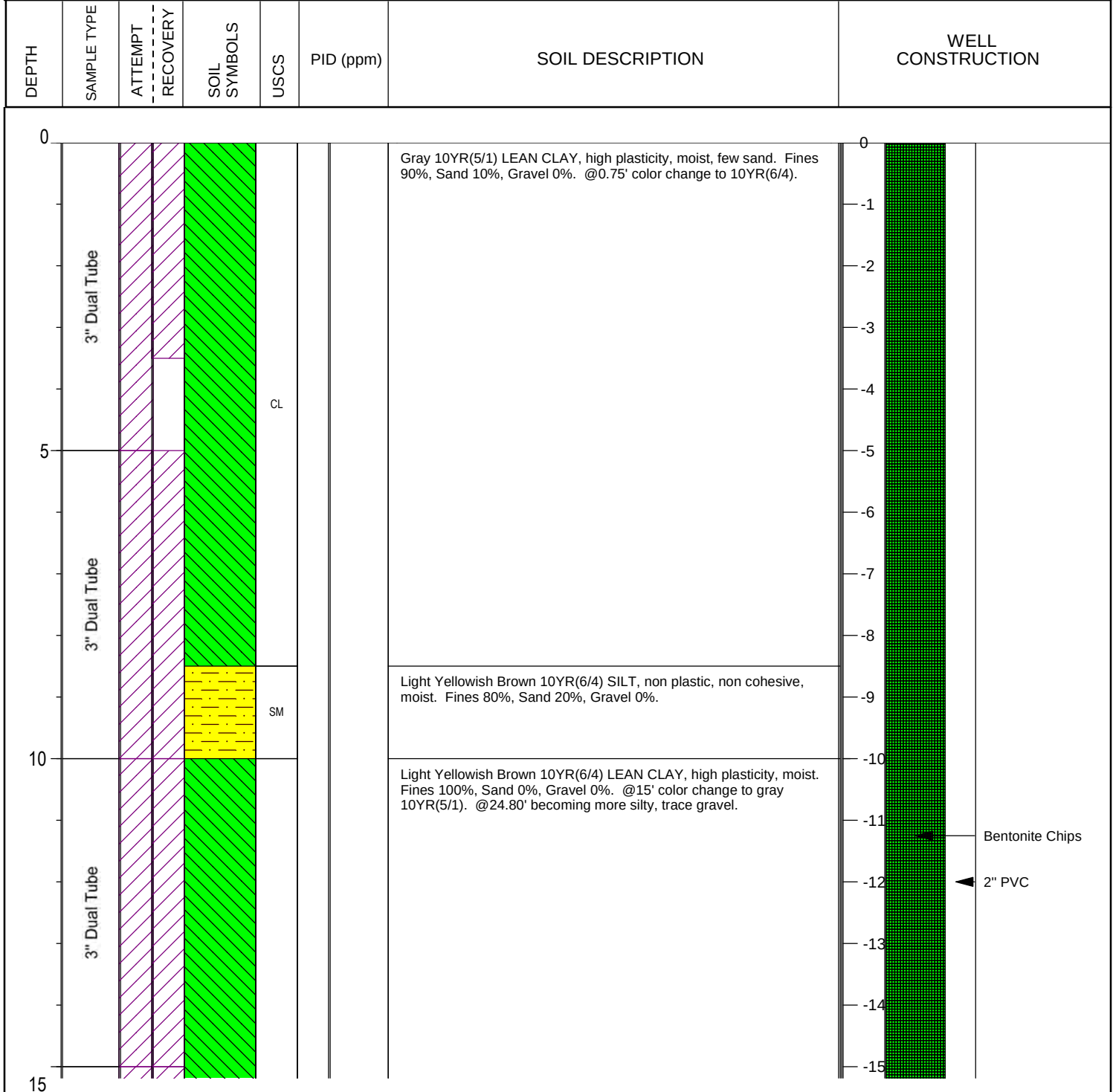
☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

BOREHOLE NO: **CL1-MW1**
TOTAL DEPTH: **30'**

PROJECT INFORMATION						DRILLING INFORMATION					
PROJECT: Lapeer Plating						CONTRACTOR: Job Site Services					
SITE LOCATION: Lapeer, MI						CREW CHIEF: Dave Mokma					
PROJECT NO.: 60570635						DRILL RIG TYPE: Geoprobe 7720DT					
PROJECT MANAGER: John Cuthbertson						DRILLING METHOD: 3" Dual Tube/ 4.25" Hollow Stem Auger					
LOGGED BY: Stan Krenz						HOLE DIAMETER: 6.25"					
CREATED BY: Stan Krenz						DATE START: 5/3/18 0915					
						DATE END: 5/3/18 1240					



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

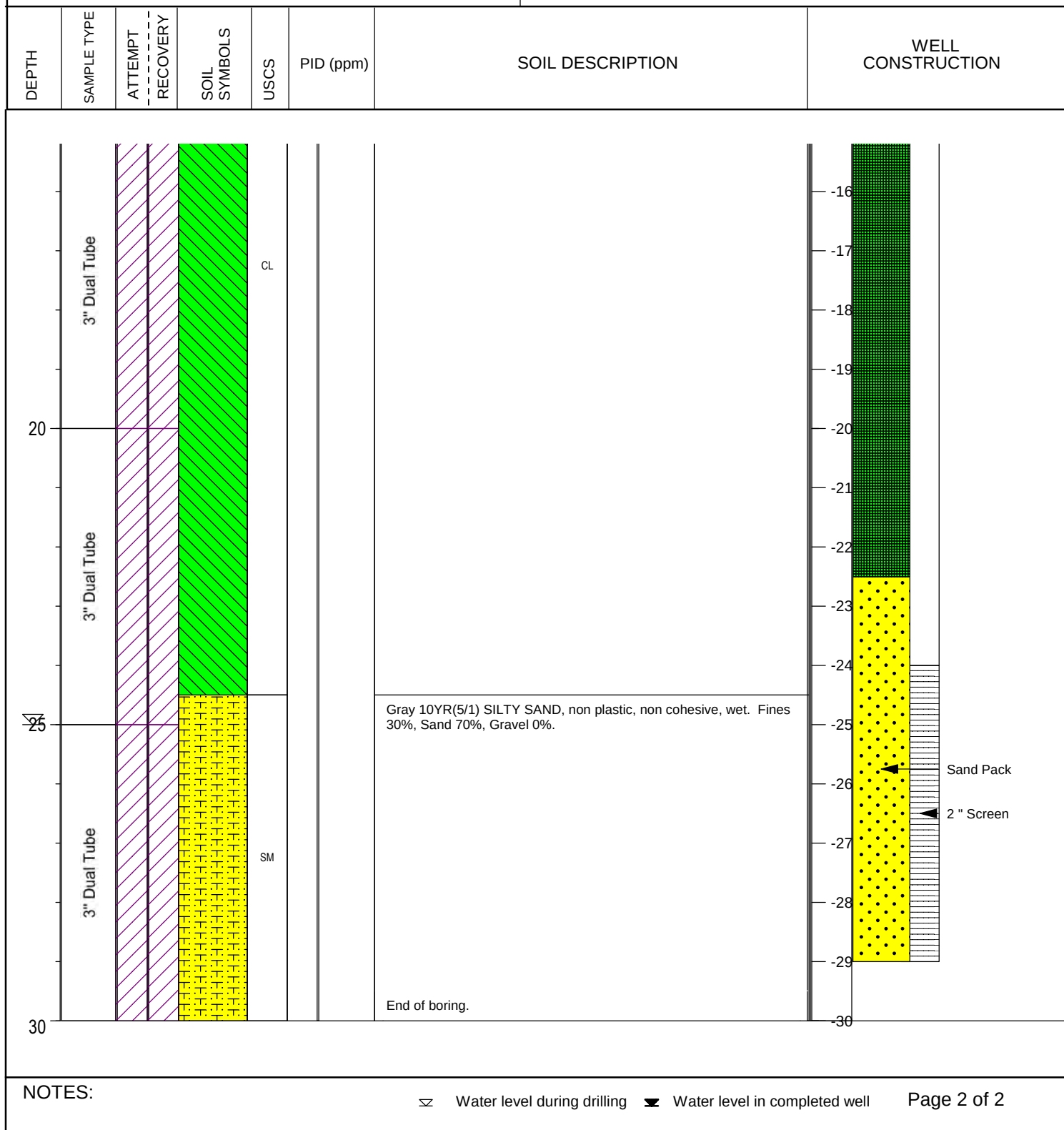
BOREHOLE NO: **CL1-MW1**
TOTAL DEPTH: **30'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube/ 4.25" Hollow Stem Auger**
HOLE DIAMETER: **6.25"**
DATE START: **5/3/18 0915**
DATE END: **5/3/18 1240**



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

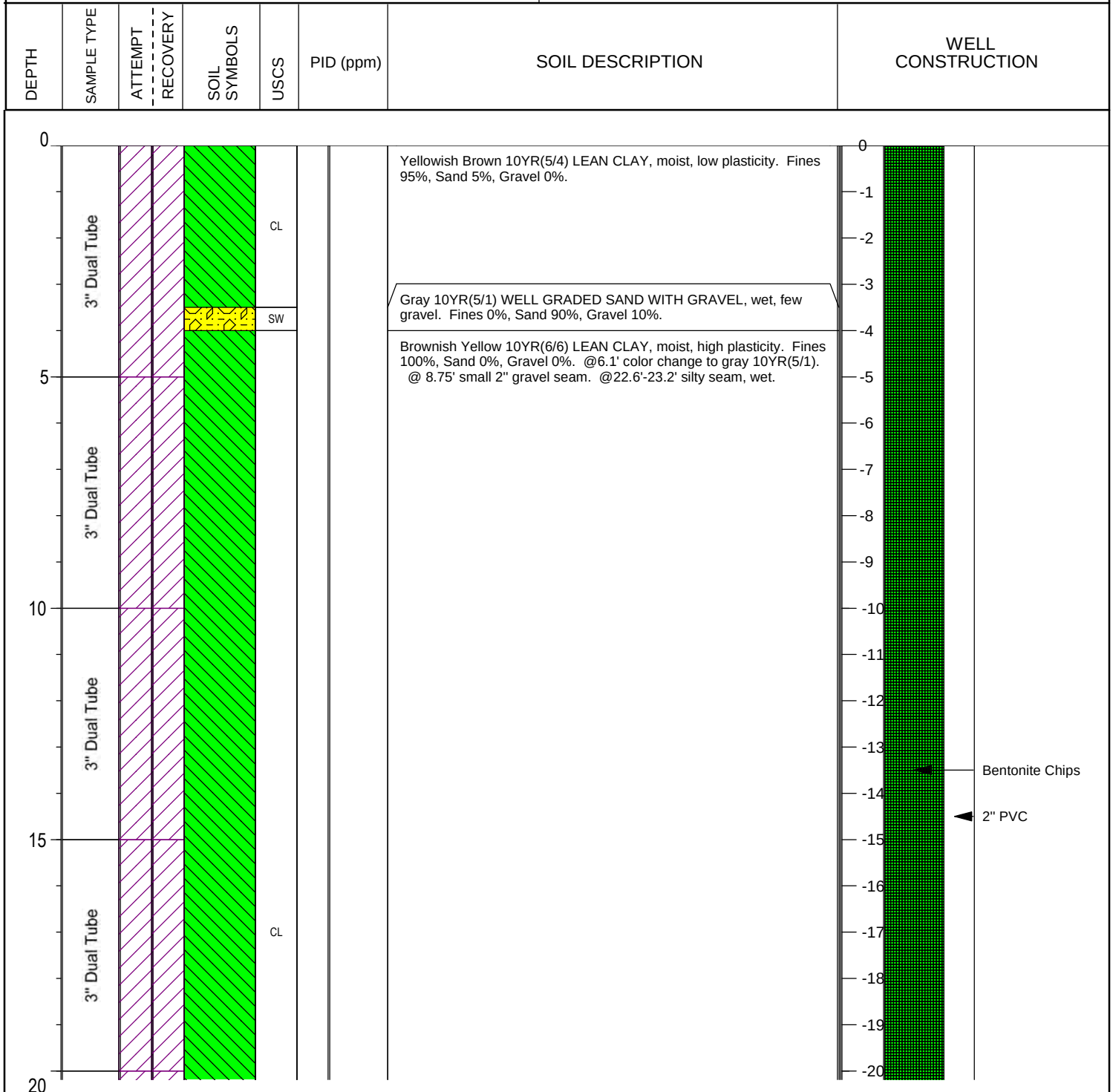
BOREHOLE NO: **CL1-MW2**
TOTAL DEPTH: **35'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube/ 4.25" Hollow Stem Auger**
HOLE DIAMETER: **6.25"**
DATE START: **5/4/18 0935**
DATE END: **5/5/18 1450**



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

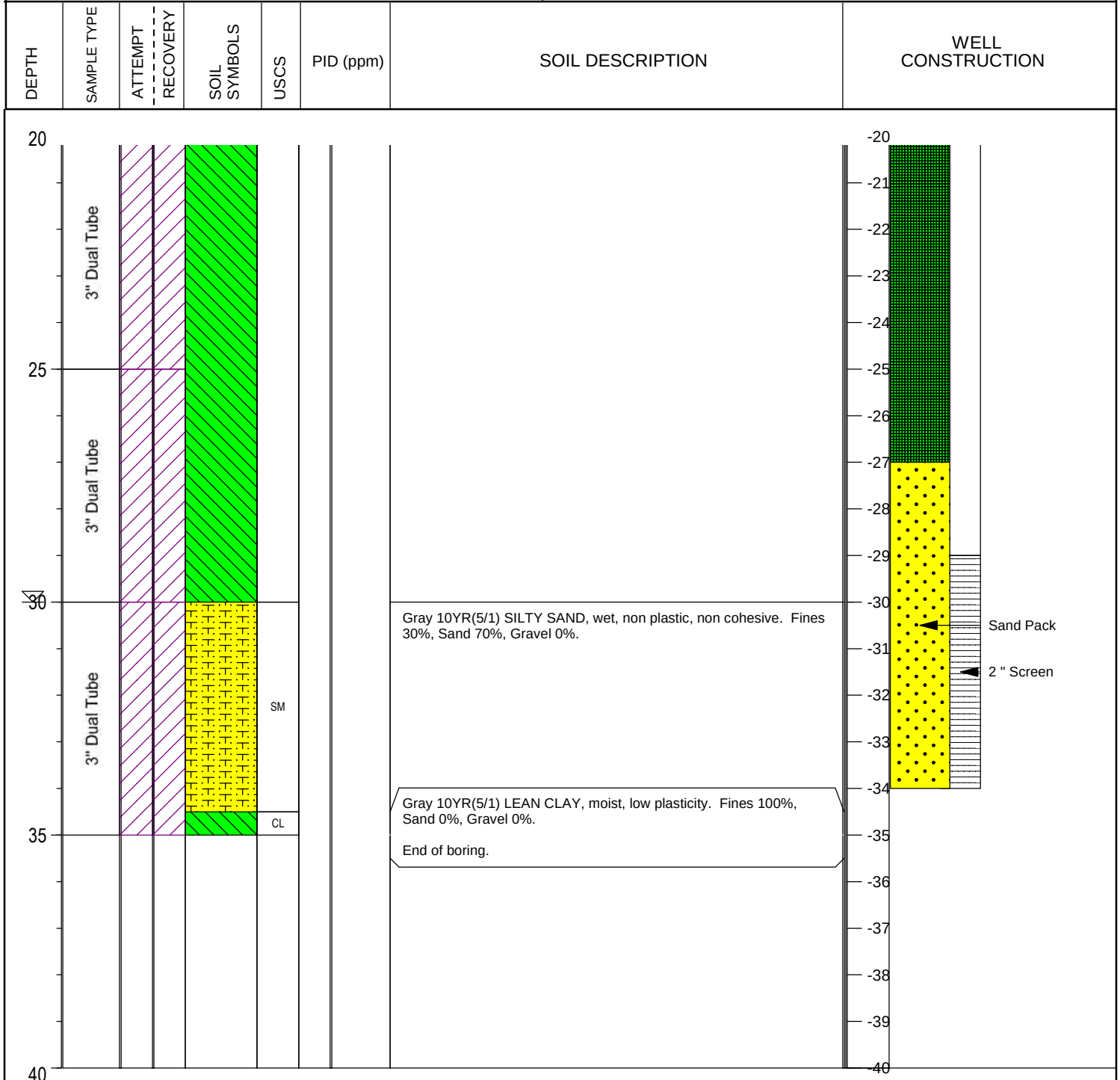
BOREHOLE NO: **CL1-MW2**
TOTAL DEPTH: **35'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube/ 4.25" Hollow Stem Auger**
HOLE DIAMETER: **6.25"**
DATE START: **5/4/18 0935**
DATE END: **5/5/18 1450**



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

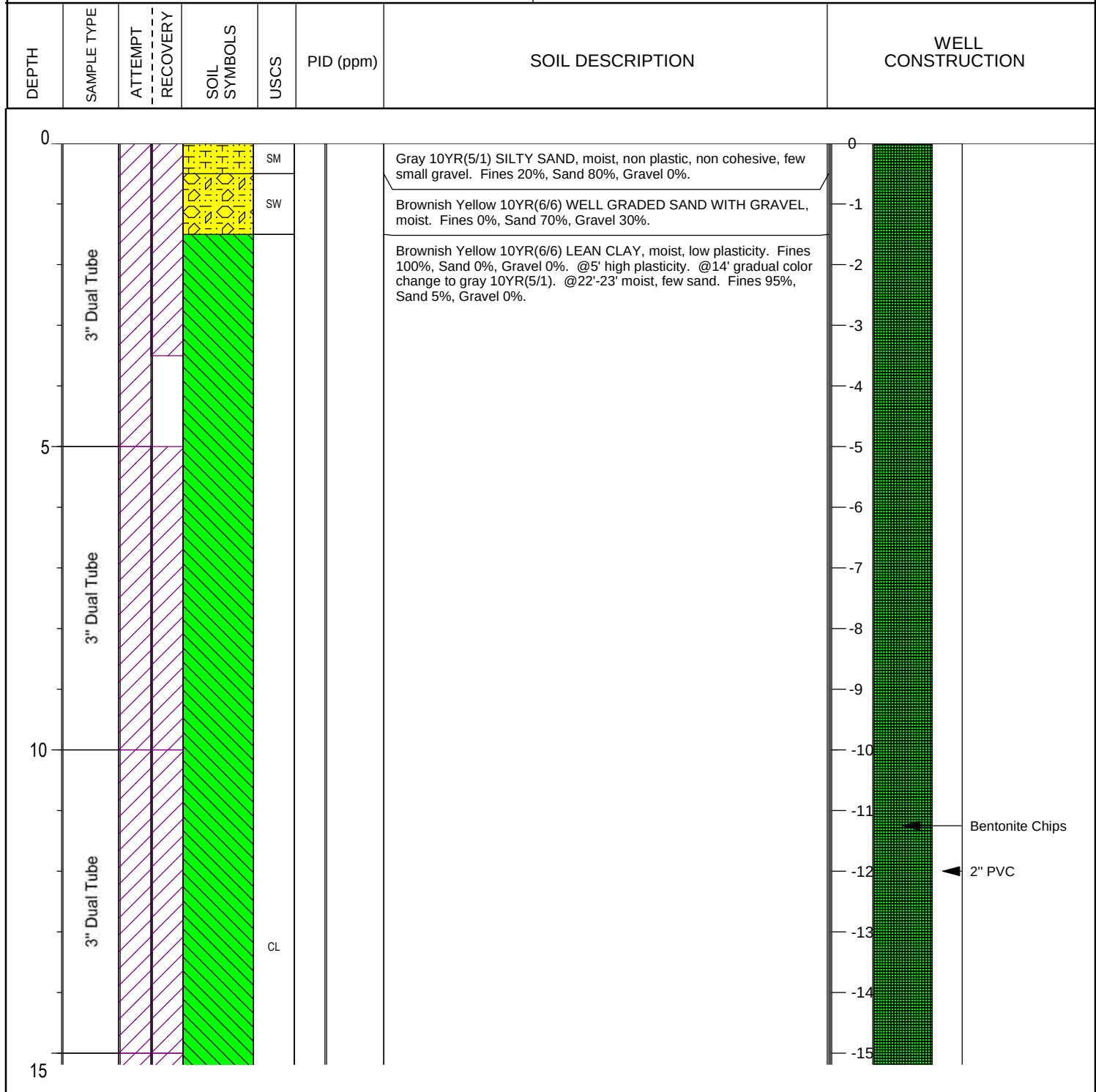
BOREHOLE NO: **CL1-MW3**
TOTAL DEPTH: **30'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube/ 4.25" Hollow Stem Auger**
HOLE DIAMETER: **6.25"**
DATE START: **5/3/18 1430**
DATE END: **5/3/18 1730**



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

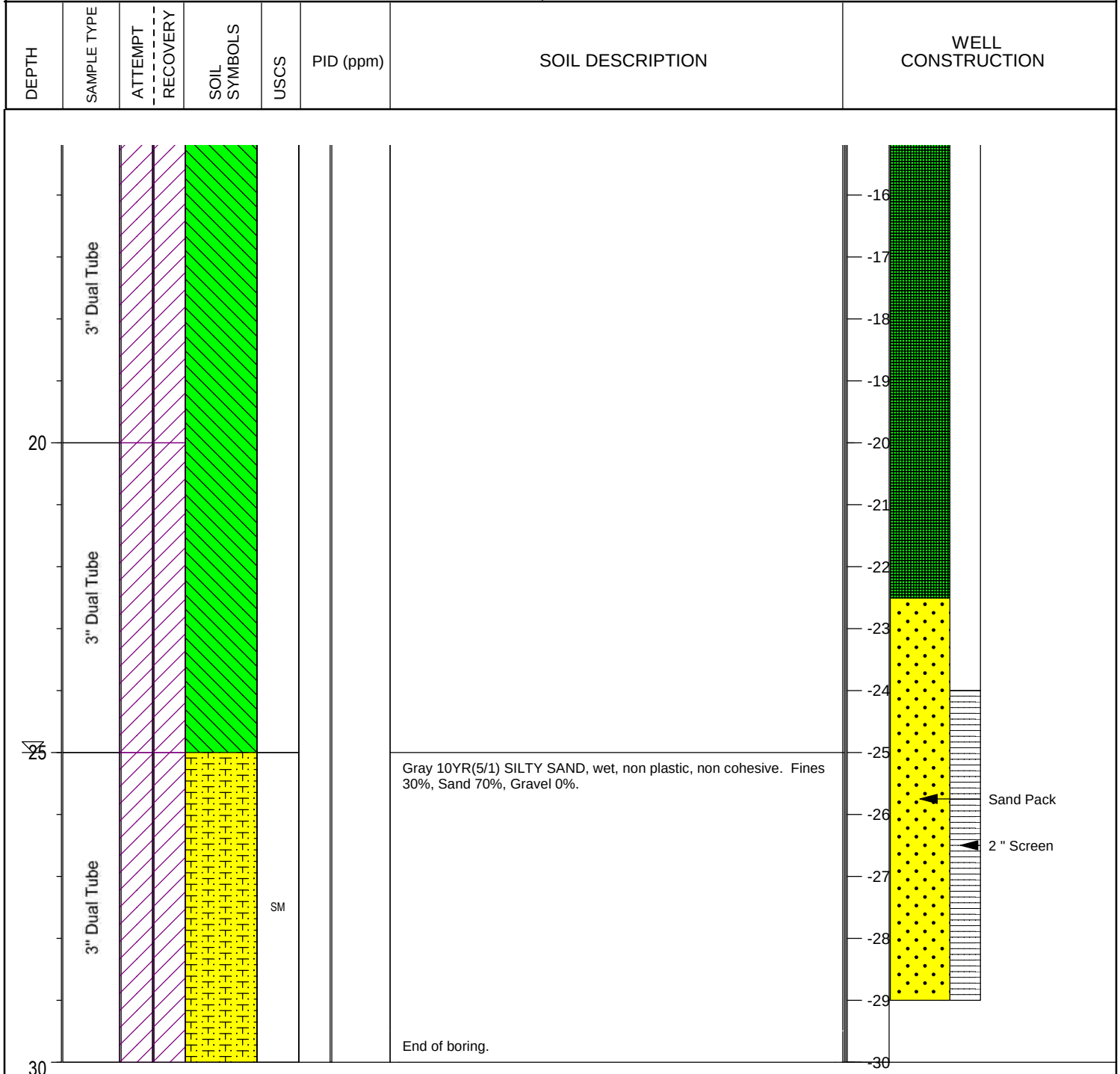
BOREHOLE NO: **CL1-MW3**
TOTAL DEPTH: **30'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube/ 4.25" Hollow Stem Auger**
HOLE DIAMETER: **6.25"**
DATE START: **5/3/18 1430**
DATE END: **5/3/18 1730**



NOTES:

☒ Water level during drilling ☒ Water level in completed well



FIELD BOREHOLE LOG

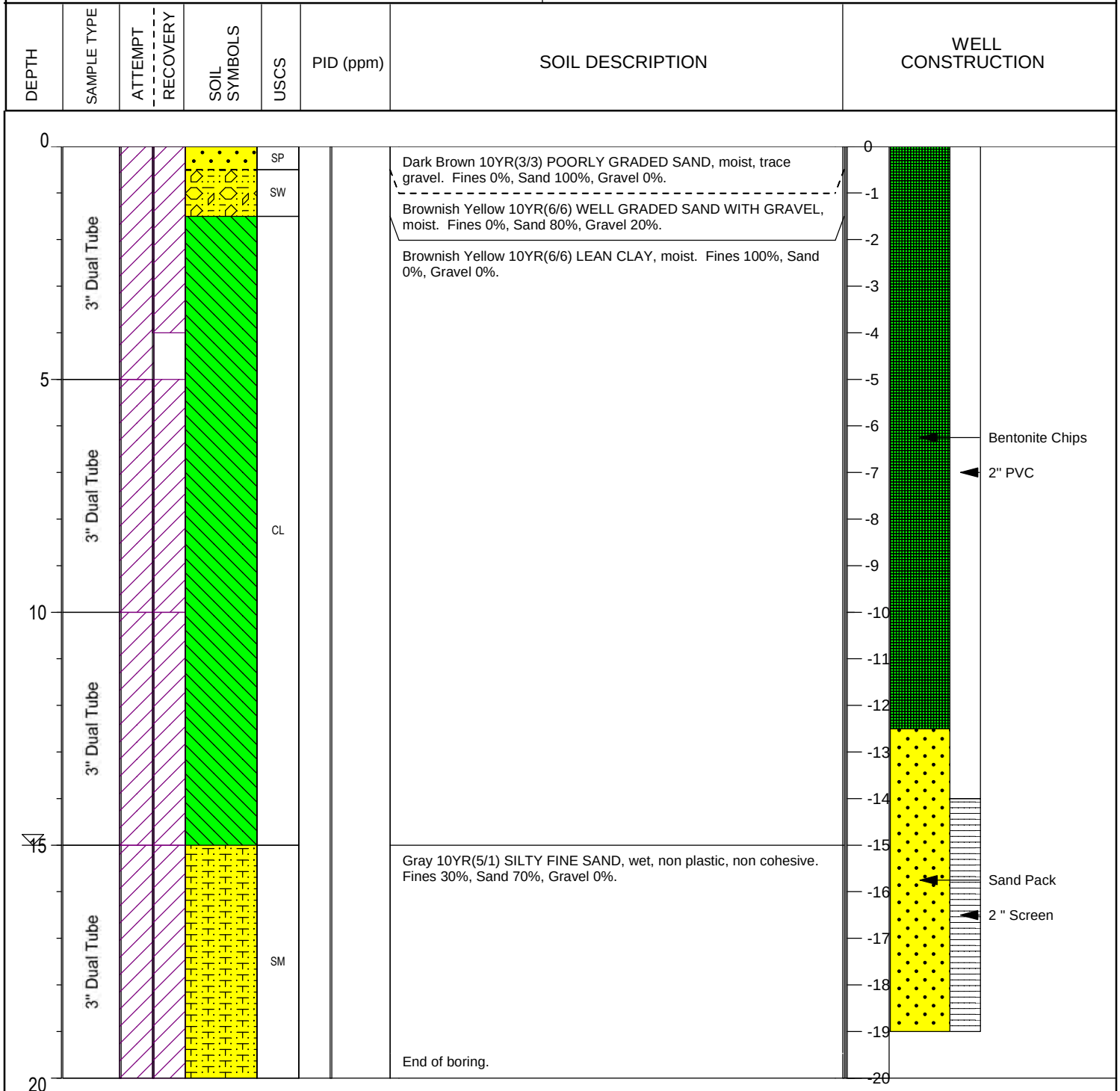
BOREHOLE NO: **CL1-MW4**
TOTAL DEPTH: **20'**

PROJECT INFORMATION

PROJECT: **Lapeer Plating**
SITE LOCATION: **Lapeer, MI**
PROJECT NO.: **60570635**
PROJECT MANAGER: **John Cuthbertson**
LOGGED BY: **Stan Krenz**
CREATED BY: **Stan Krenz**

DRILLING INFORMATION

CONTRACTOR: **Job Site Services**
CREW CHIEF: **Dave Mokma**
DRILL RIG TYPE: **Geoprobe 7720DT**
DRILLING METHOD: **3" Dual Tube/ 4.25" Hollow Stem Auger**
HOLE DIAMETER: **6.25"**
DATE START: **5/7/18 0850**
DATE END: **5/7/18 1015**



NOTES:

☞ Water level during drilling ☛ Water level in completed well

Appendix B

08N10E33-CL01 USDA Web Soil Survey – Soil Description



CeB—Celina loam, *Landform*: Knolls on moraines, *Parent material*: Loamy till

DrA—Del Ray silt loam (0-2% slopes), *Landform*: Flats on lake plains, *Parent material*: Clayey glaciolacustrine deposits

DrB—Del Ray silt loam (2-6% slopes), *Landform*: Knolls on lake plains, *Parent material*: Clayey glaciolacustrine deposits

Le—Lenawee silty clay loam, *Landform*: Flats on lake plains, *Parent material*: Clayey glaciolacustrine deposits

MuC3—Morley clay loam, *Landform*: Moraines, *Parent material*: Clayey till (severely eroded)

UbA—Ubly sandy loam, *Landform*: Outwash plains, knolls on till plains, *Parent material*: Loamy till

Appendix C



June 07, 2018

Vista Work Order No. 1800898

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 May 04, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name 'Lapeer 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,

A handwritten signature in black ink that reads "Martha Maier". The signature is fluid and cursive, with the first and last names clearly legible.

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. 1800898

Case Narrative

Sample Condition on Receipt:

Eighteen soil 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. Two sample ID anomalies were resolved as directed: the sample IDs were reported as listed on the sample labels.

Analytical Notes:

VAL-PFAS

The soils were dried and homogenized following Vista's Incremental Sampling Procedure. The subsamples were extracted and analyzed for a selected list of PFAS using VAL Method PFAS.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method 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 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800898-01	CLIDU10100180501N	VAL - PFAS	13C8-PFOSA	H	49.7
1800898-04	CLIDU20100180501N	VAL - PFAS	13C3-PFBA	H	43.0
1800898-05	CLIDU20200180501N	VAL - PFAS	13C3-PFBA	H	30.4
1800898-05	CLIDU20200180501N	VAL - PFAS	13C8-PFOSA	H	47.5
1800898-06	CLIDU20300180501N	VAL - PFAS	13C3-PFBA	H	41.1
1800898-06	CLIDU20300180501N	VAL - PFAS	13C8-PFOSA	H	42.7
B8E0193-BLK1	B8E0193-BLK1	VAL - PFAS	13C8-PFOSA	H	26.0
B8E0193-BS1	B8E0193-BS1	VAL - PFAS	13C8-PFOSA	H	34.3

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800898-01	CLIDU10100180501N	ISM01-May-18 10:30	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L HDPE Jar, 6 oz
1800898-02	CLIDU10300180501N	ISM01-May-18 12:00	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-03	CLIDU10200180501N	ISM01-May-18 12:30	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-04	CLIDU20100180501N	ISM01-May-18 15:00	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-05	CLIDU20200180501N	ISM01-May-18 17:00	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-06	CLIDU20300180501N	ISM01-May-18 18:00	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-07	CLIDU30100180502N	ISM02-May-18 18:25	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-08	CLIDU30200180502N	ISM02-May-18 18:30	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz

Vista Project: 1800898

Client Project: Lapeer Sampling

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800898-08	CLIDU30200180502N	ISM02-May-18 18:30	04-May-18 09:48	HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-09	CLIDU30300180502N	ISM02-May-18 18:35	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-10	TGIDU30100180426N	ISM26-Apr-18 15:30	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-11	TGIDU30200180426N	ISM26-Apr-18 15:35	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-12	TGIDU30300180426N	ISM26-Apr-18 15:40	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-13	TGIDU10200180427N	ISM27-Apr-18 09:25	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-14	TGIDU10300180427N	ISM27-Apr-18 09:30	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 125 mL
1800898-15	TGIDU10100180426N	ISM26-Apr-18 17:15	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-16	TGIDU20100180430N	ISM30-Apr-18 18:35	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz

Vista Project: 1800898

Client Project: Lapeer Sampling

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800898-16	TGIDU20100180430N	ISM30-Apr-18 18:35	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-17	TGIDU20200180430N	ISM30-Apr-18 18:40	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L
1800898-18	TGIDU20300180430N	ISM30-Apr-18 18:45	04-May-18 09:48	HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Jar, 6 oz HDPE Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Solid	Lab Sample:	B8E0193-BLK1	Column:	BEH C18
Project:	Lapeer Sampling						

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.140	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFPeA	2706-90-3	ND	0.202	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFBS	375-73-5	ND	0.363	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFHxA	307-24-4	ND	0.203	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFHpA	375-85-9	ND	0.205	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFHxS	355-46-4	ND	0.310	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
6:2 FTS	27619-97-2	ND	0.229	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFOA	335-67-1	ND	0.236	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFHpS	375-92-8	ND	0.170	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFNA	375-95-1	ND	0.178	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFDA	335-76-2	ND	0.256	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
8:2 FTS	39108-34-4	ND	0.285	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFOSA	754-91-6	ND	0.227	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
MeFOSAA	2355-31-9	ND	0.302	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFDS	335-77-3	ND	0.201	1.00	2.00		B8E0193	23-May-18	1.00 g	31-May-18 00:30	1
PFUnA	2058-94-8	ND	0.354	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
EtFOSAA	2991-50-6	ND	0.321	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFDaA	307-55-1	ND	0.276	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFTrDA	72629-94-8	ND	0.122	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFTeDA	376-06-7	ND	0.198	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFNS	68259-12-1	ND	1.43	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.0	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C3-PFPeA	IS	96.3	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C3-PFBS	IS	112	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C2-PFHxA	IS	94.1	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C4-PFHpA	IS	85.2	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
18O2-PFHxS	IS	102	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C2-PFOA	IS	82.0	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C8-PFOS	IS	92.3	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C5-PFNA	IS	71.0	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C2-PFDA	IS	67.2	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C8-PFOSA	IS	26.0	50 - 150	H	B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
d3-MeFOSAA	IS	77.2	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1
13C2-PFUnA	IS	70.5	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1

Sample ID: Method Blank					VAL - PFAS					
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Solid		Lab Sample:	B8E0193-BLK1		Column:	BEH C18
Project:	Lapeer Sampling									
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
d5-EtFOSAA	IS	83.8	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1	
13C2-PFDoA	IS	73.3	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1	
13C2-PFTeDA	IS	73.8	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:25	1	
DL - Detection Limit	LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.					

Sample ID: OPR						VAL - PFAS					
Client Data						Laboratory Data					
Name: Merit Laboratories, Inc.		Matrix: Solid				Lab Sample: B8E0193-BS1		Column: BEH C18			
Project: Lapeer Sampling											
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.51	10.0	95.1	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFPeA	2706-90-3	9.57	10.0	95.7	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFBS	375-73-5	9.12	10.0	91.2	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFHxA	307-24-4	9.78	10.0	97.8	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFHpA	375-85-9	9.41	10.0	94.1	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFHxS	355-46-4	9.26	10.0	92.6	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
6:2 FTS	27619-97-2	9.85	10.0	98.5	60-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFOA	335-67-1	8.38	10.0	83.8	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFHpS	375-92-8	11.4	10.0	114	60-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFOS	1763-23-1	9.32	10.0	93.2	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFNA	375-95-1	8.87	10.0	88.7	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFDA	335-76-2	9.05	10.0	90.5	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
8:2 FTS	39108-34-4	9.25	10.0	92.5	60-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFOSA	754-91-6	10.9	10.0	109	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
MeFOSAA	2355-31-9	9.59	10.0	95.9	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFDS	335-77-3	11.1	10.0	111	60-130		B8E0193	23-May-18	1.00 g	31-May-18 00:19	1
PFUnA	2058-94-8	9.87	10.0	98.7	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
EtFOSAA	2991-50-6	10.2	10.0	102	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFDoA	307-55-1	11.9	10.0	119	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFTTrDA	72629-94-8	10.8	10.0	108	60-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFTeDA	376-06-7	11.1	10.0	111	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFNS	68259-12-1	9.64	10.0	96.4	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
PFPeS	2706-91-4	9.64	10.0	96.4	70-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
4:2 FTS	757124-72-4	8.40	10.0	84.0	60-130		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		96.3	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C3-PFPeA		IS		90.6	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C3-PFBS		IS		103	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C2-PFHxA		IS		93.8	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C4-PFHpA		IS		94.6	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
18O2-PFHxS		IS		100	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C2-PFOA		IS		82.6	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C8-PFOS		IS		87.4	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C5-PFNA		IS		77.7	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1
13C2-PFDA		IS		76.9	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1

Sample ID: OPR					VAL - PFAS					
Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling					Laboratory Data Lab Sample: B8E0193-BS1 Column: BEH C18					
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C8-PFOSA	IS	34.3	50- 150	H	B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1	
d3-MeFOSAA	IS	75.1	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1	
13C2-PFUnA	IS	66.5	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1	
d5-EtFOSAA	IS	78.0	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1	
13C2-PFDoA	IS	77.7	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1	
13C2-PFTeDA	IS	70.3	50- 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:14	1	

Sample ID: CLIDU10100180501N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-01	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	01-May-18 10:30	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	87.6		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.530	0.160	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFPeA	2706-90-3	0.732	0.231	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFBS	375-73-5	ND	0.414	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFHxA	307-24-4	ND	0.232	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFHpA	375-85-9	0.342	0.234	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFHxS	355-46-4	ND	0.354	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
6:2 FTS	27619-97-2	ND	0.261	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFOA	335-67-1	0.861	0.269	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFHpS	375-92-8	ND	0.194	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFOS	1763-23-1	77.2	0.965	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFNA	375-95-1	0.401	0.203	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFDA	335-76-2	1.17	0.292	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
8:2 FTS	39108-34-4	ND	0.325	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFOSA	754-91-6	ND	0.259	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
MeFOSAA	2355-31-9	ND	0.345	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFDS	335-77-3	0.822	0.229	1.14	2.28	J	B8E0193	23-May-18	1.00 g	31-May-18 00:40	1
PFUnA	2058-94-8	0.434	0.404	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
EtFOSAA	2991-50-6	ND	0.366	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFDaA	307-55-1	0.533	0.315	1.14	2.28	J	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFTrDA	72629-94-8	ND	0.139	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFTeDA	376-06-7	ND	0.226	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFNS	68259-12-1	ND	1.63	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
PFPeS	2706-91-4	ND	0.965	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
4:2 FTS	757124-72-4	ND	0.965	1.14	2.28		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.1	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C3-PFPeA	IS	93.8	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C3-PFBS	IS	108	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C2-PFHxA	IS	90.7	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C4-PFHpA	IS	96.9	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
18O2-PFHxS	IS	95.1	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C2-PFOA	IS	77.5	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C8-PFOS	IS	95.3	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C5-PFNA	IS	74.1	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C2-PFDA	IS	66.0	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C8-PFOSA	IS	49.7	50 - 150	H	B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
d3-MeFOSAA	IS	80.4	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C2-PFUnA	IS	80.7	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1

Sample ID: CLIDU10100180501N							VAL - PFAS		
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.		Matrix:	Soil	Lab Sample:	1800898-01	Column:	BEH C18	
Project:	Lapeer Sampling		Date Collected:	01-May-18 10:30	Date Received:	04-May-18 09:48			
Location:	08n10e33-CL01				% Solids:	87.6			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	92.2	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C2-PFDoA	IS	82.7	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
13C2-PFTeDA	IS	74.0	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 11:35	1
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.				
		LOQ - Limit of quantitation	The results are reported in dry weight.		Only the linear isomer is reported for all other analytes.				
			The sample size is reported in wet weight.						
			Results reported to the DL.						

Sample ID: CLIDU10300180501N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-02	Column:	BEH C18		
Project:	Lapeer Sampling	Date Collected:	01-May-18 12:00	Date Received:	04-May-18 09:48				
Location:	08n10e33-CL01			% Solids:	86.3				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.571	0.164	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFPeA	2706-90-3	0.742	0.236	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFBS	375-73-5	ND	0.425	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFHxA	307-24-4	ND	0.238	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFHpA	375-85-9	0.388	0.240	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFHxS	355-46-4	ND	0.363	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
6:2 FTS	27619-97-2	8.49	0.268	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFOA	335-67-1	1.05	0.276	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFHpS	375-92-8	ND	0.199	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFOS	1763-23-1	91.8	0.989	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFNA	375-95-1	0.417	0.208	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFDA	335-76-2	1.32	0.300	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
8:2 FTS	39108-34-4	ND	0.334	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFOSA	754-91-6	ND	0.266	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
MeFOSAA	2355-31-9	ND	0.353	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFDS	335-77-3	0.871	0.235	1.17	2.34	J	B8E0193	23-May-18	0.990 g	31-May-18 00:50	1
PFUnA	2058-94-8	0.452	0.414	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
EtFOSAA	2991-50-6	ND	0.376	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFDaA	307-55-1	0.663	0.323	1.17	2.34	J	B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFTrDA	72629-94-8	ND	0.143	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFTeDA	376-06-7	ND	0.232	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFNS	68259-12-1	ND	1.67	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
PFPeS	2706-91-4	ND	0.989	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
4:2 FTS	757124-72-4	ND	0.989	1.17	2.34		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.8	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C3-PFPeA	IS	87.5	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C3-PFBS	IS	104	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C2-PFHxA	IS	91.8	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C4-PFHpA	IS	91.0	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
18O2-PFHxS	IS	92.4	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C2-PFOA	IS	83.7	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C8-PFOS	IS	91.6	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C5-PFNA	IS	85.5	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C2-PFDA	IS	96.5	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C8-PFOSA	IS	54.3	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
d3-MeFOSAA	IS	85.3	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C2-PFUnA	IS	80.4	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1

Sample ID: CLIDU10300180501N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n10e33-CL01	Laboratory Data Matrix: Soil Date Collected: 01-May-18 12:00 Lab Sample: 1800898-02 Date Received: 04-May-18 09:48 Column: BEH C18 % Solids: 86.3
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	89.3	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C2-PFDoA	IS	86.9	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1
13C2-PFTeDA	IS	80.2	50 - 150		B8E0193	23-May-18	0.990 g	01-Jun-18 11:46	1

DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
	LOQ - Limit of quantitation	The results are reported in dry weight.	Only the linear isomer is reported for all other analytes.
		The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CLIDU10200180501N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-03	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	01-May-18 12:30	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	87.2		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.425	0.127	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFPeA	2706-90-3	0.611	0.184	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFBS	375-73-5	ND	0.330	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFHxA	307-24-4	ND	0.185	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFHpA	375-85-9	0.361	0.186	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFHxS	355-46-4	ND	0.282	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
6:2 FTS	27619-97-2	ND	0.208	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFOA	335-67-1	0.913	0.215	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFHpS	375-92-8	ND	0.155	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFOS	1763-23-1	89.7	0.769	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFNA	375-95-1	0.394	0.162	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFDA	335-76-2	1.45	0.233	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
8:2 FTS	39108-34-4	ND	0.259	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFOSA	754-91-6	ND	0.207	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
MeFOSAA	2355-31-9	ND	0.275	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFDS	335-77-3	0.908	0.183	0.910	1.82	J	B8E0193	23-May-18	1.26 g	31-May-18 01:01	1
PFUnA	2058-94-8	ND	0.322	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
EtFOSAA	2991-50-6	ND	0.292	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFDaA	307-55-1	0.559	0.251	0.910	1.82	J	B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFTrDA	72629-94-8	ND	0.111	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFTeDA	376-06-7	ND	0.180	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFNS	68259-12-1	ND	1.30	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
PFPeS	2706-91-4	ND	0.769	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
4:2 FTS	757124-72-4	ND	0.769	0.910	1.82		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.0	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C3-PFPeA	IS	91.2	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C3-PFBS	IS	105	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C2-PFHxA	IS	95.1	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C4-PFHpA	IS	93.2	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
18O2-PFHxS	IS	89.6	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C2-PFOA	IS	75.0	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C8-PFOS	IS	89.7	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C5-PFNA	IS	90.7	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C2-PFDA	IS	84.5	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C8-PFOSA	IS	58.5	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
d3-MeFOSAA	IS	98.2	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C2-PFUnA	IS	84.5	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1

Sample ID: CLIDU10200180501N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n10e33-CL01	Laboratory Data Matrix: Soil Date Collected: 01-May-18 12:30 Lab Sample: 1800898-03 Date Received: 04-May-18 09:48 Column: BEH C18 % Solids: 87.2
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	103	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C2-PFDoA	IS	82.4	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1
13C2-PFTeDA	IS	89.9	50 - 150		B8E0193	23-May-18	1.26 g	01-Jun-18 11:56	1

DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
	LOQ - Limit of quantitation	The results are reported in dry weight.	Only the linear isomer is reported for all other analytes.
		The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CLIDU20100180501N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-04	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	01-May-18 15:00	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	85.0		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.497	0.194	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFPeA	2706-90-3	0.914	0.280	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFBS	375-73-5	ND	0.502	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFHxA	307-24-4	ND	0.281	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFHpA	375-85-9	0.434	0.284	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFHxS	355-46-4	0.504	0.429	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
6:2 FTS	27619-97-2	ND	0.317	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFOA	335-67-1	1.53	0.327	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFHpS	375-92-8	ND	0.235	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFOS	1763-23-1	117	1.17	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFNA	375-95-1	0.631	0.246	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFDA	335-76-2	1.39	0.354	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
8:2 FTS	39108-34-4	ND	0.394	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFOSA	754-91-6	ND	0.314	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
MeFOSAA	2355-31-9	ND	0.418	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFDS	335-77-3	1.59	0.278	1.38	2.77	J	B8E0193	23-May-18	0.850 g	31-May-18 01:11	1
PFUnA	2058-94-8	ND	0.490	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
EtFOSAA	2991-50-6	ND	0.444	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFDaA	307-55-1	0.427	0.382	1.38	2.77	J	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFTrDA	72629-94-8	ND	0.169	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFTeDA	376-06-7	ND	0.274	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFNS	68259-12-1	ND	1.98	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
PFPeS	2706-91-4	ND	1.17	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
4:2 FTS	757124-72-4	ND	1.17	1.38	2.77		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	43.0	50 - 150	H	B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C3-PFPeA	IS	88.6	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C3-PFBS	IS	96.6	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C2-PFHxA	IS	90.6	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C4-PFHpA	IS	100	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
18O2-PFHxS	IS	89.5	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C2-PFOA	IS	81.0	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C8-PFOS	IS	97.4	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C5-PFNA	IS	94.1	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C2-PFDA	IS	93.6	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C8-PFOSA	IS	50.1	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
d3-MeFOSAA	IS	76.7	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C2-PFUnA	IS	80.4	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1

Sample ID: CLIDU20100180501N				VAL - PFAS					
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.		Matrix:	Soil	Lab Sample:	1800898-04	Column:	BEH C18	
Project:	Lapeer Sampling		Date Collected:	01-May-18 15:00	Date Received:	04-May-18 09:48			
Location:	08n10e33-CL01				% Solids:	85.0			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	82.3	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C2-PFDoA	IS	73.7	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
13C2-PFTeDA	IS	77.3	50 - 150		B8E0193	23-May-18	0.850 g	01-Jun-18 12:07	1
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: CLIDU20200180501N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-05	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	01-May-18 17:00	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	88.4		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.646	0.163	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFPeA	2706-90-3	0.930	0.236	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFBS	375-73-5	ND	0.424	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFHxA	307-24-4	1.02	0.237	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFHpA	375-85-9	0.452	0.239	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFHxS	355-46-4	ND	0.362	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
6:2 FTS	27619-97-2	ND	0.267	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFOA	335-67-1	1.41	0.275	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFHpS	375-92-8	ND	0.198	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFOS	1763-23-1	137	0.986	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFNA	375-95-1	0.489	0.208	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFDA	335-76-2	1.56	0.299	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
8:2 FTS	39108-34-4	ND	0.333	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFOSA	754-91-6	0.319	0.265	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
MeFOSAA	2355-31-9	ND	0.352	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFDS	335-77-3	1.81	0.235	1.17	2.33	J	B8E0193	23-May-18	0.970 g	31-May-18 01:22	1
PFUnA	2058-94-8	ND	0.413	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
EtFOSAA	2991-50-6	ND	0.375	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFDaA	307-55-1	0.543	0.322	1.17	2.33	J	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFTrDA	72629-94-8	ND	0.142	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFTeDA	376-06-7	ND	0.231	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFNS	68259-12-1	ND	1.67	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
PFPeS	2706-91-4	ND	0.986	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
4:2 FTS	757124-72-4	ND	0.986	1.17	2.33		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	30.4	50 - 150	H	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C3-PFPeA	IS	89.6	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C3-PFBS	IS	105	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C2-PFHxA	IS	96.2	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C4-PFHpA	IS	101	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
18O2-PFHxS	IS	91.5	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C2-PFOA	IS	88.7	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C8-PFOS	IS	99.9	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C5-PFNA	IS	91.3	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C2-PFDA	IS	95.1	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C8-PFOSA	IS	47.5	50 - 150	H	B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
d3-MeFOSAA	IS	83.6	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1
13C2-PFUnA	IS	83.5	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1

Sample ID: CLIDU20200180501N						VAL - PFAS					
Client Data				Laboratory Data							
Name:	Merit Laboratories, Inc.		Matrix:	Soil		Lab Sample:	1800898-05		Column:	BEH C18	
Project:	Lapeer Sampling		Date Collected:	01-May-18 17:00		Date Received:	04-May-18 09:48				
Location:	08n10e33-CL01				% Solids:	88.4					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
d5-EtFOSAA	IS	85.1	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1		
13C2-PFDoA	IS	76.9	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1		
13C2-PFTeDA	IS	74.1	50 - 150		B8E0193	23-May-18	0.970 g	01-Jun-18 12:17	1		
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.						
		LOQ - Limit of quantitation	The results are reported in dry weight.		Only the linear isomer is reported for all other analytes.						
			The sample size is reported in wet weight.								
			Results reported to the DL.								

Sample ID: CLIDU20300180501N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-06	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	01-May-18 18:00	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	85.3		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.572	0.171	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFPeA	2706-90-3	1.08	0.247	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFBS	375-73-5	ND	0.443	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFHxA	307-24-4	1.10	0.248	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFHpA	375-85-9	0.539	0.250	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFHxS	355-46-4	0.466	0.379	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
6:2 FTS	27619-97-2	ND	0.280	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFOA	335-67-1	1.65	0.288	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFHpS	375-92-8	ND	0.208	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFOS	1763-23-1	152	1.03	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFNA	375-95-1	0.552	0.217	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFDA	335-76-2	1.69	0.313	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
8:2 FTS	39108-34-4	ND	0.348	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFOSA	754-91-6	0.558	0.277	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
MeFOSAA	2355-31-9	0.469	0.369	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFDS	335-77-3	1.99	0.245	1.22	2.44	J	B8E0193	23-May-18	0.960 g	31-May-18 01:32	1
PFUnA	2058-94-8	0.466	0.432	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
EtFOSAA	2991-50-6	ND	0.392	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFDaA	307-55-1	0.567	0.337	1.22	2.44	J	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFTrDA	72629-94-8	ND	0.149	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFTeDA	376-06-7	ND	0.242	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFNS	68259-12-1	ND	1.75	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
PFPeS	2706-91-4	ND	1.03	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
4:2 FTS	757124-72-4	ND	1.03	1.22	2.44		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	41.1	50 - 150	H	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C3-PFPeA	IS	96.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C3-PFBS	IS	111	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C2-PFHxA	IS	97.7	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C4-PFHpA	IS	104	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
18O2-PFHxS	IS	89.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C2-PFOA	IS	93.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C8-PFOS	IS	94.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C5-PFNA	IS	96.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C2-PFDA	IS	96.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C8-PFOSA	IS	42.7	50 - 150	H	B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
d3-MeFOSAA	IS	81.2	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1
13C2-PFUnA	IS	73.5	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1

Sample ID: CLIDU20300180501N						VAL - PFAS					
Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n10e33-CL01 Matrix: Soil Date Collected: 01-May-18 18:00					Laboratory Data						
					Lab Sample: 1800898-06		Column: BEH C18				
					Date Received: 04-May-18 09:48						
					% Solids: 85.3						
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
d5-EtFOSAA	IS	80.0	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1		
13C2-PFDoA	IS	87.4	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1		
13C2-PFTeDA	IS	74.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 12:28	1		
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.						
		LOQ - Limit of quantitation	The results are reported in dry weight.		Only the linear isomer is reported for all other analytes.						
			The sample size is reported in wet weight.								
			Results reported to the DL.								

Sample ID: CLIDU30100180502N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-07	Column:	BEH C18		
Project:	Lapeer Sampling	Date Collected:	02-May-18 18:25	Date Received:	04-May-18 09:48				
Location:	08n10e33-CL01			% Solids:	84.9				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.558	0.168	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFPeA	2706-90-3	1.01	0.243	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFBS	375-73-5	ND	0.436	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFHxA	307-24-4	ND	0.244	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFHpA	375-85-9	0.578	0.246	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFHxS	355-46-4	ND	0.372	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
6:2 FTS	27619-97-2	ND	0.275	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFOA	335-67-1	1.47	0.284	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFHpS	375-92-8	ND	0.204	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFOS	1763-23-1	138	1.02	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFNA	375-95-1	0.633	0.214	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFDA	335-76-2	1.46	0.308	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
8:2 FTS	39108-34-4	ND	0.342	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFOSA	754-91-6	0.329	0.273	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
MeFOSAA	2355-31-9	ND	0.363	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFDS	335-77-3	1.55	0.242	1.20	2.40	J	B8E0193	23-May-18	0.980 g	31-May-18 01:43	1
PFUnA	2058-94-8	ND	0.425	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
EtFOSAA	2991-50-6	ND	0.386	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFDaA	307-55-1	0.816	0.332	1.20	2.40	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFTrDA	72629-94-8	ND	0.147	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFTeDA	376-06-7	ND	0.238	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFNS	68259-12-1	ND	1.72	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
PFPeS	2706-91-4	ND	1.02	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
4:2 FTS	757124-72-4	ND	1.02	1.20	2.40		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.5	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C3-PFPeA	IS	84.6	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C3-PFBS	IS	104	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C2-PFHxA	IS	91.1	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C4-PFHpA	IS	92.3	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
18O2-PFHxS	IS	93.6	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C2-PFOA	IS	85.2	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C8-PFOS	IS	91.5	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C5-PFNA	IS	89.2	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C2-PFDA	IS	91.0	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C8-PFOSA	IS	52.5	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
d3-MeFOSAA	IS	82.6	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C2-PFUnA	IS	93.3	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1

Sample ID: CLIDU30100180502N						VAL - PFAS						
Client Data					Laboratory Data							
Name:	Merit Laboratories, Inc.			Matrix:	Soil		Lab Sample:	1800898-07		Column:	BEH C18	
Project:	Lapeer Sampling			Date Collected:	02-May-18 18:25		Date Received:	04-May-18 09:48				
Location:	08n10e33-CL01							% Solids:	84.9			
Labeled Standards		Type	% Recovery		Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA		IS	111		50 - 150			B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C2-PFDoA		IS	75.3		50 - 150			B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
13C2-PFTeDA		IS	89.3		50 - 150			B8E0193	23-May-18	0.980 g	01-Jun-18 12:38	1
DL - Detection Limit		LOD - Limit of Detection		LCL-UCL- Lower control limit - upper control limit				When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.				
		LOQ - Limit of quantitation		The results are reported in dry weight.				Only the linear isomer is reported for all other analytes.				
				The sample size is reported in wet weight.								
				Results reported to the DL.								

Sample ID: CLIDU30200180502N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-08	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	02-May-18 18:30	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	83.0		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.508	0.172	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFPeA	2706-90-3	0.912	0.248	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFBS	375-73-5	ND	0.446	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFHxA	307-24-4	1.02	0.250	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFHpA	375-85-9	0.596	0.252	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFHxS	355-46-4	ND	0.381	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
6:2 FTS	27619-97-2	ND	0.282	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFOA	335-67-1	1.83	0.290	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFHpS	375-92-8	ND	0.209	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFOS	1763-23-1	172	1.04	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFNA	375-95-1	0.644	0.219	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFDA	335-76-2	1.72	0.315	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
8:2 FTS	39108-34-4	ND	0.350	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFOSA	754-91-6	0.409	0.279	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
MeFOSAA	2355-31-9	0.380	0.371	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFDS	335-77-3	1.35	0.247	1.23	2.46	J	B8E0193	23-May-18	0.980 g	31-May-18 01:53	1
PFUnA	2058-94-8	0.438	0.435	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
EtFOSAA	2991-50-6	ND	0.395	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFDaA	307-55-1	0.648	0.339	1.23	2.46	J	B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFTrDA	72629-94-8	ND	0.150	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFTeDA	376-06-7	ND	0.243	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFNS	68259-12-1	ND	1.76	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
PFPeS	2706-91-4	ND	1.04	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
4:2 FTS	757124-72-4	ND	1.04	1.23	2.46		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.6	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C3-PFPeA	IS	93.6	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C3-PFBS	IS	106	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C2-PFHxA	IS	87.1	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C4-PFHpA	IS	98.9	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
18O2-PFHxS	IS	93.9	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C2-PFOA	IS	82.2	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C8-PFOS	IS	88.8	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C5-PFNA	IS	87.0	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C2-PFDA	IS	99.0	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C8-PFOSA	IS	60.0	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
d3-MeFOSAA	IS	91.1	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C2-PFUnA	IS	93.2	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1

Sample ID: CLIDU30200180502N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n10e33-CL01	Laboratory Data Matrix: Soil Date Collected: 02-May-18 18:30 Lab Sample: 1800898-08 Date Received: 04-May-18 09:48 Column: BEH C18 % Solids: 83.0
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	95.0	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C2-PFDoA	IS	94.9	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1
13C2-PFTeDA	IS	90.7	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 12:48	1

DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
	LOQ - Limit of quantitation	The results are reported in dry weight.	Only the linear isomer is reported for all other analytes.
		The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CLIDU30300180502N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-09	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	02-May-18 18:35	Date Received:	04-May-18 09:48		
Location:	08n10e33-CL01			% Solids:	85.3		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.518	0.176	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFPeA	2706-90-3	0.744	0.255	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFBS	375-73-5	ND	0.458	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFHxA	307-24-4	0.722	0.256	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFHpA	375-85-9	0.503	0.258	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFHxS	355-46-4	ND	0.391	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
6:2 FTS	27619-97-2	7.11	0.289	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFOA	335-67-1	1.28	0.297	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFHpS	375-92-8	ND	0.214	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFOS	1763-23-1	124	1.07	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFNA	375-95-1	0.592	0.224	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFDA	335-76-2	1.38	0.323	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
8:2 FTS	39108-34-4	ND	0.359	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFOSA	754-91-6	ND	0.286	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
MeFOSAA	2355-31-9	ND	0.381	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFDS	335-77-3	1.01	0.253	1.26	2.52	J	B8E0193	23-May-18	0.930 g	31-May-18 02:04	1
PFUnA	2058-94-8	ND	0.446	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
EtFOSAA	2991-50-6	ND	0.405	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFDaA	307-55-1	0.602	0.348	1.26	2.52	J	B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFTrDA	72629-94-8	ND	0.154	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFTeDA	376-06-7	ND	0.250	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFNS	68259-12-1	ND	1.80	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
PFPeS	2706-91-4	ND	1.07	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
4:2 FTS	757124-72-4	ND	1.07	1.26	2.52		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.8	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C3-PFPeA	IS	93.4	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C3-PFBS	IS	107	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C2-PFHxA	IS	92.8	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C4-PFHpA	IS	96.0	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
18O2-PFHxS	IS	86.8	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C2-PFOA	IS	84.8	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C8-PFOS	IS	81.7	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C5-PFNA	IS	72.6	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C2-PFDA	IS	83.0	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C8-PFOSA	IS	61.0	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
d3-MeFOSAA	IS	76.4	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C2-PFUnA	IS	84.8	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1

Sample ID: CLIDU30300180502N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n10e33-CL01	Laboratory Data Matrix: Soil Date Collected: 02-May-18 18:35 Lab Sample: 1800898-09 Date Received: 04-May-18 09:48 Column: BEH C18 % Solids: 85.3
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	90.6	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C2-PFDoA	IS	76.8	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1
13C2-PFTeDA	IS	93.6	50 - 150		B8E0193	23-May-18	0.930 g	01-Jun-18 13:30	1

DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
	LOQ - Limit of quantitation	The results are reported in dry weight.	Only the linear isomer is reported for all other analytes.
		The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: TGIDU30100180426N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-10	Column:	BEH C18		
Project:	Lapeer Sampling	Date Collected:	26-Apr-18 15:30	Date Received:	04-May-18 09:48				
Location:	08n11e16-TG01			% Solids:	90.3				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.220	0.146	1.04	2.09	J	B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFPeA	2706-90-3	ND	0.211	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFBS	375-73-5	ND	0.379	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFHxA	307-24-4	ND	0.212	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFHpA	375-85-9	ND	0.214	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFHxS	355-46-4	ND	0.324	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
6:2 FTS	27619-97-2	ND	0.239	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFOA	335-67-1	ND	0.246	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFHpS	375-92-8	ND	0.178	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFOS	1763-23-1	3.39	0.883	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFNA	375-95-1	ND	0.186	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFDA	335-76-2	ND	0.267	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
8:2 FTS	39108-34-4	ND	0.298	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFOSA	754-91-6	ND	0.237	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
MeFOSAA	2355-31-9	ND	0.315	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFDS	335-77-3	ND	0.210	1.04	2.09		B8E0193	23-May-18	1.06 g	31-May-18 02:45	1
PFUnA	2058-94-8	ND	0.370	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
EtFOSAA	2991-50-6	ND	0.335	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFDaA	307-55-1	ND	0.288	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFTDA	72629-94-8	ND	0.127	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFTeDA	376-06-7	ND	0.207	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFNS	68259-12-1	ND	1.49	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
PFPeS	2706-91-4	ND	0.883	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
4:2 FTS	757124-72-4	ND	0.883	1.04	2.09		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.1	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C3-PFPeA	IS	89.1	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C3-PFBS	IS	106	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C2-PFHxA	IS	91.5	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C4-PFHpA	IS	89.1	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
18O2-PFHxS	IS	93.1	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C2-PFOA	IS	86.4	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C8-PFOS	IS	93.3	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C5-PFNA	IS	86.2	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C2-PFDA	IS	101	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C8-PFOSA	IS	54.6	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
d3-MeFOSAA	IS	78.0	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1
13C2-PFUnA	IS	76.0	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1

Sample ID: TGIDU30100180426N						VAL - PFAS				
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Soil		Lab Sample:	1800898-10		Column:	BEH C18
Project:	Lapeer Sampling		Date Collected:	26-Apr-18 15:30		Date Received:	04-May-18 09:48			
Location:	08n11e16-TG01				% Solids:	90.3				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
d5-EtFOSAA	IS	85.2	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1	
13C2-PFDoA	IS	96.3	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1	
13C2-PFTeDA	IS	81.6	50 - 150		B8E0193	23-May-18	1.06 g	01-Jun-18 13:41	1	
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.					

Sample ID: TGIDU30200180426N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-11	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	26-Apr-18 15:35	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG01			% Solids:	89.2		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.332	0.155	1.11	2.22	J	B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFPeA	2706-90-3	0.242	0.224	1.11	2.22	J	B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFBS	375-73-5	ND	0.403	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFHxA	307-24-4	ND	0.225	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFHpA	375-85-9	ND	0.228	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFHxS	355-46-4	ND	0.344	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
6:2 FTS	27619-97-2	5.05	0.254	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFOA	335-67-1	ND	0.262	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFHpS	375-92-8	ND	0.189	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFOS	1763-23-1	12.3	0.938	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFNA	375-95-1	ND	0.198	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFDA	335-76-2	ND	0.284	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
8:2 FTS	39108-34-4	ND	0.316	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFOSA	754-91-6	ND	0.252	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
MeFOSAA	2355-31-9	ND	0.335	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFDS	335-77-3	ND	0.223	1.11	2.22		B8E0193	23-May-18	1.01 g	31-May-18 02:56	1
PFUnA	2058-94-8	ND	0.393	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
EtFOSAA	2991-50-6	ND	0.356	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFDaA	307-55-1	ND	0.306	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFTrDA	72629-94-8	ND	0.135	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFTeDA	376-06-7	ND	0.220	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFNS	68259-12-1	ND	1.59	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
PFPeS	2706-91-4	ND	0.938	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
4:2 FTS	757124-72-4	ND	0.938	1.11	2.22		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.2	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C3-PFPeA	IS	89.4	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C3-PFBS	IS	110	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C2-PFHxA	IS	95.3	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C4-PFHpA	IS	97.2	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
18O2-PFHxS	IS	94.0	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C2-PFOA	IS	80.1	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C8-PFOS	IS	97.3	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C5-PFNA	IS	78.9	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C2-PFDA	IS	86.1	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C8-PFOSA	IS	57.2	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
d3-MeFOSAA	IS	92.1	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C2-PFUnA	IS	72.8	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1

Sample ID: TGIDU30200180426N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n11e16-TG01	Laboratory Data Matrix: Soil Date Collected: 26-Apr-18 15:35 Lab Sample: 1800898-11 Date Received: 04-May-18 09:48 Column: BEH C18 % Solids: 89.2
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	99.7	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C2-PFDoA	IS	86.0	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1
13C2-PFTeDA	IS	89.7	50 - 150		B8E0193	23-May-18	1.01 g	01-Jun-18 13:51	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight.

The sample size is reported in wet weight.

Results reported to the DL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: TGIDU30300180426N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-12	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	26-Apr-18 15:40	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG01			% Solids:	89.7		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.145	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFPeA	2706-90-3	ND	0.209	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFBS	375-73-5	ND	0.375	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFHxA	307-24-4	ND	0.210	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFHpA	375-85-9	ND	0.212	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFHxS	355-46-4	ND	0.320	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
6:2 FTS	27619-97-2	6.38	0.236	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFOA	335-67-1	ND	0.244	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFHpS	375-92-8	ND	0.176	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFOS	1763-23-1	2.31	0.873	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFNA	375-95-1	ND	0.184	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFDA	335-76-2	ND	0.264	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
8:2 FTS	39108-34-4	ND	0.294	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFOSA	754-91-6	ND	0.234	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
MeFOSAA	2355-31-9	ND	0.312	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFDS	335-77-3	ND	0.208	1.03	2.07		B8E0193	23-May-18	1.08 g	31-May-18 03:06	1
PFUnA	2058-94-8	ND	0.366	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
EtFOSAA	2991-50-6	ND	0.332	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFDaA	307-55-1	ND	0.285	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFTrDA	72629-94-8	ND	0.126	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFTeDA	376-06-7	ND	0.204	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFNS	68259-12-1	ND	1.48	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
PFPeS	2706-91-4	ND	0.873	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
4:2 FTS	757124-72-4	ND	0.873	1.03	2.07		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.0	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C3-PFPeA	IS	83.9	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C3-PFBS	IS	98.6	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C2-PFHxA	IS	89.9	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C4-PFHpA	IS	85.5	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
18O2-PFHxS	IS	101	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C2-PFOA	IS	84.3	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C8-PFOS	IS	89.6	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C5-PFNA	IS	89.4	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C2-PFDA	IS	98.1	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C8-PFOSA	IS	51.5	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
d3-MeFOSAA	IS	80.0	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C2-PFUnA	IS	83.4	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1

Sample ID: TGIDU30300180426N	VAL - PFAS
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Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-12	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	26-Apr-18 15:40	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG01			% Solids:	89.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	89.1	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C2-PFDoA	IS	98.7	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1
13C2-PFTeDA	IS	87.1	50 - 150		B8E0193	23-May-18	1.08 g	01-Jun-18 14:02	1

DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
	LOQ - Limit of quantitation	The results are reported in dry weight.	Only the linear isomer is reported for all other analytes.
		The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: TGIDU10200180427N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-13	Column:	BEH C18		
Project:	Lapeer Sampling	Date Collected:	27-Apr-18 09:25	Date Received:	04-May-18 09:48				
Location:	08n11e16-TG02			% Solids:	87.9				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.322	0.166	1.19	2.37	J	B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFPeA	2706-90-3	0.284	0.239	1.19	2.37	J	B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFBS	375-73-5	ND	0.430	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFHxA	307-24-4	ND	0.241	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFHpA	375-85-9	ND	0.243	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFHxS	355-46-4	ND	0.367	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
6:2 FTS	27619-97-2	ND	0.271	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFOA	335-67-1	ND	0.280	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFHpS	375-92-8	ND	0.202	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFOS	1763-23-1	8.96	1.00	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFNA	375-95-1	ND	0.211	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFDA	335-76-2	ND	0.303	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
8:2 FTS	39108-34-4	ND	0.338	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFOSA	754-91-6	ND	0.269	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
MeFOSAA	2355-31-9	ND	0.358	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFDS	335-77-3	ND	0.238	1.19	2.37		B8E0193	23-May-18	0.960 g	31-May-18 03:17	1
PFUnA	2058-94-8	ND	0.420	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
EtFOSAA	2991-50-6	ND	0.380	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFDaA	307-55-1	ND	0.327	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFTrDA	72629-94-8	ND	0.145	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFTeDA	376-06-7	ND	0.235	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFNS	68259-12-1	ND	1.69	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
PFPeS	2706-91-4	ND	1.00	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
4:2 FTS	757124-72-4	ND	1.00	1.19	2.37		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C3-PFPeA	IS	87.4	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C3-PFBS	IS	107	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C2-PFHxA	IS	93.4	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C4-PFHpA	IS	88.6	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
18O2-PFHxS	IS	85.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C2-PFOA	IS	80.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C8-PFOS	IS	83.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C5-PFNA	IS	72.6	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C2-PFDA	IS	75.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C8-PFOSA	IS	56.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
d3-MeFOSAA	IS	80.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1
13C2-PFUnA	IS	84.6	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1

Sample ID: TGIDU10200180427N					VAL - PFAS					
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Soil		Lab Sample:	1800898-13		Column:	BEH C18
Project:	Lapeer Sampling		Date Collected:	27-Apr-18 09:25		Date Received:	04-May-18 09:48			
Location:	08n11e16-TG02				% Solids:	87.9				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
d5-EtFOSAA	IS	89.3	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1	
13C2-PFDoA	IS	78.0	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1	
13C2-PFTeDA	IS	87.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:12	1	
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.					

Sample ID: TGIDU10300180427N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-14	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	27-Apr-18 09:30	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG02			% Solids:	88.8		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.388	0.161	1.15	2.30	J	B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFPeA	2706-90-3	0.304	0.232	1.15	2.30	J	B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFBS	375-73-5	ND	0.417	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFHxA	307-24-4	0.419	0.233	1.15	2.30	J	B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFHpA	375-85-9	ND	0.236	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFHxS	355-46-4	ND	0.356	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
6:2 FTS	27619-97-2	ND	0.263	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFOA	335-67-1	ND	0.271	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFHpS	375-92-8	ND	0.195	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFOS	1763-23-1	13.6	0.971	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFNA	375-95-1	ND	0.205	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFDA	335-76-2	ND	0.294	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
8:2 FTS	39108-34-4	ND	0.327	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFOSA	754-91-6	ND	0.261	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
MeFOSAA	2355-31-9	ND	0.347	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFDS	335-77-3	ND	0.231	1.15	2.30		B8E0193	23-May-18	0.980 g	31-May-18 03:27	1
PFUnA	2058-94-8	ND	0.407	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
EtFOSAA	2991-50-6	ND	0.369	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFDaA	307-55-1	ND	0.317	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFTrDA	72629-94-8	ND	0.140	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFTeDA	376-06-7	ND	0.228	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFNS	68259-12-1	ND	1.64	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
PFPeS	2706-91-4	ND	0.971	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
4:2 FTS	757124-72-4	ND	0.971	1.15	2.30		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.7	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C3-PFPeA	IS	87.4	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C3-PFBS	IS	104	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C2-PFHxA	IS	92.5	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C4-PFHpA	IS	93.7	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
18O2-PFHxS	IS	93.3	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C2-PFOA	IS	82.9	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C8-PFOS	IS	89.9	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C5-PFNA	IS	80.0	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C2-PFDA	IS	88.7	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C8-PFOSA	IS	63.1	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
d3-MeFOSAA	IS	96.9	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C2-PFUnA	IS	103	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1

Sample ID: TGIDU10300180427N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Sampling Location: 08n11e16-TG02	Laboratory Data Matrix: Soil Date Collected: 27-Apr-18 09:30 Lab Sample: 1800898-14 Date Received: 04-May-18 09:48 Column: BEH C18 % Solids: 88.8
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	105	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C2-PFDoA	IS	81.3	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1
13C2-PFTeDA	IS	106	50 - 150		B8E0193	23-May-18	0.980 g	01-Jun-18 14:23	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight.

The sample size is reported in wet weight.

Results reported to the DL.

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: TGIDU10100180426N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-15	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	26-Apr-18 17:15	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG02			% Solids:	89.2		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.277	0.164	1.17	2.34	J	B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFPeA	2706-90-3	0.237	0.236	1.17	2.34	J	B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFBS	375-73-5	ND	0.424	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFHxA	307-24-4	ND	0.237	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFHpA	375-85-9	ND	0.239	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFHxS	355-46-4	ND	0.362	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
6:2 FTS	27619-97-2	ND	0.268	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFOA	335-67-1	ND	0.276	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFHpS	375-92-8	ND	0.199	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFOS	1763-23-1	5.45	0.987	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFNA	375-95-1	ND	0.208	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFDA	335-76-2	ND	0.299	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
8:2 FTS	39108-34-4	ND	0.333	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFOSA	754-91-6	ND	0.265	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
MeFOSAA	2355-31-9	ND	0.353	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFDS	335-77-3	ND	0.235	1.17	2.34		B8E0193	23-May-18	0.960 g	31-May-18 03:38	1
PFUnA	2058-94-8	ND	0.414	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
EtFOSAA	2991-50-6	ND	0.375	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFDaA	307-55-1	ND	0.322	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFTrDA	72629-94-8	ND	0.143	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFTeDA	376-06-7	ND	0.231	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFNS	68259-12-1	ND	1.67	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
PFPeS	2706-91-4	ND	0.987	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
4:2 FTS	757124-72-4	ND	0.987	1.17	2.34		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.4	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C3-PFPeA	IS	88.7	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C3-PFBS	IS	105	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C2-PFHxA	IS	95.2	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C4-PFHpA	IS	96.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
18O2-PFHxS	IS	94.3	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C2-PFOA	IS	85.4	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C8-PFOS	IS	96.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C5-PFNA	IS	76.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C2-PFDA	IS	90.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C8-PFOSA	IS	53.8	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
d3-MeFOSAA	IS	75.9	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C2-PFUnA	IS	87.2	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1

Sample ID: TGIDU10100180426N							VAL - PFAS		
Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.		Matrix:	Soil	Lab Sample:	1800898-15	Column:	BEH C18	
Project:	Lapeer Sampling		Date Collected:	26-Apr-18 17:15	Date Received:	04-May-18 09:48			
Location:	08n11e16-TG02				% Solids:	89.2			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
d5-EtFOSAA	IS	91.2	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C2-PFDoA	IS	95.5	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
13C2-PFTeDA	IS	92.1	50 - 150		B8E0193	23-May-18	0.960 g	01-Jun-18 14:33	1
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: TGIDU20100180430N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-16	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	30-Apr-18 18:35	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG02			% Solids:	90.5		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.292	0.155	1.10	2.21	J	B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFPeA	2706-90-3	0.254	0.223	1.10	2.21	J	B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFBS	375-73-5	ND	0.401	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFHxA	307-24-4	0.402	0.224	1.10	2.21	J	B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFHpA	375-85-9	ND	0.227	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFHxS	355-46-4	ND	0.343	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
6:2 FTS	27619-97-2	7.67	0.253	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFOA	335-67-1	ND	0.261	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFHpS	375-92-8	ND	0.188	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFOS	1763-23-1	13.6	0.934	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFNA	375-95-1	ND	0.197	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFDA	335-76-2	ND	0.283	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
8:2 FTS	39108-34-4	ND	0.315	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFOSA	754-91-6	ND	0.251	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
MeFOSAA	2355-31-9	ND	0.334	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFDS	335-77-3	ND	0.222	1.10	2.21		B8E0193	23-May-18	1.00 g	31-May-18 03:48	1
PFUnA	2058-94-8	ND	0.391	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
EtFOSAA	2991-50-6	ND	0.355	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFDoA	307-55-1	ND	0.305	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFTrDA	72629-94-8	ND	0.135	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFTeDA	376-06-7	ND	0.219	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFNS	68259-12-1	ND	1.58	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
PFPeS	2706-91-4	ND	0.934	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
4:2 FTS	757124-72-4	ND	0.934	1.10	2.21		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.4	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C3-PFPeA	IS	93.7	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C3-PFBS	IS	102	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C2-PFHxA	IS	86.3	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C4-PFHpA	IS	96.4	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
18O2-PFHxS	IS	99.2	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C2-PFOA	IS	86.2	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C8-PFOS	IS	102	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C5-PFNA	IS	89.3	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C2-PFDA	IS	83.8	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C8-PFOSA	IS	55.4	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
d3-MeFOSAA	IS	78.6	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1
13C2-PFUnA	IS	82.6	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1

Sample ID: TGIDU20100180430N					VAL - PFAS					
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Soil		Lab Sample:	1800898-16		Column:	BEH C18
Project:	Lapeer Sampling		Date Collected:	30-Apr-18 18:35		Date Received:	04-May-18 09:48			
Location:	08n11e16-TG02				% Solids:	90.5				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
d5-EtFOSAA	IS	79.9	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1	
13C2-PFDoA	IS	86.6	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1	
13C2-PFTeDA	IS	88.1	50 - 150		B8E0193	23-May-18	1.00 g	01-Jun-18 14:44	1	
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.					

Sample ID: TGIDU20200180430N
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-17	Column:	BEH C18
Project:	Lapeer Sampling	Date Collected:	30-Apr-18 18:40	Date Received:	04-May-18 09:48		
Location:	08n11e16-TG02			% Solids:	91.1		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.198	0.148	1.06	2.11	J	B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFPeA	2706-90-3	ND	0.213	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFBS	375-73-5	ND	0.383	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFHxA	307-24-4	ND	0.214	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFHpA	375-85-9	ND	0.216	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFHxS	355-46-4	ND	0.327	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
6:2 FTS	27619-97-2	7.95	0.242	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFOA	335-67-1	ND	0.249	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFHpS	375-92-8	ND	0.180	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFOS	1763-23-1	4.71	0.892	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFNA	375-95-1	ND	0.188	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFDA	335-76-2	ND	0.270	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
8:2 FTS	39108-34-4	ND	0.301	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFOSA	754-91-6	ND	0.240	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
MeFOSAA	2355-31-9	ND	0.319	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFDS	335-77-3	ND	0.212	1.06	2.11		B8E0193	23-May-18	1.04 g	31-May-18 03:59	1
PFUnA	2058-94-8	ND	0.374	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
EtFOSAA	2991-50-6	ND	0.339	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFDaA	307-55-1	ND	0.291	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFTrDA	72629-94-8	ND	0.129	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFTeDA	376-06-7	ND	0.209	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFNS	68259-12-1	ND	1.51	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
PFPeS	2706-91-4	ND	0.892	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
4:2 FTS	757124-72-4	ND	0.892	1.06	2.11		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.9	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C3-PFPeA	IS	91.7	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C3-PFBS	IS	109	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C2-PFHxA	IS	94.0	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C4-PFHpA	IS	89.3	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
18O2-PFHxS	IS	98.6	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C2-PFOA	IS	83.3	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C8-PFOS	IS	93.1	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C5-PFNA	IS	79.7	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C2-PFDA	IS	87.8	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C8-PFOSA	IS	56.7	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
d3-MeFOSAA	IS	89.9	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1
13C2-PFUnA	IS	68.7	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1

Sample ID: TGIDU20200180430N						VAL - PFAS				
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Soil		Lab Sample:	1800898-17		Column:	BEH C18
Project:	Lapeer Sampling		Date Collected:	30-Apr-18 18:40		Date Received:	04-May-18 09:48			
Location:	08n11e16-TG02				% Solids:	91.1				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
d5-EtFOSAA	IS	92.4	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1	
13C2-PFDoA	IS	96.1	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1	
13C2-PFTeDA	IS	94.1	50 - 150		B8E0193	23-May-18	1.04 g	01-Jun-18 14:54	1	
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.					

Sample ID: TGIDU20300180430N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1800898-18	Column:	BEH C18		
Project:	Lapeer Sampling	Date Collected:	30-Apr-18 18:45	Date Received:	04-May-18 09:48				
Location:	08n11e16-TG02			% Solids:	91.4				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	0.183	0.137	0.977	1.95	J	B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFPeA	2706-90-3	ND	0.197	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFBS	375-73-5	ND	0.355	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFHxA	307-24-4	ND	0.198	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFHpA	375-85-9	ND	0.200	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFHxS	355-46-4	ND	0.303	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
6:2 FTS	27619-97-2	ND	0.224	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFOA	335-67-1	ND	0.231	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFHpS	375-92-8	ND	0.166	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFOS	1763-23-1	3.12	0.826	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFNA	375-95-1	ND	0.174	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFDA	335-76-2	ND	0.250	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
8:2 FTS	39108-34-4	ND	0.279	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFOSA	754-91-6	ND	0.222	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
MeFOSAA	2355-31-9	ND	0.295	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFDS	335-77-3	ND	0.196	0.977	1.95		B8E0193	23-May-18	1.12 g	31-May-18 04:09	1
PFUnA	2058-94-8	ND	0.346	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
EtFOSAA	2991-50-6	ND	0.314	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFDaA	307-55-1	ND	0.270	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFTrDA	72629-94-8	ND	0.119	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFTeDA	376-06-7	ND	0.194	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFNS	68259-12-1	ND	1.40	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
PFPeS	2706-91-4	ND	0.826	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
4:2 FTS	757124-72-4	ND	0.826	0.977	1.95		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.5	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C3-PFPeA	IS	86.9	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C3-PFBS	IS	99.7	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C2-PFHxA	IS	90.9	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C4-PFHpA	IS	90.7	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
18O2-PFHxS	IS	85.9	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C2-PFOA	IS	78.3	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C8-PFOS	IS	98.5	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C5-PFNA	IS	87.3	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C2-PFDA	IS	87.3	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C8-PFOSA	IS	54.3	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
d3-MeFOSAA	IS	83.5	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1
13C2-PFUnA	IS	78.2	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1

Sample ID: TGIDU20300180430N						VAL - PFAS				
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Soil		Lab Sample:	1800898-18		Column:	BEH C18
Project:	Lapeer Sampling		Date Collected:	30-Apr-18 18:45		Date Received:	04-May-18 09:48			
Location:	08n11e16-TG02				% Solids:	91.4				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
d5-EtFOSAA	IS	87.2	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1	
13C2-PFDoA	IS	91.8	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1	
13C2-PFTeDA	IS	86.9	50 - 150		B8E0193	23-May-18	1.12 g	01-Jun-18 15:04	1	
DL - Detection Limit		LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.		When reported, PFHxS, PFOA and PFOS 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	17-015-0
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	2016026
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	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
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.



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800898 Temp: 15/2.2 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: Lapeer PFAS Biosolids Investigation PO#: 60570635 Sampler: Stan Krenz
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) Dorin Bogdan Date 5/16/2018 Time 17:30 Received by (printed name and signature) _____ Date _____ Time _____

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				Method of Shipment: <u>FED EX</u>		Tracking No.: _____		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments
Sample ID	Date	Time	Location/Sample Description	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	PFOS	PFAS List 6	PFAS List 14	
CL1DU10100180501N	5/1/18	1030	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU10300180501N	5/1/18	1200	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU10200180501N	5/1/18	1230	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU20100180501N	5/1/18	1500	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU20200180501N	5/1/18	1700	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU20300180501N	5/1/18	1800	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU30100180502N	5/2/18	1825	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU30200180502N	5/2/18	1830	08n10e33-CL01	3	P	SO		X							ISM	
CL1DU30300180502N	5/2/18	1835	08n10e33-CL01	3	P	SO		X							ISM	

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

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
Email: dorin.bogdan@aescom.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: _____

Revised COC - received from Dorin Bogdan 5/17/18 (ju)



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800898 Temp: 15/2-2 °C
Storage ID: W2-2 Storage Secured: Yes ☒ No ☐

Project ID: Lapeer PFAS Biosolids Investigation PO#: 60570635 Sampler: Stan Krenz
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) Dorin Bogdan Date 5/16/2018 Time 17:30 Received by (printed name and signature) _____ Date _____ Time _____

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				Method of Shipment: FED EX		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments	
ATTN: <u>Jennifer Miller</u>				Tracking No.: _____											
Sample ID	Date	Time	Location/Sample Description	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	PFOA/PFOS	UCMR3 PFAS List 6	PFAS List 14
TG1DU30100180426N	4/26/18	1530	08n11e16-TG01	3	P	SO		X							ISM
TG1DU30200180426N	4/26/18	1535	08n11e16-TG01	3	P	SO		X							ISM
TG1DU30300180426N	4/26/18	1540	08n11e16-TG01	3	P	SO		X							ISM
TG1DU10100180426N	4/26/18	1715	08n11e16-TG02	3	P	SO		X							ISM
TG1DU10200180427N	4/27/18	0925	08n11e16-TG02	3	P	SO		X							ISM
TG1DU10300180427N	4/27/18	0930	08n11e16-TG02	3	P	SO		X							ISM
TG1DU20100180430N	4/30/18	1835	08n11e16-TG02	3	P	SO		X							ISM
TG1DU20200180430N	4/30/18	1840	08n11e16-TG02	3	P	SO		X							ISM
TG1DU20300180430N	4/30/18	1845	08n11e16-TG02	3	P	SO		X							ISM

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

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____

Revised COC - received from Dorin Bogdan 5/17/18 (du)
Work Order 1800898



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800898 Temp: 1.5°C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

1.5°C KE 05/08/18

Project ID: LAPEER SAMPLING PO#: 60570309 Sampler: John Yanchula
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Stree City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) John Yanchula Date 5/3/18 Time 1830 Received by (printed name and signature) FED EX Date _____ Time _____

Relinquished by (printed name and signature) FED EX Date _____ Time _____ Received by (printed name and signature) KIM ERIC Date 05/04/18 Time 10:14

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 Ph: (916) 673-1520; Fax: (916) 673-0106				Method of Shipment: <u>FED EX</u>		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments	
ATTN: <u>Jennifer Miller</u>				Tracking No.: _____											
Sample ID	Date	Time	Location/Sample Description	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	PFOA/PFOS	UCM103 PFAS List 6	PFAS List 14
CL1D010102040501N	5/1/18	1030	LAPCOR	3		S			X						
CL1D0103040180501N	5/1/18	1200	LAPCOR	3		S			X						
CL1D0102040180501N	5/1/18	1730	LAPCOR	3		S			X						
CL1D0201040180501N	5/1/18	1500	LAPCOR	3		S			X						
CL1D0202040180501N	5/1/18	1700	LAPCOR	3		S			X						
CL1D0203040180501N	5/1/18	1800	LAPCOR	3		S			X						
CL1D0301040180502N	5/2/18	1825	LAPCOR	3		S			X						
CL1D0302040180502N	5/2/18	1830	LAPCOR	3		S			X						
CL1D0303040180502N	5/2/18	1835	LAPCOR	3		S			X						

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

SEND DOCUMENTATION AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Stree
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800898 Temp: 1.5/2.2 °C
Storage ID: W122 Storage Secured: Yes ☒ No ☐

Project ID: LAPEER SAMPLING PO#: 60570309 Sampler: John Yanchula
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) John Yanchula Date 5/3/18 Time 1830 Received by (printed name and signature) FED EX Date _____ Time _____
Relinquished by (printed name and signature) FED EX Date _____ Time _____ Received by (printed name and signature) KIM EURIC Date 05/4/18 Time 1014

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 Ph: (916) 673-1520; Fax: (916) 673-0106				Method of Shipment: <u>FED EX</u>		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments	
ATTN: <u>Jennifer Miller</u>				Tracking No.: _____											
Sample ID	Date	Time	Location/Sample Description	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	PFOS/PFOA	UCM103 PFAS List 16	PFAS List 14
T6IDU3014418426N	4/26/18	1530	LAPOR	3		S		X							
T6IDU3024418426N	4/26/18	1535	LAPOR	3		S		X							
T6IDU3034418426N	4/26/18	1540	LAPOR	3		S		X							
T6IDU1024418427N	4/27/18	0925	LAPOR	3		S		X							
T6IDU1034418427N	4/27/18	0930	LAPOR	3		S		X							
T6IDU1010418426N	4/26/18	1715	LAPOR	3		S		X							
T6IDU2014418434N	4/30/18	1835	LAPOR	3		S		X							
T6IDU2014418443N	4/30/18	1840	LAPOR	3		S		X							
T6IDU2014418443N	4/30/18	1845	LAPOR	3		S		X							

Special Instructions/Comments: _____
by e-mail to Vista. _____

Send Results and Acknowledgements to the list provided

SEND DOCUMENTATION AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____

Sample Log-in Checklist

 Vista Work Order #: 1800898 TAT SD

Samples Arrival:	Date/Time 05/04/18 0948	Initials: KE	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 05/08/18 0859	Initials: (JW)	Location: WR-2 Shelf/Rack: A-5
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GSO	☐ DHL	☐ Hand Delivered
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 1.6 (uncorrected)	Time: 1022		Thermometer ID: IR-4
Temp °C: 1.5 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill <u>2 of 3</u> Trk # <u>7808 1407 5849</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:	☐ Na ₂ S ₂ O ₃	☐ Trizma	☒ None
	☐ Yes	☐ No	☒ NA
Shipping Container	☒ Vista	☐ Client	☒ Retain
	☐ Return	☐ Dispose	

Comments:

CLIDU1010018050IN
 CLIDU1030018050IN
 CLIDU1020018050IN
 CLIDU2010018050IN
 CLIDU2020018050IN
 CLIDU2030018050IN

CLIDU30100180502N
 CLIDU30200180502N
 CLIDU30300180502N
 TGIDU30100180426N
 TGIDU30200180426N
 TGIDU30300180426N

Sample Log-in Checklist

Vista Work Order #: 1800898 TAT Std.

Samples Arrival:	Date/Time 05/04/18 0948	Initials: VSE	Location: WR-2
			Shelf/Rack: N/A
Logged In:	Date/Time 05/08/18 0859	Initials: (du)	Location: WR-2
			Shelf/Rack: A-5
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 2.3 (uncorrected)	Time: 1033		Thermometer ID: IR-4
Temp °C: 2.2 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?			☒
Shipping Documentation Present?	☒		
Airbill 3 of 3 Trk # 7808 1407 5850	☒		
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:	☐ Na ₂ S ₂ O ₃	☐ Trizma	☒ None
	☐ Yes	☐ No	☒ NA
Shipping Container	☒ Vista	☐ Client	☒ Retain
	☐ Return	☐ Dispose	

Comments:

TGIDU1010018
TGIDU1020018
TGIDU1030018
TGIDU20100180430N
• TGIDU20200180430N
• TGIDU20300180430N

Chain of Custody Anomaly/Sample Acceptance Form



Merit Laboratories, Inc.
Maya Murshak
mayamurshak@meritlabs.com
(517) 827-2744

Workorder Number: 1800898
Date Received: 04-May-18 09:48
Documented by/date: Kim Elric 05/08/18

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank you,

Martha Maier
mmaier@vista-analytical.com
916-673-1520

☒ Sample IDs on Chain of Custody do not match Sample Container Labels

Chain of Custody ID	Container Label ID
CLIDU10100180501N	CLIDU10100180501N
CLIDU10300180501N	CLIDU10300180501N
CLIDU10200180501N	CLIDU10200180501N
CLIDU20100180501N	CLIDU20100180501N
CLIDU20200180501N	CLIDU20200180501N
CLIDU20300180501N	CLIDU20300180501N
CLIDU30100180502N	CLIDU30100180502N
CLIDU30200180502N	CLIDU30200180502N
CLIDU30300180502N	CLIDU30300180502N
TGIDU30100180426N	TGIDU30100180426N
TGIDU30200180426N	TGIDU30200180426N
TGIDU30300180426N	TGIDU30300180426N
TGIDU10200180427N	TGIDU10200180427N
TGIDU10300180427N	TGIDU10300180427N
TGIDU10100180426N	TGIDU10100180426N
TGIDU20100180430N	TGIDU20100180430N
*TGIDU20100180430N	TGIDU20200180430N
*TGIDU20100180430N	TGIDU20300180430N

Client Authorization

Proceed with Analysis: ☒ YES ☐ NO

Signature and Date

[Signature] 5/16/18

Client Comments/Instructions Per Dorin Bogdan via email use sample ID as listed
on container label.



June 27, 2018

Vista Work Order No. 1800935

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 May 12, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name 'Lapeer'.

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,

A handwritten signature in black ink that reads "Martha Maier". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

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. 1800935

Case Narrative

Sample Condition on Receipt:

One effluent sample, two sludge samples and two wastewater 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:

As requested, sample "CL1CS0100180509N" was centrifuged and the aqueous and solid phases extracted and analyzed separately. The solid phase has been reported as Lab Sample 1800935-06.

PFAS Isotope Dilution Method

The aqueous samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as 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.

The samples contained particulate and were centrifuged prior to extraction.

Subsamples of "CL1CW0100180509N" and "CL1MH0100180509N" were extracted due to the appearance of the samples. The Solid Phase Extraction cartridge clogged during the extraction of sample "CL1CS0100180509N" and an additional cartridge was used to complete the extraction. Sample "CL1MH0100180509N" was eluted under vacuum.

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.

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 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

VAL-PFAS

Sample "CL1MC0100180509N" and the solid phase of sample "CL1CS0100180509N" were extracted and analyzed for a selected list of PFAS using VAL Method PFAS. 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.

Sample "CL1MC0100180509N" built up pressure during storage and immediately expanded upon removing the lid. The sample was transferred to a large pan and homogenized prior to removing an aliquot for extraction.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. In prep batch B8F0074, a concentration of 1.99 ng/g of 6:2 FTS was detected in the Method Blank. No other analytes were detected in the Method Blank above 1/2 of the LOQ concentrations. The recoveries of 6:2 FTS and MeFOSAA were 134% and 69.5% in the OPR. A concentration of 562 ng/g of 6:2 FTS was detected in the sample, which is greater than 10X the level detected in the Method Blank; the background concentration did not significantly affect the sample results. The recoveries of all other analytes within the method acceptance criteria. The sample was extracted twice, with similar results.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with preparation batch B8F0153. No analytes were detected in the Method Blank above 1/2 the LOQ. The recoveries of PFHpS and 8:2 FTS were greater than 130% in the OPR. These analytes were not detected in the samples. The recoveries of all other analytes were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800935-01	WWTPEF0100180509N	PFAS Isotope Dilution Method	13C2-PFTeDA	H	49.1
1800935-02	WWTPSL0100180509N	PFAS Isotope Dilution Method	13C2-PFTeDA	H	35.4
1800935-04	WWTPWW0100180509N	PFAS Isotope Dilution Method	13C2-PFTeDA	H	27.5
1800935-05	WWTPSL0100180509N	VAL - PFAS	13C2-PFTeDA	H	40.8
1800935-06	WWTPSL0100180509N	VAL - PFAS	d3-MeFOSAA	H	39.2
1800935-06	WWTPSL0100180509N	VAL - PFAS	d5-EtFOSAA	H	43.4
B8E0190-BLK1	B8E0190-BLK1	PFAS Isotope Dilution Method	13C8-PFOSA	H	40.1
B8E0190-BS1	B8E0190-BS1	PFAS Isotope Dilution Method	13C8-PFOSA	H	42.0
B8F0074-BLK1	B8F0074-BLK1	VAL - PFAS	13C8-PFOSA	H	37.3
B8F0074-BS1	B8F0074-BS1	VAL - PFAS	13C8-PFOSA	H	35.8
B8F0153-BLK1	B8F0153-BLK1	VAL - PFAS	13C8-PFOSA	H	45.7
B8F0153-BS1	B8F0153-BS1	VAL - PFAS	13C8-PFOSA	H	46.2

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800935-01	WWTPEF0100180509N WWTPEF0100180509N WWTPEF0100180509N	Effluent 09-May-18 11:10 Sample	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800935-02	WWTPSL0100180509N	Centrifuge - 09-May-18 11:35 SLUDGE	12-May-18 09:57	HDPE Bottle, 250 mL
1800935-03	WWTPWW0100180509N	Centrifuge - 09-May-18 11:40 Wastewater	12-May-18 09:57	HDPE Bottle, 250 mL
1800935-04	WWTPWW0100180509N	Man Hole near 09-May-18 12:00 mixing cell - Wastewater	12-May-18 09:57	HDPE Bottle, 250 mL
1800935-05	WWTPSL0100180509N	Mixing Cell - 09-May-18 12:10 SLUDGE	12-May-18 09:57	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:	B8E0190-BLK1	Column:	BEH C18
Project:	Lapeer						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFPeA	2706-90-3	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFBS	375-73-5	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
4:2 FTS	757124-72-4	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFHxA	307-24-4	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFPeS	2706-91-4	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFHpA	375-85-9	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFHxS	355-46-4	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
6:2 FTS	27619-97-2	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFOA	335-67-1	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFHpS	375-92-8	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFNA	375-95-1	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFOSA	754-91-6	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFOS	1763-23-1	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFDA	335-76-2	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
8:2 FTS	39108-34-4	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFNS	68259-12-1	ND	0.715	0.750	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
MeFOSAA	2355-31-9	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
EtFOSAA	2991-50-6	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFUnA	2058-94-8	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFDS	335-77-3	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFDoA	307-55-1	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFTTrDA	72629-94-8	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
PFTeDA	376-06-7	ND	0.423	0.500	1.00		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.6	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C3-PFPeA	IS	95.4	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C3-PFBS	IS	105	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C2-4:2 FTS	IS	96.3	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C2-PFHxA	IS	93.0	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C4-PFHpA	IS	98.1	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
18O2-PFHxS	IS	97.3	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C2-6:2 FTS	IS	87.3	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C2-PFOA	IS	87.2	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C5-PFNA	IS	96.2	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C8-PFOSA	IS	40.1	50 - 150	H	B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C8-PFOS	IS	93.3	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1
13C2-PFDA	IS	73.0	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1

Sample ID: Method Blank					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer					Laboratory Data Lab Sample: B8E0190-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	84.2	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1	
d3-MeFOSAA	IS	68.7	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1	
d5-EtFOSAA	IS	65.8	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1	
13C2-PFUnA	IS	67.6	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1	
13C2-PFDoA	IS	53.5	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1	
13C2-PFTeDA	IS	60.1	50 - 150		B8E0190	23-May-18	0.250 L	30-May-18 06:28	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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:	B8E0190-BS1		Column:	BEH C18	
Project:	Lapeer										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	40.7	40.0	102	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFPeA	2706-90-3	39.8	40.0	99.5	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFBS	375-73-5	39.5	40.0	98.7	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
4:2 FTS	757124-72-4	38.1	40.0	95.2	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFHxA	307-24-4	39.5	40.0	98.8	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFPeS	2706-91-4	39.9	40.0	99.6	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFHpA	375-85-9	40.2	40.0	101	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFHxS	355-46-4	46.1	40.0	115	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
6:2 FTS	27619-97-2	43.2	40.0	108	60 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFOA	335-67-1	43.0	40.0	108	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFHpS	375-92-8	43.7	40.0	109	60 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFNA	375-95-1	44.6	40.0	112	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFOSA	754-91-6	37.8	40.0	94.5	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFOS	1763-23-1	36.6	40.0	91.5	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFDA	335-76-2	45.7	40.0	114	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
8:2 FTS	39108-34-4	41.4	40.0	104	60 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFNS	68259-12-1	35.2	40.0	87.9	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
MeFOSAA	2355-31-9	32.5	40.0	81.2	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
EtFOSAA	2991-50-6	35.3	40.0	88.3	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFUnA	2058-94-8	41.4	40.0	103	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFDS	335-77-3	40.5	40.0	101	60 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFDoA	307-55-1	42.2	40.0	105	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFTTrDA	72629-94-8	42.3	40.0	106	60 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
PFTeDA	376-06-7	47.3	40.0	118	70 - 130		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			96.1	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C3-PFPeA	IS			97.6	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C3-PFBS	IS			108	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C2-4:2 FTS	IS			93.5	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C2-PFHxA	IS			93.8	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C4-PFHpA	IS			104	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
18O2-PFHxS	IS			98.1	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C2-6:2 FTS	IS			81.3	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C2-PFOA	IS			82.7	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1
13C5-PFNA	IS			67.9	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1

Sample ID: OPR					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Project: Lapeer					Laboratory Data Lab Sample: B8E0190-BS1 Column: BEH C18					
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C8-PFOSA	IS	42.0	50- 150	H	B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
13C8-PFOS	IS	99.0	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
13C2-PFDA	IS	78.3	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
13C2-8:2 FTS	IS	84.9	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
d3-MeFOSAA	IS	80.1	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
d5-EtFOSAA	IS	79.0	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
13C2-PFUnA	IS	79.7	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
13C2-PFDoA	IS	73.4	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	
13C2-PFTeDA	IS	67.7	50- 150		B8E0190	23-May-18	0.250 L	30-May-18 06:18	1	

Sample ID: WWTPEF0100180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Effluent	Lab Sample:	1800935-01	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 15:05	Date Received:	12-May-18 09:57		
Location:	WWTP-EFF						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	29.3	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFPeA	2706-90-3	81.4	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFBS	375-73-5	7.46	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
4:2 FTS	757124-72-4	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFHxA	307-24-4	90.8	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFPeS	2706-91-4	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFHpA	375-85-9	122	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFHxS	355-46-4	1.32	1.32	1.93	3.86	J	B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
6:2 FTS	27619-97-2	8.13	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFOA	335-67-1	5.03	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFHpS	375-92-8	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFNA	375-95-1	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFOSA	754-91-6	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFOS	1763-23-1	28.7	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFDA	335-76-2	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
8:2 FTS	39108-34-4	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFNS	68259-12-1	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
MeFOSAA	2355-31-9	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
EtFOSAA	2991-50-6	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFUnA	2058-94-8	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFDS	335-77-3	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFDoA	307-55-1	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFTTrDA	72629-94-8	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
PFTeDA	376-06-7	ND	1.32	1.93	3.86		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C3-PFPeA	IS	101	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C3-PFBS	IS	119	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C2-4:2 FTS	IS	95.4	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C2-PFHxA	IS	98.1	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C4-PFHpA	IS	114	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
18O2-PFHxS	IS	96.6	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C2-6:2 FTS	IS	81.6	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C2-PFOA	IS	92.9	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C5-PFNA	IS	87.7	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C8-PFOSA	IS	54.0	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C8-PFOS	IS	112	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1
13C2-PFDA	IS	89.0	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1

Sample ID: WWTPEF0100180509N					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Effluent Project: Lapeer Date Collected: 09-May-18 15:05 Location: WWTP-EFF				Laboratory Data Lab Sample: 1800935-01 Column: BEH C18 Date Received: 12-May-18 09:57						
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	95.0	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1	
d3-MeFOSAA	IS	82.9	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1	
d5-EtFOSAA	IS	92.8	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1	
13C2-PFUnA	IS	69.1	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1	
13C2-PFDoA	IS	72.5	50 - 150		B8E0190	23-May-18	0.259 L	30-May-18 06:39	1	
13C2-PFTeDA	IS	49.1	50 - 150	H	B8E0190	23-May-18	0.259 L	30-May-18 06:39	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: WWTPSL0100180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Sludge	Lab Sample:	1800935-02	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 15:45	Date Received:	12-May-18 09:57		
Location:	WWTP-Centrifuge						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	141	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFPeA	2706-90-3	275	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFBS	375-73-5	12.1	9.39	13.7	27.4	J	B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
4:2 FTS	757124-72-4	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFHxA	307-24-4	462	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFPeS	2706-91-4	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFHpA	375-85-9	415	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFHxS	355-46-4	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
6:2 FTS	27619-97-2	102	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFOA	335-67-1	55.7	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFHpS	375-92-8	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFNA	375-95-1	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFOSA	754-91-6	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFOS	1763-23-1	182	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFDA	335-76-2	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
8:2 FTS	39108-34-4	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFNS	68259-12-1	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
MeFOSAA	2355-31-9	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
EtFOSAA	2991-50-6	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFUnA	2058-94-8	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFDS	335-77-3	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFDoA	307-55-1	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFTTrDA	72629-94-8	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
PFTeDA	376-06-7	ND	9.39	13.7	27.4		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.3	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C3-PFPeA	IS	96.3	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C3-PFBS	IS	104	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C2-4:2 FTS	IS	95.1	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C2-PFHxA	IS	91.5	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C4-PFHpA	IS	101	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
18O2-PFHxS	IS	89.9	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C2-6:2 FTS	IS	90.4	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C2-PFOA	IS	82.4	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C5-PFNA	IS	81.5	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C8-PFOSA	IS	58.9	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C8-PFOS	IS	75.6	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1
13C2-PFDA	IS	70.0	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1

Sample ID: WWTPSL0100180509N					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Sludge Project: Lapeer Date Collected: 09-May-18 15:45 Location: WWTP-Centrifuge				Laboratory Data Lab Sample: 1800935-02 Column: BEH C18 Date Received: 12-May-18 09:57						
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	78.6	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1	
d3-MeFOSAA	IS	60.0	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1	
d5-EtFOSAA	IS	67.7	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1	
13C2-PFUnA	IS	70.2	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1	
13C2-PFDoA	IS	54.5	50 - 150		B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1	
13C2-PFTeDA	IS	35.4	50 - 150	H	B8E0190	23-May-18	0.0365 L	30-May-18 06:49	1	

DL - Detection Limit

LOD - Limit of Detection
 LOQ - Limit of quantitation

Results reported to the DL.

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: WWTPWW0100180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Wastewater	Lab Sample:	1800935-03	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 16:15	Date Received:	12-May-18 09:57		
Location:	WWTP-Centrifuge						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	39.5	17.0	24.9	49.8	J	B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFPeA	2706-90-3	134	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFBS	375-73-5	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
4:2 FTS	757124-72-4	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFHxA	307-24-4	204	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFPeS	2706-91-4	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFHpA	375-85-9	171	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFHxS	355-46-4	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
6:2 FTS	27619-97-2	269	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFOA	335-67-1	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFHpS	375-92-8	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFNA	375-95-1	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFOSA	754-91-6	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFOS	1763-23-1	48.4	17.0	24.9	49.8	J	B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFDA	335-76-2	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
8:2 FTS	39108-34-4	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFNS	68259-12-1	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
MeFOSAA	2355-31-9	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
EtFOSAA	2991-50-6	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFUnA	2058-94-8	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFDS	335-77-3	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFDoA	307-55-1	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFTTrDA	72629-94-8	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
PFTeDA	376-06-7	ND	17.0	24.9	49.8		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.2	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C3-PFPeA	IS	92.1	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C3-PFBS	IS	106	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C2-4:2 FTS	IS	84.9	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C2-PFHxA	IS	92.5	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C4-PFHpA	IS	87.0	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
18O2-PFHxS	IS	98.0	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C2-6:2 FTS	IS	86.1	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C2-PFOA	IS	66.5	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C5-PFNA	IS	66.8	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C8-PFOSA	IS	57.2	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C8-PFOS	IS	80.3	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1
13C2-PFDA	IS	87.9	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1

Sample ID: WWTPWW0100180509N					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Wastewater Project: Lapeer Date Collected: 09-May-18 16:15 Location: WWTP-Centrifuge					Laboratory Data Lab Sample: 1800935-03 Column: BEH C18 Date Received: 12-May-18 09:57					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	89.2	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1	
d3-MeFOSAA	IS	93.4	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1	
d5-EtFOSAA	IS	91.3	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1	
13C2-PFUnA	IS	73.3	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1	
13C2-PFDoA	IS	78.8	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1	
13C2-PFTeDA	IS	72.2	50 - 150		B8E0190	23-May-18	0.0201 L	30-May-18 07:00	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: WWTPWW0100180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Wastewater	Lab Sample:	1800935-04	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 16:30	Date Received:	12-May-18 09:57		
Location:	WWTP-ManHole-MC						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	294	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFPeA	2706-90-3	959	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFBS	375-73-5	18.2	17.0	24.8	49.6	J	B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
4:2 FTS	757124-72-4	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFHxA	307-24-4	1400	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFPeS	2706-91-4	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFHpA	375-85-9	757	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFHxS	355-46-4	17.7	17.0	24.8	49.6	J	B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
6:2 FTS	27619-97-2	1910	84.9	124	248	D	B8E0190	23-May-18	0.0202 L	02-Jun-18 18:29	5
PFOA	335-67-1	91.6	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFHpS	375-92-8	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFNA	375-95-1	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFOSA	754-91-6	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFOS	1763-23-1	3180	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFDA	335-76-2	17.1	17.0	24.8	49.6	J	B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
8:2 FTS	39108-34-4	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFNS	68259-12-1	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
MeFOSAA	2355-31-9	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
EtFOSAA	2991-50-6	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFUnA	2058-94-8	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFDS	335-77-3	41.0	17.0	24.8	49.6	J	B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFDoA	307-55-1	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFTTrDA	72629-94-8	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
PFTeDA	376-06-7	ND	17.0	24.8	49.6		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.1	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C3-PFPeA	IS	90.9	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C3-PFBS	IS	99.1	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C2-4:2 FTS	IS	87.9	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C2-PFHxA	IS	93.4	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C4-PFHpA	IS	93.8	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
18O2-PFHxS	IS	90.9	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C2-6:2 FTS	IS	97.7	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C2-PFOA	IS	79.4	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C5-PFNA	IS	78.7	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C8-PFOSA	IS	51.1	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C8-PFOS	IS	84.8	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1
13C2-PFDA	IS	83.6	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1

Sample ID: WWTPWW0100180509N					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Wastewater Project: Lapeer Date Collected: 09-May-18 16:30 Location: WWTP-ManHole-MC					Laboratory Data Lab Sample: 1800935-04 Column: BEH C18 Date Received: 12-May-18 09:57					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	80.4	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1	
d3-MeFOSAA	IS	70.5	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1	
d5-EtFOSAA	IS	62.8	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1	
13C2-PFUnA	IS	59.4	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1	
13C2-PFDoA	IS	56.0	50 - 150		B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1	
13C2-PFTeDA	IS	27.5	50 - 150	H	B8E0190	23-May-18	0.0202 L	30-May-18 07:10	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: Method Blank
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Solid	Lab Sample:	B8F0074-BLK1	Column:	BEH C18
Project:	Lapeer						

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
6:2 FTS	27619-97-2	1.99	0.845	1.00	2.00	J	B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFTTrDA	72629-94-8	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.7	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C3-PFPeA	IS	85.9	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C3-PFBS	IS	98.7	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C2-4:2 FTS	IS	85.1	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C2-PFHxA	IS	88.2	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C4-PFHpA	IS	84.9	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
18O2-PFHxS	IS	96.1	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C2-6:2 FTS	IS	86.0	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C2-PFOA	IS	79.0	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C5-PFNA	IS	86.8	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C8-PFOSA	IS	37.3	50 - 150	H	B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C8-PFOS	IS	98.4	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1
13C2-PFDA	IS	73.0	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1

Sample ID: Method Blank					VAL - PFAS					
Client Data Name: Merit Laboratories, Inc. Matrix: Solid Project: Lapeer					Laboratory Data Lab Sample: B8F0074-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	90.6	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1	
d3-MeFOSAA	IS	83.8	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1	
d5-EtFOSAA	IS	79.9	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1	
13C2-PFUnA	IS	81.7	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1	
13C2-PFDoA	IS	72.1	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1	
13C2-PFTeDA	IS	75.4	50 - 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:23	1	

DL - Detection Limit	LOD - Limit of Detection LOQ - Limit of quantitation	The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
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Sample ID: OPR

VAL - PFAS

Client Data						Laboratory Data					
Name:	Merit Laboratories, Inc.		Matrix:	Solid		Lab Sample:	B8F0074-BS1		Column:	BEH C18	
Project:	Lapeer										
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	8.61	10.0	86.1	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFPeA	2706-90-3	8.90	10.0	89.0	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFBS	375-73-5	8.84	10.0	88.4	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
4:2 FTS	757124-72-4	8.77	10.0	87.7	60 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFHxA	307-24-4	9.29	10.0	92.9	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFPeS	2706-91-4	9.64	10.0	96.4	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFHpA	375-85-9	8.86	10.0	88.6	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFHxS	355-46-4	8.72	10.0	87.2	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
6:2 FTS	27619-97-2	13.4	10.0	134	60 - 130	B, H	B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFOA	335-67-1	10.2	10.0	102	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFHpS	375-92-8	9.49	10.0	94.9	60 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFNA	375-95-1	8.13	10.0	81.3	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFOSA	754-91-6	8.61	10.0	86.1	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFOS	1763-23-1	7.48	10.0	74.8	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFDA	335-76-2	9.13	10.0	91.3	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
8:2 FTS	39108-34-4	9.29	10.0	92.9	60 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFNS	68259-12-1	7.73	10.0	77.3	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
MeFOSAA	2355-31-9	6.95	10.0	69.5	70 - 130	H	B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
EtFOSAA	2991-50-6	9.82	10.0	98.2	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFUnA	2058-94-8	8.81	10.0	88.1	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFDS	335-77-3	9.12	10.0	91.2	60 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFDoA	307-55-1	8.63	10.0	86.3	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFTTrDA	72629-94-8	9.51	10.0	95.1	60 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
PFTeDA	376-06-7	8.28	10.0	82.8	70 - 130		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			100	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C3-PFPeA	IS			96.2	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C3-PFBS	IS			106	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-4:2 FTS	IS			106	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-PFHxA	IS			97.8	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C4-PFHpA	IS			95.5	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
18O2-PFHxS	IS			100	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-6:2 FTS	IS			92.6	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-PFOA	IS			87.7	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C5-PFNA	IS			80.1	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1

Sample ID: OPR					VAL - PFAS						
Client Data				Laboratory Data							
Name:	Merit Laboratories, Inc.		Matrix:	Solid		Lab Sample:	B8F0074-BS1		Column:	BEH C18	
Project:	Lapeer										
Labeled Standards			Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA			IS	35.8	50- 150	H	B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C8-PFOS			IS	102	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-PFDA			IS	83.0	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-8:2 FTS			IS	108	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
d3-MeFOSAA			IS	72.3	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
d5-EtFOSAA			IS	61.8	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-PFUnA			IS	76.8	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-PFDoA			IS	76.7	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1
13C2-PFTeDA			IS	79.1	50- 150		B8F0074	11-Jun-18	1.00 g	15-Jun-18 13:13	1

Sample ID: WWTPSL0100180509N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Sludge	Lab Sample:	1800935-05	Column:	BEH C18		
Project:	Lapeer	Date Collected:	09-May-18 17:05	Date Received:	12-May-18 09:57				
Location:	WWTP-Mixing Cell			% Solids:	4.98				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	8.73	5.58	6.61	13.2	J	B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFPeA	2706-90-3	26.0	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFBS	375-73-5	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
4:2 FTS	757124-72-4	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFHxA	307-24-4	48.0	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFPeS	2706-91-4	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFHpA	375-85-9	14.8	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFHxS	355-46-4	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
6:2 FTS	27619-97-2	562	5.58	6.61	13.2	B	B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFOA	335-67-1	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFHpS	375-92-8	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFNA	375-95-1	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFOSA	754-91-6	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFOS	1763-23-1	1680	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFDA	335-76-2	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
8:2 FTS	39108-34-4	8.51	5.58	6.61	13.2	J	B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFNS	68259-12-1	ND	9.45	9.91	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
MeFOSAA	2355-31-9	9.86	5.58	6.61	13.2	J	B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
EtFOSAA	2991-50-6	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFUnA	2058-94-8	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFDS	335-77-3	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFDoA	307-55-1	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFTTrDA	72629-94-8	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
PFTeDA	376-06-7	ND	5.58	6.61	13.2		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.4	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C3-PFPeA	IS	93.9	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C3-PFBS	IS	99.5	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-4:2 FTS	IS	90.7	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-PFHxA	IS	95.5	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C4-PFHpA	IS	96.2	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
18O2-PFHxS	IS	94.0	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-6:2 FTS	IS	95.2	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-PFOA	IS	90.0	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C5-PFNA	IS	87.9	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C8-PFOSA	IS	59.1	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C8-PFOS	IS	90.9	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-PFDA	IS	94.6	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1

Sample ID: WWTPSL0100180509N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Location: WWTP-Mixing Cell	Laboratory Data Matrix: Sludge Date Collected: 09-May-18 17:05 Lab Sample: 1800935-05 Date Received: 12-May-18 09:57 Column: BEH C18 % Solids: 4.98
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	130	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
d3-MeFOSAA	IS	67.7	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
d5-EtFOSAA	IS	73.8	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-PFUnA	IS	81.7	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-PFDoA	IS	84.8	50 - 150		B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1
13C2-PFTeDA	IS	40.8	50 - 150	H	B8F0074	11-Jun-18	3.04 g	15-Jun-18 13:34	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

The results are reported in dry weight.
 The sample size is reported in wet weight.
 Results reported to the DL.

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: Blank

VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Solid	Lab Sample:	B8F0153-BLK1	Column:	BEH C18
Project:	Lapeer						

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFTTrDA	72629-94-8	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.2	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C3-PFPeA	IS	91.3	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C3-PFBS	IS	103	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C2-4:2 FTS	IS	86.0	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C2-PFHxA	IS	85.7	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C4-PFHpA	IS	86.9	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
18O2-PFHxS	IS	92.9	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C2-6:2 FTS	IS	82.5	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C2-PFOA	IS	75.6	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C5-PFNA	IS	78.7	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C8-PFOSA	IS	45.7	50 - 150	H	B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C8-PFOS	IS	104	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1
13C2-PFDA	IS	56.2	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1

Sample ID: Blank					VAL - PFAS					
Client Data Name: Merit Laboratories, Inc. Matrix: Solid Project: Lapeer					Laboratory Data Lab Sample: B8F0153-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	76.5	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1	
d3-MeFOSAA	IS	86.6	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1	
d5-EtFOSAA	IS	90.5	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1	
13C2-PFUnA	IS	63.7	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1	
13C2-PFDoA	IS	64.3	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1	
13C2-PFTeDA	IS	61.9	50 - 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:28	1	

DL - Detection Limit	LOD - Limit of Detection LOQ - Limit of quantitation	The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
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Sample ID: LCS						VAL - PFAS					
Client Data						Laboratory Data					
Name: Merit Laboratories, Inc.		Matrix: Solid				Lab Sample: B8F0153-BS1		Column: BEH C18			
Project: Lapeer											
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	11.1	10.0	111	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFPeA	2706-90-3	11.3	10.0	113	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFBS	375-73-5	11.8	10.0	118	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
4:2 FTS	757124-72-4	11.0	10.0	110	60 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFHxA	307-24-4	11.7	10.0	117	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFPeS	2706-91-4	12.3	10.0	123	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFHpA	375-85-9	11.3	10.0	113	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFHxS	355-46-4	12.2	10.0	122	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
6:2 FTS	27619-97-2	11.8	10.0	118	60 - 130		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:18	1
PFOA	335-67-1	12.8	10.0	128	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFHpS	375-92-8	13.7	10.0	137	60 - 130	H	B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFNA	375-95-1	10.4	10.0	104	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFOSA	754-91-6	10.0	10.0	100	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFOS	1763-23-1	10.7	10.0	107	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFDA	335-76-2	7.56	10.0	75.6	70 - 130		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:18	1
8:2 FTS	39108-34-4	15.1	10.0	151	60 - 130	H	B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFNS	68259-12-1	10.7	10.0	107	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
MeFOSAA	2355-31-9	10.4	10.0	104	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
EtFOSAA	2991-50-6	8.60	10.0	86.0	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFUnA	2058-94-8	11.0	10.0	110	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFDS	335-77-3	11.3	10.0	113	60 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFDaA	307-55-1	11.1	10.0	111	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFTTrDA	72629-94-8	9.67	10.0	96.7	60 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
PFTeDA	376-06-7	12.1	10.0	121	70 - 130		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		88.0	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C3-PFPeA		IS		84.8	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C3-PFBS		IS		97.0	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-4:2 FTS		IS		92.5	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-PFHxA		IS		77.7	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C4-PFHpA		IS		80.5	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
18O2-PFHxS		IS		79.1	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-6:2 FTS		IS		74.9	50- 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:18	1
13C2-PFOA		IS		67.7	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C5-PFNA		IS		74.8	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1

Sample ID: LCS					VAL - PFAS				
Client Data Name: Merit Laboratories, Inc. Project: Lapeer					Laboratory Data Lab Sample: B8F0153-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOA	IS	46.2	50- 150	H	B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C8-PFOS	IS	89.7	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-PFDA	IS	57.2	50- 150		B8F0153	20-Jun-18	1.00 g	23-Jun-18 07:18	1
13C2-8:2 FTS	IS	89.9	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
d3-MeFOSAA	IS	68.2	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
d5-EtFOSAA	IS	82.0	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-PFUnA	IS	66.3	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-PFDoA	IS	76.9	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1
13C2-PFTeDA	IS	67.5	50- 150		B8F0153	20-Jun-18	1.00 g	25-Jun-18 18:31	1

Sample ID: WWTPSL0100180509N
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Solid	Lab Sample:	1800935-06	Column:	BEH C18		
Project:	Lapeer	Date Collected:	09-May-18 15:45	Date Received:	12-May-18 09:57				
Location:	WWTP-Centrifuge			% Solids:	7.78				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFPeA	2706-90-3	5.82	3.51	4.16	8.32	J	B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFBS	375-73-5	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
4:2 FTS	757124-72-4	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFHxA	307-24-4	13.2	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFPeS	2706-91-4	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFHpA	375-85-9	15.4	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFHxS	355-46-4	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
6:2 FTS	27619-97-2	7.41	3.51	4.16	8.32	J	B8F0153	20-Jun-18	3.09 g	23-Jun-18 07:49	1
PFOA	335-67-1	4.34	3.51	4.16	8.32	J	B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFHpS	375-92-8	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFNA	375-95-1	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFOSA	754-91-6	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFOS	1763-23-1	161	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFDA	335-76-2	3.94	3.51	4.16	8.32	J	B8F0153	20-Jun-18	3.09 g	23-Jun-18 07:49	1
8:2 FTS	39108-34-4	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFNS	68259-12-1	ND	5.95	6.24	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
MeFOSAA	2355-31-9	5.89	3.51	4.16	8.32	J	B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
EtFOSAA	2991-50-6	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFA	2058-94-8	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFDS	335-77-3	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFDoA	307-55-1	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFTTrDA	72629-94-8	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
PFTeDA	376-06-7	ND	3.51	4.16	8.32		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.9	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C3-PFPeA	IS	83.5	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C3-PFBS	IS	91.7	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-4:2 FTS	IS	80.6	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-PFHxA	IS	80.5	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C4-PFHpA	IS	90.1	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
18O2-PFHxS	IS	84.5	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-6:2 FTS	IS	85.3	50 - 150		B8F0153	20-Jun-18	3.09 g	23-Jun-18 07:49	1
13C2-PFOA	IS	82.4	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C5-PFNA	IS	87.7	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C8-PFOSA	IS	55.0	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C8-PFOS	IS	85.2	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-PFDA	IS	70.7	50 - 150		B8F0153	20-Jun-18	3.09 g	23-Jun-18 07:49	1

Sample ID: WWTPSL0100180509N	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Location: WWTP-Centrifuge	Laboratory Data Matrix: Solid Date Collected: 09-May-18 15:45 Lab Sample: 1800935-06 Date Received: 12-May-18 09:57 Column: BEH C18 % Solids: 7.78
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	104	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
d3-MeFOSAA	IS	39.2	50 - 150	H	B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
d5-EtFOSAA	IS	43.4	50 - 150	H	B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-PFUnA	IS	73.1	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-PFDoA	IS	79.2	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1
13C2-PFTeDA	IS	55.4	50 - 150		B8F0153	20-Jun-18	3.09 g	25-Jun-18 18:41	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

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	17-015-0
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	2016026
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	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
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.

Revised COC - received from client 6/19/18 *JB*



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800935 Temp: _____ °C
Storage ID: _____ Storage Secured: Yes ☐ No ☐

Project ID: Lapeer PFAS Biosolids Investigation PO#: 60570635 Sampler: Stan Krenz
(name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Stephanie Kammer	MDEQ	525 W. Allegan Street	Lansing	MI	517-897-1597	517-241-3571

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
<i>Dorin Bogdan</i>	5/16/2018	17:30			
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				Method of Shipment: <u>FED EX</u>		Tracking No.: _____		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments		
ATTN: <u>Jennifer Miller</u>																		
Sample ID	Date	Time	Location/Sample Description	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	PFOS/ PFOS	UCMR3 PFAS List 6	PFAS List 14			
WWTPEF0100180509N	5/9/18	1505	WWTP-EFF	2	P	EF			X									Effluent Sample
WWTPSL0100180509N	5/9/18	1545	WWTP-Centrifuge	2	P	SL			X									Centrifuge - SLUDGE
WWTPWW0100180509N	5/9/18	1615	WWTP-Centrifuge	2	P	WW			X									Centrifuge - Wastewater
WWTPWW0100180509N	5/9/18	1630	WWTP-ManHole-MC	2	P	WW			X									Man Hole near mixing cell - Wastewater
WWTPSL0100180509N	5/9/18	1705	WWTP-Mixing Cell	2	P	SL			X									Mixing Cell - SLUDGE

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

SEND DOCUMENTATION AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800935 Temp: 1.9 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: Lapeer PO#: 60570635 Sampler: Stan Krenz
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) Stan Krenz Date 5-11-18 Time 1245 Received by (printed name and signature) Bettina Banock Date 05/12/18 Time 1030
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				Method of Shipment: <u>FED EX</u>		Add Analysis(es) Requested												Comments	
ATTN: <u>Jennifer Miller</u>				Tracking No.: _____		Container(s)													
Sample ID	Date	Time	Location/Sample Description	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	PFAS Isotope Dilution	USEPA Method 537					
CL1EF0100180509N	5/9/18	1110	Lapeer	2	P	EF		X											
CL1CS0100180509N	5/9/18	1135	Lapeer	2	P	SL		X							Centrifuge Soil				
CL1CW0100180509N	5/9/18	1140	Lapeer	2	P	WW		X							Centrifuge Water				
CL1MH0100180509N	5/9/18	1200	Lapeer	2	P	WW		X							Mixing cell waste water				
CL1MC0100180509N	5/9/18	1210	Lapeer	2	P	SL		X							Mixing cell soil				

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

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____

Sample Log-in Checklist

Vista Work Order #: 1800935 TAT std

Samples Arrival:	Date/Time <u>05/12/18 0957</u>		Initials: <u>WJS</u>		Location: <u>WR-2</u>	
					Shelf/Rack: <u>NA</u>	
Logged In:	Date/Time <u>05/12/18 1139</u>		Initials: <u>WJS</u>		Location: <u>WR-2</u>	
					Shelf/Rack: <u>2-4</u>	
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac	☐ GSO	☐ DHL	☐ Hand Delivered
Preservation:	☒ Ice		☐ Blue Ice		☐ Dry Ice	
Temp °C: <u>2.0</u> (uncorrected)	Time: <u>1034</u>		Thermometer ID: <u>IR-4</u>			
Temp °C: <u>1.9</u> (corrected)	Probe used: Yes ☐ No ☒					

		YES	NO	NA
Adequate Sample Volume Received?		<u>WJS</u>		
Holding Time Acceptable?		<u>WJS</u>		
Shipping Container(s) Intact?		<u>WJS</u>		
Shipping Custody Seals Intact?		<u>WJS</u>		
Shipping Documentation Present?		<u>WJS</u>		
Airbill <u>2 of 2</u>	Trk # <u>7722 1188 4554</u>	<u>WJS</u>		
Sample Container Intact?		<u>WJS</u>		
Sample Custody Seals Intact?				<u>WJS</u>
Chain of Custody / Sample Documentation Present?			<u>WJS</u>	
COC Anomaly/Sample Acceptance Form completed?			<u>WJS</u>	<u>WJS</u>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				<u>WJS</u>
Preservation Documented:	<u>Na₂S₂O₃</u> <u>Trizma</u> <u>None</u>	Yes	<u>No</u>	<u>NA</u>
Shipping Container	<u>Vista</u> <u>Client</u> <u>Retain</u>	Return	Dispose	

Comments:



June 12, 2018

Vista Work Order No. 1800937

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 May 12, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name 'Lapeer'.

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,

A handwritten signature in black ink that reads "Martha Maier". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

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. 1800937

Case Narrative

Sample Condition on Receipt:

Ten aqueous 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. Two sample ID discrepancies were resolved as directed; the IDs have been reported as listed on the revised CoC received by email.

Analytical Notes:

PFAS Isotope Dilution Method

The samples contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537).

Holding Times

The samples were extracted and analyzed within the method hold times. Two samples were re-extracted for several analytes; the re-extractions were performed outside of the hold time.

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. No analytes were detected in the Method Blanks above 1/2 the LOQ. The recoveries of 8:2 FTS, MeFOSAA, PFUnA, PFDS and PFTeDA were > 130% in the original OPR. One or more of these analytes were detected in two samples and those samples were re-extracted. The recoveries of all other analytes were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1800937-01	CL1TMW0118180503N	PFAS Isotope Dilution Method	13C8-PFOSA	H	45.2
1800937-02	CL1TMW0405180504N	PFAS Isotope Dilution Method	13C8-PFOSA	H	34.3
1800937-08	CL1DR0200180509N	PFAS Isotope Dilution Method	13C8-PFOSA	H	41.4
B8E0111-BLK1	B8E0111-BLK1	PFAS Isotope Dilution Method	13C8-PFOSA	H	38.6
B8E0111-BS1	B8E0111-BS1	PFAS Isotope Dilution Method	13C8-PFOSA	H	33.5

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800937-01	CL1TMW0118180503N	03-May-18 08:55	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-02	CL1TMW0405180504N	04-May-18 10:45	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-03	CL1SW0300180508N	08-May-18 11:35	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-04	CL1SW0400180508N	08-May-18 12:00	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-05	CL1SW0500180508N	08-May-18 12:25	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-06	CL1DR0100180508N	08-May-18 12:45	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-07	CL1DR0300180508N	08-May-18 14:20	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-08	CL1DR0200180509N	09-May-18 12:45	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-09	CL1SW0100180509N	09-May-18 13:05	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800937-10	CL1SW0200180509N	09-May-18 13:25	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer						Laboratory Data Lab Sample: B8E0111-BLK1 Column: BEH C18					
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.365	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFPeA	2706-90-3	ND	0.640	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFBS	375-73-5	ND	0.895	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
4:2 FTS	757124-72-4	ND	1.37	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFHxA	307-24-4	ND	1.09	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFPeS	2706-91-4	ND	1.37	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFHpA	375-85-9	ND	0.296	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFHxS	355-46-4	ND	0.474	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
6:2 FTS	27619-97-2	ND	1.00	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFOA	335-67-1	ND	0.326	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFHpS	375-92-8	ND	0.469	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFNA	375-95-1	ND	0.405	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFOSA	754-91-6	ND	0.885	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFOS	1763-23-1	ND	0.404	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFDA	335-76-2	ND	0.745	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
8:2 FTS	39108-34-4	ND	1.03	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFNS	68259-12-1	ND	1.94	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
MeFOSAA	2355-31-9	ND	0.825	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
EtFOSAA	2991-50-6	ND	0.685	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFUnA	2058-94-8	ND	0.525	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFDS	335-77-3	ND	0.615	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFDoA	307-55-1	ND	0.396	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFTTrDA	72629-94-8	ND	0.247	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
PFTeDA	376-06-7	ND	0.378	2.50	4.00		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers		Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.1	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C3-PFPeA	IS	93.4	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C3-PFBS	IS	110	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C2-PFHxA	IS	93.4	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C4-PFHpA	IS	95.5	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
18O2-PFHxS	IS	96.8	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C2-PFOA	IS	76.4	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C5-PFNA	IS	75.6	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C8-PFOSA	IS	38.6	50 - 150		H		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C8-PFOS	IS	91.5	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C2-PFDA	IS	68.2	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
d3-MeFOSAA	IS	78.8	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
d5-EtFOSAA	IS	80.3	50 - 150				B8E0111	17-May-18	0.250 L	30-May-18 01:25	1

Sample ID: Method Blank					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer					Laboratory Data Lab Sample: B8E0111-BLK1 Column: BEH C18				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	64.0	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C2-PFDoA	IS	72.8	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
13C2-PFTeDA	IS	74.2	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:25	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS 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:	B8E0111-BS1		Column:	BEH C18	
Project:	Lapeer										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	45.6	40.0	114	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFPeA	2706-90-3	45.2	40.0	113	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFBS	375-73-5	43.4	40.0	109	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
4:2 FTS	757124-72-4	49.6	40.0	124	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFHxA	307-24-4	45.7	40.0	114	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFPeS	2706-91-4	45.2	40.0	113	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFHpA	375-85-9	46.6	40.0	117	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFHxS	355-46-4	49.0	40.0	122	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
6:2 FTS	27619-97-2	48.9	40.0	122	60 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFOA	335-67-1	44.6	40.0	112	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFHpS	375-92-8	45.4	40.0	113	60 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFNA	375-95-1	47.5	40.0	119	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFOSA	754-91-6	45.6	40.0	114	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFOS	1763-23-1	49.6	40.0	124	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFDA	335-76-2	47.4	40.0	119	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
8:2 FTS	39108-34-4	54.7	40.0	137	60 - 130	H	B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFNS	68259-12-1	44.2	40.0	110	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
MeFOSAA	2355-31-9	52.4	40.0	131	70 - 130	H	B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
EtFOSAA	2991-50-6	44.5	40.0	111	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFUnA	2058-94-8	52.2	40.0	131	70 - 130	H	B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFDS	335-77-3	53.6	40.0	134	60 - 130	H	B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFDaA	307-55-1	50.0	40.0	125	70 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFTTrDA	72629-94-8	41.7	40.0	104	60 - 130		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
PFTeDA	376-06-7	52.5	40.0	131	70 - 130	H	B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			92.3	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C3-PFPeA	IS			90.4	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C3-PFBS	IS			112	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C2-PFHxA	IS			90.7	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C4-PFHpA	IS			95.2	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
18O2-PFHxS	IS			89.6	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C2-PFOA	IS			79.3	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C5-PFNA	IS			83.6	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C8-PFOSA	IS			33.5	50 - 150	H	B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C8-PFOS	IS			92.9	50 - 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1

Sample ID: OPR					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Lapeer					Laboratory Data Lab Sample: B8E0111-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	73.1	50- 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
d3-MeFOSAA	IS	61.5	50- 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
d5-EtFOSAA	IS	68.2	50- 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C2-PFUnA	IS	64.8	50- 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C2-PFDoA	IS	68.2	50- 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1
13C2-PFTeDA	IS	64.9	50- 150		B8E0111	17-May-18	0.250 L	30-May-18 01:14	1

Sample ID: Method Blank						PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer						Laboratory Data Lab Sample: B8F0003-BLK1 Column: BEH C18					
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFUnA	2058-94-8	ND	0.525	2.50	4.00		B8F0003	01-Jun-18	0.250 L	04-Jun-18 01:40	1
PFDS	335-77-3	ND	0.615	2.50	4.00		B8F0003	01-Jun-18	0.250 L	04-Jun-18 01:40	1
Labeled Standards	Type	% Recovery	Limits			Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	64.2	50 - 150				B8F0003	01-Jun-18	0.250 L	04-Jun-18 01:40	1
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.					
		LOO - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.					

Sample ID: OPR						PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Project: Lapeer						Laboratory Data Lab Sample: B8F0003-BS1 Column: BEH C18					
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PfUnA	2058-94-8	51.3	40.0	128	70 - 130		B8F0003	01-Jun-18	0.250 L	04-Jun-18 01:30	1
PFDS	335-77-3	52.1	40.0	130	60 - 130		B8F0003	01-Jun-18	0.250 L	04-Jun-18 01:30	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PfUnA		IS		79.6	50- 150		B8F0003	01-Jun-18	0.250 L	04-Jun-18 01:30	1

Sample ID: CL1TMW0118180503N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-01	Column:	BEH C18
Project:	Lapeer	Date Collected:	03-May-18 08:55	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.361	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFPeA	2706-90-3	ND	0.633	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFBS	375-73-5	ND	0.886	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
4:2 FTS	757124-72-4	ND	1.36	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFHxA	307-24-4	ND	1.08	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFPeS	2706-91-4	ND	1.36	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFHpA	375-85-9	ND	0.292	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFHxS	355-46-4	ND	0.469	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
6:2 FTS	27619-97-2	ND	0.990	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFOA	335-67-1	0.871	0.322	2.47	3.96	J	B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFHpS	375-92-8	ND	0.464	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFNA	375-95-1	ND	0.401	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFOSA	754-91-6	ND	0.876	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFOS	1763-23-1	15.0	0.399	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFDA	335-76-2	ND	0.737	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
8:2 FTS	39108-34-4	ND	1.02	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFNS	68259-12-1	ND	1.92	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
MeFOSAA	2355-31-9	ND	0.817	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
EtFOSAA	2991-50-6	ND	0.678	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFUnA	2058-94-8	ND	0.520	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFDS	335-77-3	ND	0.609	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFDoA	307-55-1	ND	0.392	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFTTrDA	72629-94-8	ND	0.244	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
PFTeDA	376-06-7	ND	0.374	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.6	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C3-PFPeA	IS	97.6	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C3-PFBS	IS	129	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C2-PFHxA	IS	105	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C4-PFHpA	IS	99.6	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
18O2-PFHxS	IS	101	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C2-PFOA	IS	82.7	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C5-PFNA	IS	78.9	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C8-PFOSA	IS	45.2	50 - 150	H	B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C8-PFOS	IS	87.4	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C2-PFDA	IS	84.2	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
d3-MeFOSAA	IS	76.7	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
d5-EtFOSAA	IS	81.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1

Sample ID: CL1TMW0118180503N				PFAS Isotope Dilution Method					
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-01	Column:	BEH C18		
Project:	Lapeer	Date Collected:	03-May-18 08:55	Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01								
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	81.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C2-PFDoA	IS	75.2	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
13C2-PFTeDA	IS	71.9	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 02:59	1
DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.				
	LOO - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.				

Sample ID: CL1TMW0405180504N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-02	Column:	BEH C18
Project:	Lapeer	Date Collected:	04-May-18 10:45	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	492	0.361	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFPeA	2706-90-3	944	0.634	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFBS	375-73-5	531	0.886	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
4:2 FTS	757124-72-4	ND	1.36	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFHxA	307-24-4	1140	1.08	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFPeS	2706-91-4	4.90	1.36	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFHpA	375-85-9	662	0.293	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFHxS	355-46-4	115	0.469	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
6:2 FTS	27619-97-2	2.07	0.990	2.47	3.96	J	B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFOA	335-67-1	1930	9.67	74.1	119	D	B8E0111	17-May-18	0.253 L	09-Jun-18 04:06	30
PFHpS	375-92-8	43.5	0.464	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFNA	375-95-1	241	0.401	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFOSA	754-91-6	12.1	0.876	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFOS	1763-23-1	35300	12.0	74.1	119	D	B8E0111	17-May-18	0.253 L	09-Jun-18 04:06	30
PFDA	335-76-2	385	0.738	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
8:2 FTS	39108-34-4	ND	1.02	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFNS	68259-12-1	ND	1.92	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
MeFOSAA	2355-31-9	ND	0.817	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
EtFOSAA	2991-50-6	4.62	0.678	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFUnA	2058-94-8	10.0	0.515	2.45	3.93		B8F0003	01-Jun-18	0.255 L	04-Jun-18 02:33	1
PFDS	335-77-3	2.03	0.604	2.45	3.93	J	B8F0003	01-Jun-18	0.255 L	04-Jun-18 02:33	1
PFDoA	307-55-1	3.62	0.392	2.47	3.96	J	B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFTTrDA	72629-94-8	ND	0.245	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
PFTeDA	376-06-7	ND	0.374	2.47	3.96		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.5	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C3-PFPeA	IS	85.1	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C3-PFBS	IS	94.4	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C2-PFHxA	IS	91.2	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C4-PFHpA	IS	97.2	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
18O2-PFHxS	IS	89.4	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C2-PFOA	IS	100	50 - 150	D	B8E0111	17-May-18	0.253 L	09-Jun-18 04:06	30
13C5-PFNA	IS	81.1	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C8-PFOSA	IS	34.3	50 - 150	H	B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C8-PFOS	IS	108	50 - 150	D	B8E0111	17-May-18	0.253 L	09-Jun-18 04:06	30
13C2-PFDA	IS	73.0	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
d3-MeFOSAA	IS	73.5	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
d5-EtFOSAA	IS	79.8	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1

Sample ID: CL1TMW0405180504N					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer Date Collected: 04-May-18 10:45 Location: 08n10e33-CL01					Laboratory Data Lab Sample: 1800937-02 Column: BEH C18 Date Received: 12-May-18 09:57				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	95.0	50 - 150		B8F0003	01-Jun-18	0.255 L	04-Jun-18 02:33	1
13C2-PFDoA	IS	82.9	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
13C2-PFTeDA	IS	78.1	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:09	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: CL1SW0300180508N
PFAS Isotope Dilution Method

Client Data						Laboratory Data					
Name:	Merit Laboratories, Inc.			Matrix:	Aqueous		Lab Sample:	1800937-03		Column:	BEH C18
Project:	Lapeer			Date Collected:	08-May-18 11:35		Date Received:	12-May-18 09:57			
Location:	08n10e33-CL01										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	48.9	0.358	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFPeA	2706-90-3	81.5	0.628	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFBS	375-73-5	68.5	0.879	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
4:2 FTS	757124-72-4	ND	1.34	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFHxA	307-24-4	92.4	1.07	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFPeS	2706-91-4	1.72	1.34	2.45	3.93	J	B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFHpA	375-85-9	47.7	0.290	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFHxS	355-46-4	11.6	0.465	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
6:2 FTS	27619-97-2	ND	0.982	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFOA	335-67-1	101	0.320	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFHpS	375-92-8	5.03	0.460	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFNA	375-95-1	14.6	0.398	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFOSA	754-91-6	ND	0.869	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFOS	1763-23-1	2060	1.98	12.3	19.6	D	B8E0111	17-May-18	0.255 L	09-Jun-18 04:37	5
PFDA	335-76-2	9.17	0.731	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
8:2 FTS	39108-34-4	ND	1.01	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFNS	68259-12-1	ND	1.90	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
MeFOSAA	2355-31-9	ND	0.810	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
EtFOSAA	2991-50-6	ND	0.672	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFUnA	2058-94-8	ND	0.515	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFDS	335-77-3	ND	0.604	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFDoA	307-55-1	ND	0.389	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFTTrDA	72629-94-8	ND	0.242	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
PFTeDA	376-06-7	ND	0.371	2.45	3.93		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.7	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C3-PFPeA	IS	85.0	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C3-PFBS	IS	96.6	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C2-PFHxA	IS	89.1	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C4-PFHpA	IS	92.2	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
18O2-PFHxS	IS	90.5	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C2-PFOA	IS	75.5	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C5-PFNA	IS	75.4	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C8-PFOSA	IS	58.0	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C8-PFOS	IS	102	50 - 150	D	B8E0111	17-May-18	0.255 L	09-Jun-18 04:37	5
13C2-PFDA	IS	77.5	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
d3-MeFOSAA	IS	89.6	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
d5-EtFOSAA	IS	87.1	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1

Sample ID: CL1SW0300180508N				PFAS Isotope Dilution Method					
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-03	Column:	BEH C18		
Project:	Lapeer	Date Collected:	08-May-18 11:35	Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01								
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	80.4	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C2-PFDoA	IS	66.6	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
13C2-PFTeDA	IS	76.5	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 03:20	1
DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.				
	LOO - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.				

Sample ID: CL1SW0400180508N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-04	Column:	BEH C18
Project:	Lapeer	Date Collected:	08-May-18 12:00	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.31	0.356	2.44	3.91	J	B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFPeA	2706-90-3	3.67	0.626	2.44	3.91	J	B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFBS	375-73-5	1.55	0.875	2.44	3.91	J	B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
4:2 FTS	757124-72-4	ND	1.34	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFHxA	307-24-4	4.13	1.07	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFPeS	2706-91-4	ND	1.34	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFHpA	375-85-9	4.59	0.289	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFHxS	355-46-4	ND	0.463	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
6:2 FTS	27619-97-2	ND	0.978	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFOA	335-67-1	1.24	0.318	2.44	3.91	J	B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFHpS	375-92-8	0.918	0.458	2.44	3.91	J	B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFNA	375-95-1	ND	0.396	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFOSA	754-91-6	ND	0.865	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFOS	1763-23-1	1.47	0.394	2.44	3.91	J	B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFDA	335-76-2	ND	0.728	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
8:2 FTS	39108-34-4	ND	1.01	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFNS	68259-12-1	ND	1.89	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
MeFOSAA	2355-31-9	ND	0.806	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
EtFOSAA	2991-50-6	ND	0.670	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFUnA	2058-94-8	ND	0.513	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFDS	335-77-3	ND	0.601	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFDoA	307-55-1	ND	0.387	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFTTrDA	72629-94-8	ND	0.241	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
PFTeDA	376-06-7	ND	0.369	2.44	3.91		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.1	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C3-PFPeA	IS	83.9	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C3-PFBS	IS	92.8	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C2-PFHxA	IS	85.3	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C4-PFHpA	IS	89.8	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
18O2-PFHxS	IS	81.7	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C2-PFOA	IS	80.8	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C5-PFNA	IS	71.8	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C8-PFOSA	IS	54.6	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C8-PFOS	IS	78.5	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C2-PFDA	IS	75.1	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
d3-MeFOSAA	IS	71.0	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
d5-EtFOSAA	IS	62.5	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1

Sample ID: CL1SW0400180508N					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer Date Collected: 08-May-18 12:00 Location: 08n10e33-CL01					Laboratory Data Lab Sample: 1800937-04 Column: BEH C18 Date Received: 12-May-18 09:57				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	64.0	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C2-PFDoA	IS	72.8	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
13C2-PFTeDA	IS	62.4	50 - 150		B8E0111	17-May-18	0.256 L	30-May-18 03:30	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: CL1SW0500180508N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-05	Column:	BEH C18
Project:	Lapeer	Date Collected:	08-May-18 12:25	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.31	0.360	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFPeA	2706-90-3	6.55	0.633	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFBS	375-73-5	3.51	0.885	2.47	3.95	J	B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
4:2 FTS	757124-72-4	ND	1.35	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFHxA	307-24-4	4.64	1.08	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFPeS	2706-91-4	ND	1.35	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFHpA	375-85-9	2.23	0.292	2.47	3.95	J	B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFHxS	355-46-4	1.35	0.468	2.47	3.95	J	B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
6:2 FTS	27619-97-2	ND	0.988	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFOA	335-67-1	3.62	0.322	2.47	3.95	J	B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFHpS	375-92-8	ND	0.463	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFNA	375-95-1	ND	0.400	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFOSA	754-91-6	ND	0.875	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFOS	1763-23-1	19.0	0.399	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFDA	335-76-2	ND	0.736	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
8:2 FTS	39108-34-4	ND	1.02	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFNS	68259-12-1	ND	1.91	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
MeFOSAA	2355-31-9	ND	0.815	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
EtFOSAA	2991-50-6	ND	0.677	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFUnA	2058-94-8	ND	0.519	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFDS	335-77-3	ND	0.608	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFDoA	307-55-1	ND	0.391	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFTTrDA	72629-94-8	ND	0.244	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
PFTeDA	376-06-7	ND	0.373	2.47	3.95		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.0	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C3-PFPeA	IS	92.0	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C3-PFBS	IS	102	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C2-PFHxA	IS	87.4	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C4-PFHpA	IS	92.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
18O2-PFHxS	IS	88.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C2-PFOA	IS	76.0	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C5-PFNA	IS	80.9	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C8-PFOSA	IS	58.9	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C8-PFOS	IS	87.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C2-PFDA	IS	79.2	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
d3-MeFOSAA	IS	82.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
d5-EtFOSAA	IS	81.7	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1

Sample ID: CL1SW0500180508N				PFAS Isotope Dilution Method					
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-05	Column:	BEH C18		
Project:	Lapeer	Date Collected:	08-May-18 12:25	Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01								
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	70.3	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C2-PFDoA	IS	74.5	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
13C2-PFTeDA	IS	72.7	50 - 150		B8E0111	17-May-18	0.253 L	30-May-18 03:41	1
DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.				
	LOQ - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.				

Sample ID: CL1DR0100180508N
PFAS Isotope Dilution Method

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous		Lab Sample:	1800937-06	Column:	BEH C18	
Project:	Lapeer	Date Collected:	08-May-18 12:45		Date Received:	12-May-18 09:57			
Location:	08n10e33-CL01								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.58	0.359	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFPeA	2706-90-3	0.918	0.631	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFBS	375-73-5	1.22	0.882	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
4:2 FTS	757124-72-4	ND	1.35	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFHxA	307-24-4	ND	1.07	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFPeS	2706-91-4	ND	1.35	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFHpA	375-85-9	0.683	0.291	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFHxS	355-46-4	ND	0.467	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
6:2 FTS	27619-97-2	ND	0.986	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFOA	335-67-1	1.32	0.321	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFHpS	375-92-8	0.927	0.462	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFNA	375-95-1	ND	0.399	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFOSA	754-91-6	ND	0.872	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFOS	1763-23-1	1.34	0.398	2.46	3.94	J	B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFDA	335-76-2	ND	0.734	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
8:2 FTS	39108-34-4	ND	1.02	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFNS	68259-12-1	ND	1.91	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
MeFOSAA	2355-31-9	ND	0.813	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
EtFOSAA	2991-50-6	ND	0.675	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFUnA	2058-94-8	ND	0.518	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFDS	335-77-3	ND	0.606	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFDoA	307-55-1	ND	0.390	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFTTrDA	72629-94-8	ND	0.243	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
PFTeDA	376-06-7	ND	0.372	2.46	3.94		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.1	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C3-PFPeA	IS	85.4	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C3-PFBS	IS	96.1	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C2-PFHxA	IS	78.7	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C4-PFHpA	IS	90.0	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
18O2-PFHxS	IS	81.7	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C2-PFOA	IS	73.3	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C5-PFNA	IS	77.5	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C8-PFOSA	IS	62.2	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C8-PFOS	IS	87.2	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
13C2-PFDA	IS	78.8	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
d3-MeFOSAA	IS	70.9	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1
d5-EtFOSAA	IS	73.7	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1

Sample ID: CL1DR0100180508N				PFAS Isotope Dilution Method							
Client Data				Laboratory Data							
Name:	Merit Laboratories, Inc.		Matrix:	Aqueous		Lab Sample:	1800937-06		Column:	BEH C18	
Project:	Lapeer		Date Collected:	08-May-18 12:45		Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01										
Labeled Standards		Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFUnA		IS	76.7	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1	
13C2-PFDoA		IS	71.6	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1	
13C2-PFTeDA		IS	68.6	50 - 150		B8E0111	17-May-18	0.254 L	30-May-18 03:51	1	
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.					
		LOQ - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.					

Sample ID: CL1DR0300180508N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-07	Column:	BEH C18
Project:	Lapeer	Date Collected:	08-May-18 14:20	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.73	0.355	2.43	3.90	J	B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFPeA	2706-90-3	5.29	0.623	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFBS	375-73-5	2.93	0.872	2.43	3.90	J	B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
4:2 FTS	757124-72-4	ND	1.33	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFHxA	307-24-4	ND	1.06	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFPeS	2706-91-4	ND	1.33	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFHpA	375-85-9	ND	0.288	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFHxS	355-46-4	ND	0.461	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
6:2 FTS	27619-97-2	ND	0.974	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFOA	335-67-1	2.50	0.317	2.43	3.90	J	B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFHpS	375-92-8	ND	0.456	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFNA	375-95-1	ND	0.394	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFOSA	754-91-6	ND	0.862	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFOS	1763-23-1	12.9	0.393	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFDA	335-76-2	ND	0.726	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
8:2 FTS	39108-34-4	ND	1.00	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFNS	68259-12-1	ND	1.88	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
MeFOSAA	2355-31-9	ND	0.803	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
EtFOSAA	2991-50-6	ND	0.667	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFUnA	2058-94-8	ND	0.511	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFDS	335-77-3	ND	0.599	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFDoA	307-55-1	ND	0.386	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFTTrDA	72629-94-8	ND	0.241	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
PFTeDA	376-06-7	ND	0.368	2.43	3.90		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.8	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C3-PFPeA	IS	82.8	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C3-PFBS	IS	92.9	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C2-PFHxA	IS	84.7	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C4-PFHpA	IS	82.8	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
18O2-PFHxS	IS	92.0	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C2-PFOA	IS	80.6	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C5-PFNA	IS	80.8	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C8-PFOSA	IS	54.3	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C8-PFOS	IS	79.5	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C2-PFDA	IS	74.7	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
d3-MeFOSAA	IS	70.1	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
d5-EtFOSAA	IS	76.6	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1

Sample ID: CL1DR0300180508N				PFAS Isotope Dilution Method					
Client Data				Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-07	Column:	BEH C18		
Project:	Lapeer	Date Collected:	08-May-18 14:20	Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01								
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	66.8	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C2-PFDoA	IS	67.8	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
13C2-PFTeDA	IS	63.6	50 - 150		B8E0111	17-May-18	0.257 L	30-May-18 04:02	1
DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.				
	LOO - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.				

Sample ID: CL1DR0200180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-08	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 12:45	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	78.6	0.366	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFPeA	2706-90-3	113	0.642	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFBS	375-73-5	80.8	0.898	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
4:2 FTS	757124-72-4	ND	1.37	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFHxA	307-24-4	135	1.09	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFPeS	2706-91-4	1.39	1.37	2.51	4.01	J	B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFHpA	375-85-9	61.1	0.296	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFHxS	355-46-4	8.82	0.475	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
6:2 FTS	27619-97-2	ND	1.00	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFOA	335-67-1	95.2	0.327	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFHpS	375-92-8	3.95	0.470	2.51	4.01	J	B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFNA	375-95-1	23.5	0.406	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFOSA	754-91-6	ND	0.888	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFOS	1763-23-1	1860	0.405	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFDA	335-76-2	30.1	0.747	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
8:2 FTS	39108-34-4	ND	1.03	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFNS	68259-12-1	ND	1.94	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
MeFOSAA	2355-31-9	ND	0.828	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
EtFOSAA	2991-50-6	ND	0.687	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFUnA	2058-94-8	2.41	0.522	2.49	3.98	J	B8F0003	01-Jun-18	0.251 L	04-Jun-18 03:36	1
PFDS	335-77-3	1.17	0.612	2.49	3.98	J	B8F0003	01-Jun-18	0.251 L	04-Jun-18 03:36	1
PFDoA	307-55-1	ND	0.397	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFTTrDA	72629-94-8	ND	0.248	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
PFTeDA	376-06-7	ND	0.379	2.51	4.01		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.8	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C3-PFPeA	IS	99.2	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C3-PFBS	IS	130	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C2-PFHxA	IS	95.1	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C4-PFHpA	IS	109	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
18O2-PFHxS	IS	93.8	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C2-PFOA	IS	85.2	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C5-PFNA	IS	87.3	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C8-PFOSA	IS	41.4	50 - 150	H	B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C8-PFOS	IS	86.3	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
13C2-PFDA	IS	73.0	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
d3-MeFOSAA	IS	69.5	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1
d5-EtFOSAA	IS	77.9	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1

Sample ID: CL1DR0200180509N				PFAS Isotope Dilution Method							
Client Data				Laboratory Data							
Name:	Merit Laboratories, Inc.		Matrix:	Aqueous		Lab Sample:	1800937-08		Column:	BEH C18	
Project:	Lapeer		Date Collected:	09-May-18 12:45		Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01										
Labeled Standards		Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFUnA		IS	79.1	50 - 150		B8F0003	01-Jun-18	0.251 L	04-Jun-18 03:36	1	
13C2-PFDoA		IS	76.0	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1	
13C2-PFTeDA		IS	66.6	50 - 150		B8E0111	17-May-18	0.249 L	30-May-18 04:54	1	
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.					
		LOO - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.					

Sample ID: CL1SW0100180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-09	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 13:05	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.80	0.351	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFPeA	2706-90-3	0.927	0.616	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFBS	375-73-5	1.07	0.862	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
4:2 FTS	757124-72-4	ND	1.32	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFHxA	307-24-4	ND	1.05	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFPeS	2706-91-4	ND	1.32	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFHpA	375-85-9	0.581	0.285	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFHxS	355-46-4	ND	0.456	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
6:2 FTS	27619-97-2	ND	0.963	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFOA	335-67-1	1.11	0.313	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFHpS	375-92-8	0.946	0.451	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFNA	375-95-1	ND	0.390	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFOSA	754-91-6	ND	0.852	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFOS	1763-23-1	1.04	0.389	2.40	3.85	J	B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFDA	335-76-2	ND	0.718	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
8:2 FTS	39108-34-4	ND	0.992	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFNS	68259-12-1	ND	1.86	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
MeFOSAA	2355-31-9	ND	0.795	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
EtFOSAA	2991-50-6	ND	0.660	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFUnA	2058-94-8	ND	0.506	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFDS	335-77-3	ND	0.592	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFDoA	307-55-1	ND	0.381	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFTTrDA	72629-94-8	ND	0.238	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
PFTeDA	376-06-7	ND	0.364	2.40	3.85		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.2	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C3-PFPeA	IS	91.3	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C3-PFBS	IS	99.8	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C2-PFHxA	IS	92.5	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C4-PFHpA	IS	98.8	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
18O2-PFHxS	IS	84.8	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C2-PFOA	IS	86.2	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C5-PFNA	IS	79.6	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C8-PFOSA	IS	51.4	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C8-PFOS	IS	86.0	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
13C2-PFDA	IS	93.7	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
d3-MeFOSAA	IS	68.7	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1
d5-EtFOSAA	IS	73.5	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1

Sample ID: CL1SW0100180509N				PFAS Isotope Dilution Method							
Client Data				Laboratory Data							
Name:	Merit Laboratories, Inc.		Matrix:	Aqueous		Lab Sample:	1800937-09		Column:	BEH C18	
Project:	Lapeer		Date Collected:	09-May-18 13:05		Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01										
Labeled Standards		Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFUnA		IS	70.6	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1	
13C2-PFDoA		IS	79.1	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1	
13C2-PFTeDA		IS	62.6	50 - 150		B8E0111	17-May-18	0.260 L	30-May-18 05:05	1	
DL - Detection Limit		LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.					
		LOQ - Limit of quantitation	Results reported to the DL.			Only the linear isomer is reported for all other analytes.					

Sample ID: CL1SW0200180509N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800937-10	Column:	BEH C18
Project:	Lapeer	Date Collected:	09-May-18 13:25	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.12	0.357	2.45	3.92	J	B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFPeA	2706-90-3	2.87	0.627	2.45	3.92	J	B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFBS	375-73-5	1.29	0.877	2.45	3.92	J	B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
4:2 FTS	757124-72-4	ND	1.34	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFHxA	307-24-4	ND	1.07	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFPeS	2706-91-4	ND	1.34	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFHpA	375-85-9	ND	0.290	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFHxS	355-46-4	ND	0.464	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
6:2 FTS	27619-97-2	ND	0.980	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFOA	335-67-1	0.998	0.319	2.45	3.92	J	B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFHpS	375-92-8	ND	0.459	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFNA	375-95-1	ND	0.397	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFOSA	754-91-6	ND	0.868	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFOS	1763-23-1	ND	0.396	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFDA	335-76-2	ND	0.730	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
8:2 FTS	39108-34-4	ND	1.01	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFNS	68259-12-1	ND	1.90	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
MeFOSAA	2355-31-9	ND	0.809	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
EtFOSAA	2991-50-6	ND	0.672	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFUnA	2058-94-8	ND	0.515	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFDS	335-77-3	ND	0.603	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFDoA	307-55-1	ND	0.388	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFTTrDA	72629-94-8	ND	0.242	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
PFTeDA	376-06-7	ND	0.370	2.45	3.92		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.9	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C3-PFPeA	IS	87.1	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C3-PFBS	IS	94.7	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C2-PFHxA	IS	87.2	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C4-PFHpA	IS	92.4	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
18O2-PFHxS	IS	103	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C2-PFOA	IS	84.0	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C5-PFNA	IS	81.9	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C8-PFOSA	IS	57.3	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C8-PFOS	IS	87.5	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
13C2-PFDA	IS	82.8	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
d3-MeFOSAA	IS	77.2	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1
d5-EtFOSAA	IS	84.0	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1

Sample ID: CL1SW0200180509N					PFAS Isotope Dilution Method					
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Aqueous		Lab Sample:	1800937-10		Column:	BEH C18
Project:	Lapeer		Date Collected:	09-May-18 13:25		Date Received:	12-May-18 09:57			
Location:	08n10e33-CL01									
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFUnA	IS	78.2	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1	
13C2-PFDoA	IS	77.3	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1	
13C2-PFTeDA	IS	75.0	50 - 150		B8E0111	17-May-18	0.255 L	30-May-18 05:15	1	
DL - Detection Limit	LOD - Limit of Detection	LCL-UCL- Lower control limit - upper control limit			When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.					
	LOQ - Limit of quantitation	Results reported to the DL.			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	17-015-0
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	2016026
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	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
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.



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800937 Temp: 1.7, 1.9 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: Lapeer PFAS Biosolids Investigation PO#: 60570635 Sampler: Stan Krenz (name)

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

Invoice to: Name Company Address City State Ph# Fax#
Stephanie Kammer MDEQ 525 W. Allegan Street Lansing MI 517-897-1597 517-241-3571

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time
Dorin Bogdan 5/16/2018 17:30
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				Method of Shipment: FED EX		Tracking No.:		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution		USEPA Method 537		Comments
Sample ID	Date	Time	Location/Sample Description	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	PFAS List: 14	PFAS List: 18	PFAS List: 21	
CL1TMW0118180503N	5/3/18	0855	08n10e33-CL01	2	P	AQ		X								
CL1TMW0405180504N	5/4/18	1045	08n10e33-CL01	2	P	AQ		X								
CL1SW0300180508N	5/8/18	1135	08n10e33-CL01	2	P	AQ		X								
CL1SW0400180508N	5/8/18	1200	08n10e33-CL01	2	P	AQ		X								
CL1SW0500180508N	5/8/18	1225	08n10e33-CL01	2	P	AQ		X								
CL1DR0100180508N	5/8/18	1245	08n10e33-CL01	2	P	AQ		X								
CL1DR0300180508N	5/8/18	1420	08n10e33-CL01	2	P	AQ		X								
CL1DR0200180509N	5/9/18	1245	08n10e33-CL01	2	P	AQ		X								
CL1SW0100180509N	5/9/18	1305	08n10e33-CL01	2	P	AQ		X								
CL1SW0200180509N	5/9/18	1325	08n10e33-CL01	2	P	AQ		X								

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

SEND DOCUMENTATION AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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:

Revised COC - received from Dorin Bogdan 5/17/18 @W



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800937

Temp: 16.7, 16.9 °C

Storage ID: WR-2

Storage Secured: Yes ☒ No ☐

Project ID: Lapeer

PO#: 60570635

Sampler: Stan Krenz

(name)

TAT Standard: ☒ 21 days

(check one): Rush (surcharge may apply)

☐ 14 days ☐ 7 days Specify: _____

Invoice to: Name Company Address City State Ph# Fax#
Stephanie Kammer MDEQ 525 W. Allegan Street Lansing MI 517-897-1597 517-241-3571

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time
Stan Krenz 5/1/18 1245 Bethna Benedict 05/2/18 1030
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: <u>FED EX</u>		Tracking No.: _____		Add Analysis(es) Requested				PFAS Isotope Dilution				USEPA Method 537																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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				Quantity	Type	Matrix	List of 21	List of 21 Wilsons	List of 24	List of 24 Wilsons	List of 28																					Other: Please List Below	PFOA/PFOs	UCMRA PFAS List 8	PFAS List 14	Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Bottle Preservation Type: T = Thiosulfate,
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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:

Sample Log-in Checklist

 Vista Work Order #: 1800937 TAT std

Samples Arrival:	Date/Time 05/12/18 0957	Initials: JMD	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 05/12/18 1214	Initials: WJS	Location: WR-2
			Shelf/Rack: N/A E-4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GSO	☐ DHL	☐ Hand Delivered
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 1.8 (uncorrected)	Time: 1028		Thermometer ID: IR-4
Temp °C: 1.7 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	WJS		
Holding Time Acceptable?	WJS		
Shipping Container(s) Intact?	WJS		
Shipping Custody Seals Intact?	WJS		
Shipping Documentation Present?	WJS		
Airbill 1012 Trk # 7722 1188 4532	WJS		
Sample Container Intact?	WJS		
Sample Custody Seals Intact?			WJS
Chain of Custody / Sample Documentation Present?	WJS		
COC Anomaly/Sample Acceptance Form completed?	WJS		
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			WJS
Preservation Documented:	Na ₂ S ₂ O ₃	Trizma	None
	Yes	No	NA
Shipping Container	Vista	Client	Retain
	Return	Dispose	

Comments:

Sample Log-in Checklist

Vista Work Order #: 1800937 TAT std

Samples Arrival:	Date/Time 05/12/18 0957	Initials: MB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 05/12/18 1214	Initials: WWS	Location: WR-2
			Shelf/Rack: E-4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GSO	☐ DHL	☐ Hand Delivered
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 2.0 (uncorrected)	Time: 1034		Thermometer ID: IR-4
Temp °C: 1.9 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	WWS		
Holding Time Acceptable?	WWS		
Shipping Container(s) Intact?	MB		
Shipping Custody Seals Intact?	MB		
Shipping Documentation Present?	MB		
Airbill <u>2 of 2</u> Trk # <u>7722 1188 4554</u>	MB		
Sample Container Intact?	WWS		
Sample Custody Seals Intact?			WWS
Chain of Custody / Sample Documentation Present?		MB	
COC Anomaly/Sample Acceptance Form completed?	WWS		
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			WWS
Preservation Documented:	Na ₂ S ₂ O ₃	Trizma	☒ None
	Yes	☒ No	☒ NA
Shipping Container	☒ Vista	Client	☒ Retain
	Return	Dispose	

Comments: sample label
~~CLT~~ CLITMW118180503N
 WWS
 05/12/18

COC ID
~~CLT~~ CLITMW0118180503N
 WWS
 05/12/18

Chain of Custody Anomaly/Sample Acceptance Form



Merit Laboratories, Inc.
Maya Murshak
mayamurshak@meritlabs.com
(517) 827-2744

Workorder Number: 1800937
Date Received: 12-May-18 09:57
Documented by/date: Kim Elric 05/17/18

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank you,

Martha Maier
mmaier@vista-analytical.com
916-673-1520

☒ Sample IDs on Chain of Custody do not match Sample Container Labels

Chain of Custody ID	Container Label ID
CL1TMW0118180503N	CL1TMW118180503N
CL1TMW0405180504N	CL1TMW405180504N

Client Authorization

Proceed with Analysis: ☒ YES ☐ NO Signature and Date *[Signature]* 5/17/18

Client Comments/Instructions Per Dorin Bogdan proceed and use IDs as they are listed on revised COC.



June 14, 2018

Vista Work Order No. 1800938

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 May 12, 2018. This sample set was analyzed on a standard turn-around time, under your Project Name 'Lapeer'.

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,

A handwritten signature in black ink that reads "Martha Maier". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

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. 1800938**Case Narrative****Sample Condition on Receipt:**

Four aqueous 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. A revised CoC was received by email on May 17, 2018.

Analytical Notes:**PFAS Isotope Dilution Method**

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537).

Holding Times

The samples were extracted and analyzed within the method hold times. The sample re-extractions for 6:2 FTS were performed outside of the hold time.

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. The concentration of 6:2 FTS was > 1/2 the LOQ in the original Method Blank. The results for 6:2 FTS in samples "CL1MW0124180510N", "CL1MW0229180510N" and "CL1MW0414180510N" were reported from re-extractions of the samples. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B8E0146-BLK1	B8E0146-BLK1	PFAS Isotope Dilution Method	13C8-PFOSA	H	49.1
B8E0146-BS1	B8E0146-BS1	PFAS Isotope Dilution Method	13C8-PFOSA	H	41.7
B8F0041-BLK1	B8F0041-BLK1	PFAS Isotope Dilution Method	13C8-PFOSA	H	41.3
B8F0041-BS1	B8F0041-BS1	PFAS Isotope Dilution Method	13C8-PFOSA	H	34.9

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1800938-01	CL1MW0124180510N	10-May-18 09:55	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800938-02	CL1MW0324180510N	10-May-18 11:25	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800938-03	CL1MW0229180510N	10-May-18 12:35	12-May-18 09:57	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1800938-04	CL1MW0414180510N	10-May-18 13:45	12-May-18 09:57	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:	B8E0146-BLK1	Column:	BEH C18
Project:	Lapeer						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.365	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFPeA	2706-90-3	ND	0.640	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFBS	375-73-5	ND	0.895	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
4:2 FTS	757124-72-4	ND	1.37	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFHxA	307-24-4	ND	1.09	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFPeS	2706-91-4	ND	1.37	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFHpA	375-85-9	ND	0.296	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFHxS	355-46-4	ND	0.474	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
6:2 FTS	27619-97-2	4.47	1.00	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFOA	335-67-1	ND	0.326	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFHpS	375-92-8	ND	0.469	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFNA	375-95-1	ND	0.405	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFOSA	754-91-6	ND	0.885	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFOS	1763-23-1	ND	0.404	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFDA	335-76-2	ND	0.745	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
8:2 FTS	39108-34-4	ND	1.03	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFNS	68259-12-1	ND	1.94	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
MeFOSAA	2355-31-9	ND	0.825	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
EtFOSAA	2991-50-6	ND	0.685	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFUnA	2058-94-8	ND	0.525	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFDS	335-77-3	ND	0.615	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFDoA	307-55-1	ND	0.396	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFTTrDA	72629-94-8	ND	0.247	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
PFTeDA	376-06-7	ND	0.378	2.50	4.00		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.4	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C3-PFPeA	IS	95.8	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C3-PFBS	IS	108	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C2-PFHxA	IS	97.4	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C4-PFHpA	IS	99.1	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
18O2-PFHxS	IS	98.0	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C2-PFOA	IS	84.8	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C5-PFNA	IS	84.9	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C8-PFOSA	IS	49.1	50 - 150	H	B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C8-PFOS	IS	99.1	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C2-PFDA	IS	72.3	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
d3-MeFOSAA	IS	66.2	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
d5-EtFOSAA	IS	70.1	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1

Sample ID: Method Blank					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer					Laboratory Data Lab Sample: B8E0146-BLK1 Column: BEH C18				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	58.8	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C2-PFDoA	IS	77.3	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
13C2-PFTeDA	IS	64.8	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:51	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS 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 Name: Merit Laboratories, Inc. Project: Lapeer						Laboratory Data Lab Sample: B8E0146-BS1 Column: BEH C18					
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	38.1	40.0	95.3	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFPeA	2706-90-3	38.5	40.0	96.3	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFBS	375-73-5	37.6	40.0	94.0	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
4:2 FTS	757124-72-4	36.3	40.0	90.7	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFHxA	307-24-4	39.0	40.0	97.6	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFPeS	2706-91-4	37.7	40.0	94.3	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFHpA	375-85-9	42.1	40.0	105	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFHxS	355-46-4	38.4	40.0	96.0	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
6:2 FTS	27619-97-2	37.8	40.0	94.4	60 - 130	B	B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFOA	335-67-1	36.8	40.0	92.0	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFHpS	375-92-8	44.1	40.0	110	60 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFNA	375-95-1	38.6	40.0	96.4	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFOSA	754-91-6	36.8	40.0	92.1	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFOS	1763-23-1	38.1	40.0	95.2	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFDA	335-76-2	38.0	40.0	95.1	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
8:2 FTS	39108-34-4	32.7	40.0	81.7	60 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFNS	68259-12-1	41.2	40.0	103	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
MeFOSAA	2355-31-9	35.6	40.0	88.9	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
EtFOSAA	2991-50-6	40.4	40.0	101	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFUnA	2058-94-8	36.4	40.0	91.1	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFDS	335-77-3	48.6	40.0	122	60 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFDoA	307-55-1	42.0	40.0	105	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFTTrDA	72629-94-8	46.0	40.0	115	60 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
PFTeDA	376-06-7	47.4	40.0	118	70 - 130		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			96.9	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C3-PFPeA	IS			95.4	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C3-PFBS	IS			116	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C2-PFHxA	IS			99.9	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C4-PFHpA	IS			89.2	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
18O2-PFHxS	IS			99.6	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C2-PFOA	IS			85.1	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C5-PFNA	IS			93.1	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C8-PFOSA	IS			41.7	50 - 150	H	B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C8-PFOS	IS			104	50 - 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1

Sample ID: OPR					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Lapeer					Laboratory Data Lab Sample: B8E0146-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	87.1	50- 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
d3-MeFOSAA	IS	81.6	50- 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
d5-EtFOSAA	IS	78.2	50- 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C2-PFUnA	IS	68.3	50- 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C2-PFDoA	IS	81.5	50- 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1
13C2-PFTeDA	IS	69.7	50- 150		B8E0146	23-May-18	0.250 L	03-Jun-18 02:41	1

Sample ID: Method Blank
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B8F0041-BLK1	Column:	BEH C18
Project:	Lapeer						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.365	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFPeA	2706-90-3	ND	0.640	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFBS	375-73-5	ND	0.895	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
4:2 FTS	757124-72-4	ND	1.37	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFHxA	307-24-4	ND	1.09	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFPeS	2706-91-4	ND	1.37	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFHpA	375-85-9	ND	0.296	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFHxS	355-46-4	ND	0.474	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
6:2 FTS	27619-97-2	ND	1.00	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFOA	335-67-1	ND	0.326	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFHpS	375-92-8	ND	0.469	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFNA	375-95-1	ND	0.405	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFOSA	754-91-6	ND	0.885	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFOS	1763-23-1	ND	0.404	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFDA	335-76-2	ND	0.745	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
8:2 FTS	39108-34-4	ND	1.03	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFNS	68259-12-1	ND	1.94	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
MeFOSAA	2355-31-9	ND	0.825	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
EtFOSAA	2991-50-6	ND	0.685	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFUnA	2058-94-8	ND	0.525	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFDS	335-77-3	ND	0.615	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFDoA	307-55-1	ND	0.396	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFTTrDA	72629-94-8	ND	0.247	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
PFTeDA	376-06-7	ND	0.378	2.50	4.00		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.5	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C3-PFPeA	IS	96.8	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C3-PFBS	IS	115	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C2-PFHxA	IS	96.5	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C4-PFHpA	IS	99.3	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
18O2-PFHxS	IS	101	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C2-PFOA	IS	88.4	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C5-PFNA	IS	93.3	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C8-PFOSA	IS	41.3	50 - 150	H	B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C8-PFOS	IS	88.6	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C2-PFDA	IS	85.6	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
d3-MeFOSAA	IS	66.2	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
d5-EtFOSAA	IS	96.4	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1

Sample ID: Method Blank					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer					Laboratory Data Lab Sample: B8F0041-BLK1 Column: BEH C18				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	80.3	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C2-PFDoA	IS	85.0	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
13C2-PFTeDA	IS	89.7	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:41	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS 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:	B8F0041-BS1		Column:	BEH C18	
Project:	Lapeer										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	39.0	40.0	97.5	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFPeA	2706-90-3	38.3	40.0	95.6	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFBS	375-73-5	38.7	40.0	96.7	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
4:2 FTS	757124-72-4	37.7	40.0	94.3	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFHxA	307-24-4	38.2	40.0	95.5	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFPeS	2706-91-4	38.2	40.0	95.4	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFHpA	375-85-9	36.9	40.0	92.3	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFHxS	355-46-4	32.6	40.0	81.6	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
6:2 FTS	27619-97-2	46.3	40.0	116	60 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFOA	335-67-1	43.5	40.0	109	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFHpS	375-92-8	40.8	40.0	102	60 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFNA	375-95-1	40.2	40.0	101	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFOSA	754-91-6	31.4	40.0	78.6	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFOS	1763-23-1	42.9	40.0	107	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFDA	335-76-2	35.0	40.0	87.5	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
8:2 FTS	39108-34-4	28.6	40.0	71.5	60 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFNS	68259-12-1	34.6	40.0	86.6	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
MeFOSAA	2355-31-9	47.9	40.0	120	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
EtFOSAA	2991-50-6	37.5	40.0	93.9	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFUnA	2058-94-8	36.8	40.0	92.1	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFDS	335-77-3	42.1	40.0	105	60 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFDaA	307-55-1	38.0	40.0	95.0	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFTTrDA	72629-94-8	40.1	40.0	100	60 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
PFTeDA	376-06-7	42.0	40.0	105	70 - 130		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			98.3	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C3-PFPeA	IS			95.9	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C3-PFBS	IS			111	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C2-PFHxA	IS			92.3	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C4-PFHpA	IS			100	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
18O2-PFHxS	IS			98.8	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C2-PFOA	IS			96.2	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C5-PFNA	IS			85.8	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C8-PFOSA	IS			34.9	50 - 150	H	B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C8-PFOS	IS			90.3	50 - 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1

Sample ID: OPR					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Lapeer					Laboratory Data Lab Sample: B8F0041-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFDA	IS	90.0	50- 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
d3-MeFOSAA	IS	78.8	50- 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
d5-EtFOSAA	IS	104	50- 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C2-PFUnA	IS	96.2	50- 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C2-PFDoA	IS	80.2	50- 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1
13C2-PFTeDA	IS	83.9	50- 150		B8F0041	08-Jun-18	0.250 L	10-Jun-18 08:20	1

Sample ID: CL1MW0124180510N
PFAS Isotope Dilution Method

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800938-01	Column:	BEH C18		
Project:	Lapeer	Date Collected:	10-May-18 09:55	Date Received:	12-May-18 09:57				
Location:	08n10e33-CL01								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.350	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFPeA	2706-90-3	ND	0.615	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFBS	375-73-5	ND	0.861	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
4:2 FTS	757124-72-4	ND	1.32	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFHxA	307-24-4	ND	1.05	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFPeS	2706-91-4	ND	1.32	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFHpA	375-85-9	ND	0.284	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFHxS	355-46-4	ND	0.455	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
6:2 FTS	27619-97-2	ND	0.952	2.38	3.81		B8F0041	08-Jun-18	0.263 L	13-Jun-18 10:52	1
PFOA	335-67-1	ND	0.313	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFHpS	375-92-8	ND	0.450	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFNA	375-95-1	ND	0.389	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFOSA	754-91-6	ND	0.851	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFOS	1763-23-1	ND	0.388	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFDA	335-76-2	ND	0.716	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
8:2 FTS	39108-34-4	ND	0.990	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFNS	68259-12-1	ND	1.86	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
MeFOSAA	2355-31-9	ND	0.793	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
EtFOSAA	2991-50-6	ND	0.659	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFUnA	2058-94-8	ND	0.505	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFDS	335-77-3	ND	0.591	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFDoA	307-55-1	ND	0.381	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFTTrDA	72629-94-8	ND	0.238	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
PFTeDA	376-06-7	ND	0.363	2.40	3.85		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.5	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C3-PFPeA	IS	92.0	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C3-PFBS	IS	101	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C2-PFHxA	IS	92.9	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C4-PFHpA	IS	90.0	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
18O2-PFHxS	IS	99.8	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C2-PFOA	IS	86.2	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C5-PFNA	IS	94.1	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C8-PFOSA	IS	66.6	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C8-PFOS	IS	101	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C2-PFDA	IS	78.8	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
d3-MeFOSAA	IS	94.1	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
d5-EtFOSAA	IS	96.7	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1

Sample ID: CL1MW0124180510N					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Lapeer Location: 08n10e33-CL01					Laboratory Data Lab Sample: 1800938-01 Date Received: 12-May-18 09:57 Column: BEH C18				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	81.0	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C2-PFDoA	IS	86.3	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
13C2-PFTeDA	IS	79.8	50 - 150		B8E0146	23-May-18	0.260 L	03-Jun-18 05:39	1
DL - Detection Limit LOD - Limit of Detection LOQ - Limit of quantitation					LCL-UCL- Lower control limit - upper control limit Results reported to the DL. When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: CL1MW0324180510N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800938-02	Column:	BEH C18
Project:	Lapeer	Date Collected:	10-May-18 11:25	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.360	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFPeA	2706-90-3	ND	0.633	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFBS	375-73-5	ND	0.885	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
4:2 FTS	757124-72-4	ND	1.35	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFHxA	307-24-4	ND	1.08	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFPeS	2706-91-4	ND	1.35	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFHpA	375-85-9	ND	0.292	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFHxS	355-46-4	ND	0.468	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
6:2 FTS	27619-97-2	1.36	0.989	2.47	3.96	J, B	B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFOA	335-67-1	ND	0.322	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFHpS	375-92-8	ND	0.463	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFNA	375-95-1	ND	0.401	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFOSA	754-91-6	ND	0.875	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFOS	1763-23-1	2.39	0.399	2.47	3.96	J	B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFDA	335-76-2	ND	0.737	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
8:2 FTS	39108-34-4	ND	1.02	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFNS	68259-12-1	ND	1.91	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
MeFOSAA	2355-31-9	ND	0.816	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
EtFOSAA	2991-50-6	ND	0.677	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFUnA	2058-94-8	ND	0.519	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFDS	335-77-3	ND	0.608	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFDoA	307-55-1	ND	0.392	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFTTrDA	72629-94-8	ND	0.244	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
PFTeDA	376-06-7	ND	0.373	2.47	3.96		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.7	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C3-PFPeA	IS	95.9	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C3-PFBS	IS	109	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C2-PFHxA	IS	89.2	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C4-PFHpA	IS	100	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
18O2-PFHxS	IS	98.1	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C2-PFOA	IS	86.3	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C5-PFNA	IS	83.7	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C8-PFOSA	IS	77.9	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C8-PFOS	IS	91.6	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C2-PFDA	IS	92.0	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
d3-MeFOSAA	IS	95.0	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
d5-EtFOSAA	IS	100	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1

Sample ID: CL1MW0324180510N					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer Date Collected: 10-May-18 11:25 Location: 08n10e33-CL01					Laboratory Data Lab Sample: 1800938-02 Column: BEH C18 Date Received: 12-May-18 09:57				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	81.2	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C2-PFDoA	IS	102	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
13C2-PFTeDA	IS	84.0	50 - 150		B8E0146	23-May-18	0.253 L	03-Jun-18 05:49	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: CL1MW0229180510N
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1800938-03	Column:	BEH C18
Project:	Lapeer	Date Collected:	10-May-18 12:35	Date Received:	12-May-18 09:57		
Location:	08n10e33-CL01						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	1.11	0.349	2.39	3.83	J	B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFPeA	2706-90-3	1.43	0.613	2.39	3.83	J	B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFBS	375-73-5	ND	0.858	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
4:2 FTS	757124-72-4	ND	1.31	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFHxA	307-24-4	ND	1.04	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFPeS	2706-91-4	ND	1.31	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFHpA	375-85-9	0.613	0.283	2.39	3.83	J	B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFHxS	355-46-4	ND	0.454	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
6:2 FTS	27619-97-2	ND	1.00	2.50	4.00		B8F0041	08-Jun-18	0.250 L	12-Jun-18 08:59	1
PFOA	335-67-1	0.702	0.312	2.39	3.83	J	B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFHpS	375-92-8	ND	0.449	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFNA	375-95-1	ND	0.388	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFOSA	754-91-6	ND	0.848	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFOS	1763-23-1	4.09	0.387	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFDA	335-76-2	ND	0.714	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
8:2 FTS	39108-34-4	ND	0.987	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFNS	68259-12-1	ND	1.85	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
MeFOSAA	2355-31-9	ND	0.791	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
EtFOSAA	2991-50-6	ND	0.656	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFUnA	2058-94-8	ND	0.503	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFDS	335-77-3	ND	0.589	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFDoA	307-55-1	ND	0.379	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFTTrDA	72629-94-8	ND	0.237	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
PFTeDA	376-06-7	ND	0.362	2.39	3.83		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.8	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C3-PFPeA	IS	97.3	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C3-PFBS	IS	112	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C2-PFHxA	IS	92.7	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C4-PFHpA	IS	101	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
18O2-PFHxS	IS	93.0	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C2-PFOA	IS	88.9	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C5-PFNA	IS	87.9	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C8-PFOSA	IS	84.3	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C8-PFOS	IS	92.1	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C2-PFDA	IS	93.5	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
d3-MeFOSAA	IS	99.6	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
d5-EtFOSAA	IS	111	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1

Sample ID: CL1MW0229180510N					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer Date Collected: 10-May-18 12:35 Location: 08n10e33-CL01					Laboratory Data Lab Sample: 1800938-03 Column: BEH C18 Date Received: 12-May-18 09:57				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	69.6	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C2-PFDoA	IS	78.4	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
13C2-PFTeDA	IS	92.9	50 - 150		B8E0146	23-May-18	0.261 L	03-Jun-18 06:31	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.				

Sample ID: CL1MW0414180510N						PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Project: Lapeer Location: 08n10e33-CL01						Laboratory Data Lab Sample: 1800938-04 Date Received: 12-May-18 09:57 Column: BEH C18					
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	80.2	0.355	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFPeA	2706-90-3	107	0.623	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFBS	375-73-5	68.9	0.871	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
4:2 FTS	757124-72-4	ND	1.33	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFHxA	307-24-4	103	1.06	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFPeS	2706-91-4	ND	1.33	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFHpA	375-85-9	31.5	0.287	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFHxS	355-46-4	3.55	0.461	2.43	3.89	J	B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
6:2 FTS	27619-97-2	4.03	0.993	2.48	3.97		B8F0041	08-Jun-18	0.252 L	12-Jun-18 09:10	1
PFOA	335-67-1	43.2	0.317	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFHpS	375-92-8	ND	0.456	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFNA	375-95-1	ND	0.394	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFOSA	754-91-6	ND	0.861	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFOS	1763-23-1	13.9	0.393	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFDA	335-76-2	ND	0.725	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
8:2 FTS	39108-34-4	ND	1.00	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFNS	68259-12-1	ND	1.88	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
MeFOSAA	2355-31-9	ND	0.803	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
EtFOSAA	2991-50-6	ND	0.666	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFUnA	2058-94-8	ND	0.511	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFDS	335-77-3	ND	0.598	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFDoA	307-55-1	ND	0.385	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFTTrDA	72629-94-8	ND	0.240	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
PFTeDA	376-06-7	ND	0.367	2.43	3.89		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
Labeled Standards	Type	% Recovery		Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.9		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C3-PFPeA	IS	97.4		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C3-PFBS	IS	113		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C2-PFHxA	IS	93.7		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C4-PFHpA	IS	96.7		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
18O2-PFHxS	IS	100		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C2-PFOA	IS	90.5		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C5-PFNA	IS	93.7		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C8-PFOSA	IS	79.6		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C8-PFOS	IS	97.2		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C2-PFDA	IS	87.5		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
d3-MeFOSAA	IS	99.1		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
d5-EtFOSAA	IS	108		50 - 150			B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1

Sample ID: CL1MW0414180510N					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer Date Collected: 10-May-18 13:45 Location: 08n10e33-CL01					Laboratory Data Lab Sample: 1800938-04 Column: BEH C18 Date Received: 12-May-18 09:57				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFUnA	IS	86.1	50 - 150		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C2-PFDoA	IS	91.6	50 - 150		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
13C2-PFTeDA	IS	77.6	50 - 150		B8E0146	23-May-18	0.257 L	03-Jun-18 06:41	1
DL - Detection Limit LOD - Limit of Detection LCL-UCL- Lower control limit - upper control limit LOQ - Limit of quantitation Results reported to the DL.					When reported, PFHxS, PFOA and PFOS 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	17-015-0
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	2016026
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	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
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.



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1800938 Temp: 1.7, 1.9 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: Lapeer PFAS Biosolids Investigation PO#: 60570635 Sampler: Stan Krenz (name)

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

Invoice to: Name Company Address City State Ph# Fax#
Stephanie Kammer MDEQ 525 W. Allegan Street Lansing MI 517-897-1597 517-241-3571

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time
Dorin Bogdan 5/16/2018 17:30
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: FED EX Tracking No.:		Add Analysis(es) Requested		Container(s)		PFAS Isotope Dilution										USEPA Method 537		Comments
Sample ID	Date	Time	Location/Sample Description	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	PFOA/ PFOS	UOMK3 PFAS List 6	PFAS List: 14							
CL1MW0124180510N	5/10/18	0955	08n10e33-CL01	2	P	AQ		X														
CL1MW0324180510N	5/10/18	1125	08n10e33-CL01	2	P	AQ		X														
CL1MW0229180510N	5/10/18	1235	08n10e33-CL01	2	P	AQ		X														
CL1MW0414180510N	5/10/18	1345	08n10e33-CL01	2	P	AQ		X														

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

SEND DOCUMENTATION AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____

Revised COC - received from Dorin Bogdan 5/17/18 (dw)



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #:

1800438

Temp: 16.7, 16.9 °C

Storage ID:

WR-2

Storage Secured: Yes ☒ No ☐

Project ID: Lapeer

PO#: 60570635

Sampler: Stan Krenz

(name)

TAT

Standard: ☒ 21 days

(check one): Rush (surcharge may apply)

☐ 14 days ☐ 7 days Specify: _____

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) Stan Krenz Date 5-11-18 Time 1245 Received by (printed name and signature) Bettina Benedict Date 05/14/18 Time 1031

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 Ph: (916) 673-1520; Fax: (916) 673-0106				Method of Shipment: <u>FED EX</u>		Tracking No.: _____		Add Analysis(es) Requested										Comments	
ATTN: <u>Jennifer Miller</u>				Container(s)		PFAS Isotope Dilution										USEPA Method 537			
Sample ID	Date	Time	Location/Sample Description	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	PFOS/PFOA	UCMR3 PFAS List 18	PFAS List 14				
CL1MW0124180510N	5/10/18	0955	Lapeer	2	P	AQ		X											
CL1MW0324180510N	5/10/18	1125	Lapeer	2	P	AQ		X											
CL1MW0229180510N	5/10/18	1235	Lapeer	2	P	AQ		X											
CL1MW0414180510N	5/10/18	1345	Lapeer	2	P	AQ		X											

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

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street
City: Lansing State: MI Zip: 48909
Phone: 517-897-1597 Fax: 517-241-3571
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: _____

Sample Log-in Checklist

Vista Work Order #: 1800938 TAT std

Samples Arrival:	Date/Time 05/12/18 0957	Initials: JMB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 05/12/18 1246	Initials: WWS	Location: WR-2
			Shelf/Rack: E-4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 1.8 (uncorrected)	Time: 1028 WWS		Thermometer ID: IR-4
Temp °C: 1.7 (corrected)	Probe used: Yes ☒ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	WWS		
Holding Time Acceptable?	WWS		
Shipping Container(s) Intact?	JMB		
Shipping Custody Seals Intact?	JMB		
Shipping Documentation Present?	JMB		
Airbill 1042 Trk # 7722 1188 4532	JMB		
Sample Container Intact?	WWS		
Sample Custody Seals Intact?			WWS
Chain of Custody / Sample Documentation Present?	JMB		
COC Anomaly/Sample Acceptance Form completed?		WWS	WWS
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			WWS
Preservation Documented:	Na ₂ S ₂ O ₃	Trizma	None
	Yes	No	NA
Shipping Container	Vista	Client	Retain
	Return	Dispose	

Comments:

Sample Log-in Checklist

Vista Work Order #: 1800938 TAT std

Samples Arrival:	Date/Time 05/12/18 0957	Initials: MB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 05/12/18 1246	Initials: WWS	Location: WR-2
			Shelf/Rack: ^{WWS} H/A E-4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GSO	☐ DHL	☐ Hand Delivered
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 2.0 (uncorrected)	Time: 1034		Thermometer ID: IR-4
Temp °C: 1.9 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	WWS		
Holding Time Acceptable?	WWS		
Shipping Container(s) Intact?	MB		
Shipping Custody Seals Intact?	MB		
Shipping Documentation Present?	MB		
Airbill <u>2 of 2</u> Trk # <u>7722 1188 4554</u>	MB		
Sample Container Intact?	WWS		
Sample Custody Seals Intact?			WWS
Chain of Custody / Sample Documentation Present?		MB	
COC Anomaly/Sample Acceptance Form completed?		WWS	WWS
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			WWS
Preservation Documented:	Na ₂ S ₂ O ₃	Trizma	☒ None
	Yes	☒ No	☒ NA
Shipping Container	☒ Vista	Client	☒ Retain
	Return	Dispose	

Comments:



January 16, 2019

Vista Work Order No. 1804141

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 December 19, 2018 under your Project Name 'Statewide WWTP Biosolids PFAS Evaluation'.

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,

A handwritten signature in dark ink, appearing to read "Martha Maier", is positioned above the printed name.

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. 1804141

Case Narrative

Sample Condition on Receipt:

Five soil samples, two surface water samples and seven aqueous 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:

PFAS Isotope Dilution Method

The aqueous samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as 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.

Samples "CL01SW31812131425SK" and "CL01MW11812140955LEM" contained particulate and were centrifuged prior to extraction.

Holding Times

The samples were extracted and analyzed within the method hold times. The samples were re-extracted outside of the hold time.

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. The internal standards were lost in the original prep batch and the samples were re-extracted. Insufficient volume was available to re-extract samples "FB1812131440LEM" and "EB1812131600LEM".

No analytes were detected in the Method Blank associated with the re-extractions above 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

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

VAL-PFAS

The soil samples were extracted and analyzed for a selected list of PFAS using VAL Method PFAS. 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 samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method 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 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	13C8-PFOSA	H	18.0
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	13C2-PFDA	H	51.8
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	d3-MeFOSAA	H	42.7
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	d5-EtFOSAA	H	37.7
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	13C2-PFUnA	H	46.7
B8L0237-BS1	B8L0237-BS1	VAL - PFAS	13C8-PFOSA	H	18.7

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1804141-01	CL01SS091812131255SK	13-Dec-18 12:55	19-Dec-18 11:46	HDPE Jar, 6 oz
1804141-02	CL01SS101812131315SK	13-Dec-18 13:15	19-Dec-18 11:46	HDPE Jar, 6 oz
1804141-03	CL01DR31812131350SK	13-Dec-18 13:50	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804141-04	CL01SW31812131425SK	13-Dec-18 14:25	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804141-05	FB1812131440LEM	13-Dec-18 14:40	19-Dec-18 11:46	HDPE Bottle, 250 mL
1804141-06	CL01SS111812131455SK	13-Dec-18 14:55	19-Dec-18 11:46	HDPE Jar, 6 oz
1804141-07	FD1812131500SK	13-Dec-18 15:00	19-Dec-18 11:46	HDPE Jar, 6 oz
1804141-08	CL01SS121812131545SK	13-Dec-18 15:45	19-Dec-18 11:46	HDPE Jar, 6 oz
1804141-09	EB1812131600LEM	13-Dec-18 16:00	19-Dec-18 11:46	HDPE Bottle, 250 mL
1804141-10	CL01MW11812140955LEM	14-Dec-18 09:55	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804141-11	CL01MW21812141100LEM	14-Dec-18 11:00	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804141-12	FD1812141115LEM	14-Dec-18 11:15	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804141-13	CL01MW41812141220LEM	14-Dec-18 12:20	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804141-14	CL01MW31812141325LEM	14-Dec-18 13:25	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: Method Blank
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Solid	Lab Sample:	B8L0237-BLK1	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation						

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFTTrDA	72629-94-8	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.4	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C3-PFPeA	IS	81.4	60 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C3-PFBS	IS	90.5	60 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-4:2 FTS	IS	79.4	40 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFHxA	IS	87.2	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C4-PFHpA	IS	83.5	60 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
18O2-PFHxS	IS	90.9	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-6:2 FTS	IS	94.2	40 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFOA	IS	72.7	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C5-PFNA	IS	63.8	50 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C8-PFOSA	IS	18.0	20 - 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C8-PFOS	IS	85.1	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFDA	IS	51.8	60 - 130	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1

Sample ID: Method Blank					VAL - PFAS						
Client Data				Laboratory Data							
Name:	Merit Laboratories, Inc.		Matrix:	Solid		Lab Sample:	B8L0237-BLK1		Column:	BEH C18	
Project:	Statewide WWTP Biosolids PFAS Evaluation										
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
13C2-8:2 FTS	IS	91.5	40 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1		
d3-MeFOSAA	IS	42.7	50 - 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1		
d5-EtFOSAA	IS	37.7	50 - 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1		
13C2-PFUnA	IS	46.7	60 - 130	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1		
13C2-PFDoA	IS	42.5	30 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1		
13C2-PFTeDA	IS	63.8	20 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1		

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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						VAL - PFAS					
Client Data						Laboratory Data					
Name: Merit Laboratories, Inc.		Matrix: Solid				Lab Sample: B8L0237-BS1		Column: BEH C18			
Project: Statewide WWTP Biosolids PFAS Evaluation											
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.7	10.0	107	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFPeA	2706-90-3	11.3	10.0	113	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFBS	375-73-5	11.6	10.0	116	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
4:2 FTS	757124-72-4	10.9	10.0	109	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHxA	307-24-4	10.9	10.0	109	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFPeS	2706-91-4	11.6	10.0	116	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHpA	375-85-9	11.1	10.0	111	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHxS	355-46-4	9.62	10.0	96.2	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
6:2 FTS	27619-97-2	12.5	10.0	125	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFOA	335-67-1	11.2	10.0	112	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHpS	375-92-8	10.7	10.0	107	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFNA	375-95-1	10.2	10.0	102	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFOSA	754-91-6	10.1	10.0	101	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFOS	1763-23-1	11.0	10.0	110	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFDA	335-76-2	11.7	10.0	117	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
8:2 FTS	39108-34-4	10.3	10.0	103	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFNS	68259-12-1	10.7	10.0	107	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
MeFOSAA	2355-31-9	9.79	10.0	97.9	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
EtFOSAA	2991-50-6	11.4	10.0	114	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFUnA	2058-94-8	11.3	10.0	113	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFDS	335-77-3	9.86	10.0	98.6	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFDaA	307-55-1	10.9	10.0	109	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFTTrDA	72629-94-8	11.5	10.0	115	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFTeDA	376-06-7	10.2	10.0	102	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		90.7	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C3-PFPeA		IS		84.2	60- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C3-PFBS		IS		83.4	60- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-4:2 FTS		IS		82.2	40- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFHxA		IS		88.4	70- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C4-PFHpA		IS		84.9	60- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
18O2-PFHxS		IS		94.4	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-6:2 FTS		IS		87.7	40- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFOA		IS		80.4	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C5-PFNA		IS		74.6	50- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1

Sample ID: OPR					VAL - PFAS				
Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation					Laboratory Data Lab Sample: B8L0237-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	18.7	20- 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C8-PFOS	IS	88.3	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFDA	IS	60.3	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-8:2 FTS	IS	95.0	40- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
d3-MeFOSAA	IS	62.6	50- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
d5-EtFOSAA	IS	55.8	50- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFUnA	IS	62.7	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFDoA	IS	65.2	30- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFTeDA	IS	82.6	20- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1

Sample ID: CL01SS091812131255SK
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804141-01	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 12:55	Date Received:	19-Dec-18 11:46				
Location:	CL01-SS09			% Solids:	82.6				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFPeA	2706-90-3	1.51	0.831	0.984	1.97	J	B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFBS	375-73-5	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
4:2 FTS	757124-72-4	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFHxA	307-24-4	1.39	0.831	0.984	1.97	J	B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFPeS	2706-91-4	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFHpA	375-85-9	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFHxS	355-46-4	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
6:2 FTS	27619-97-2	4.59	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFOA	335-67-1	1.67	0.831	0.984	1.97	J	B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFHpS	375-92-8	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFNA	375-95-1	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFOSA	754-91-6	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFOS	1763-23-1	159	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFDA	335-76-2	2.06	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
8:2 FTS	39108-34-4	0.930	0.831	0.984	1.97	J	B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFNS	68259-12-1	ND	1.41	1.48	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
MeFOSAA	2355-31-9	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
EtFOSAA	2991-50-6	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFUnA	2058-94-8	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFDS	335-77-3	1.56	0.831	0.984	1.97	J	B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFDoA	307-55-1	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFTTrDA	72629-94-8	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
PFTeDA	376-06-7	ND	0.831	0.984	1.97		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	74.4	60 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C3-PFPeA	IS	70.4	60 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C3-PFBS	IS	75.6	60 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-4:2 FTS	IS	75.1	40 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-PFHxA	IS	74.5	70 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C4-PFHpA	IS	73.4	60 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
18O2-PFHxS	IS	73.0	60 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-6:2 FTS	IS	80.5	40 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-PFOA	IS	65.4	60 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C5-PFNA	IS	66.0	50 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C8-PFOSA	IS	32.9	20 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C8-PFOS	IS	74.8	60 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-PFDA	IS	61.8	60 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1

Sample ID: CL01SS091812131255SK	VAL - PFAS
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Client Data	Laboratory Data
Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS09	Matrix: Soil Date Collected: 13-Dec-18 12:55 Lab Sample: 1804141-01 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 82.6

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	88.5	40 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
d3-MeFOSAA	IS	61.0	50 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
d5-EtFOSAA	IS	55.1	50 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-PFUnA	IS	70.2	60 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-PFDoA	IS	68.7	30 - 130		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1
13C2-PFTeDA	IS	76.9	20 - 150		B8L0237	07-Jan-19	1.23 g	09-Jan-19 15:45	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CL01SS101812131315SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804141-02	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 13:15	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS10			% Solids:	73.8		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFPeA	2706-90-3	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFBS	375-73-5	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
4:2 FTS	757124-72-4	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFHxA	307-24-4	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFPeS	2706-91-4	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFHpA	375-85-9	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFHxS	355-46-4	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
6:2 FTS	27619-97-2	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFOA	335-67-1	1.15	0.836	0.990	1.98	J	B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFHpS	375-92-8	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFNA	375-95-1	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFOSA	754-91-6	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFOS	1763-23-1	108	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFDA	335-76-2	1.75	0.836	0.990	1.98	J	B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
8:2 FTS	39108-34-4	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFNS	68259-12-1	ND	1.42	1.48	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
MeFOSAA	2355-31-9	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
EtFOSAA	2991-50-6	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFUnA	2058-94-8	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFDS	335-77-3	1.34	0.836	0.990	1.98	J	B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFDoA	307-55-1	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFTTrDA	72629-94-8	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
PFTeDA	376-06-7	ND	0.836	0.990	1.98		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.2	60 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C3-PFPeA	IS	75.9	60 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C3-PFBS	IS	83.8	60 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-4:2 FTS	IS	78.3	40 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-PFHxA	IS	84.1	70 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C4-PFHpA	IS	89.3	60 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
18O2-PFHxS	IS	80.9	60 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-6:2 FTS	IS	98.1	40 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-PFOA	IS	74.2	60 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C5-PFNA	IS	75.5	50 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C8-PFOSA	IS	26.8	20 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C8-PFOS	IS	80.4	60 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-PFDA	IS	64.3	60 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1

Sample ID: CL01SS101812131315SK	VAL - PFAS
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Client Data	Laboratory Data
Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS10	Matrix: Soil Date Collected: 13-Dec-18 13:15 Lab Sample: 1804141-02 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 73.8

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	120	40 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
d3-MeFOSAA	IS	53.0	50 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
d5-EtFOSAA	IS	60.9	50 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-PFUnA	IS	76.2	60 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-PFDoA	IS	84.1	30 - 130		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1
13C2-PFTeDA	IS	89.1	20 - 150		B8L0237	07-Jan-19	1.37 g	09-Jan-19 16:04	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CL01SS111812131455SK
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804141-06	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 14:55	Date Received:	19-Dec-18 11:46				
Location:	CL01-SS11			% Solids:	83.0				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFPeA	2706-90-3	1.08	0.841	0.996	1.99	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFBS	375-73-5	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
4:2 FTS	757124-72-4	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFHxA	307-24-4	1.01	0.841	0.996	1.99	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFPeS	2706-91-4	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFHpA	375-85-9	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFHxS	355-46-4	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
6:2 FTS	27619-97-2	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFOA	335-67-1	1.64	0.841	0.996	1.99	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFHpS	375-92-8	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFNA	375-95-1	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFOSA	754-91-6	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFOS	1763-23-1	131	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFDA	335-76-2	1.37	0.841	0.996	1.99	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
8:2 FTS	39108-34-4	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFNS	68259-12-1	ND	1.42	1.49	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
MeFOSAA	2355-31-9	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
EtFOSAA	2991-50-6	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFUnA	2058-94-8	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFDS	335-77-3	1.84	0.841	0.996	1.99	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFDoA	307-55-1	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFTTrDA	72629-94-8	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
PFTeDA	376-06-7	ND	0.841	0.996	1.99		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	85.6	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C3-PFPeA	IS	78.6	60 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C3-PFBS	IS	80.8	60 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-4:2 FTS	IS	75.5	40 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-PFHxA	IS	83.8	70 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C4-PFHpA	IS	84.7	60 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
18O2-PFHxS	IS	83.8	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-6:2 FTS	IS	88.4	40 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-PFOA	IS	75.8	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C5-PFNA	IS	72.2	50 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C8-PFOSA	IS	33.1	20 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C8-PFOS	IS	73.9	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-PFDA	IS	67.3	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1

Sample ID: CL01SS111812131455SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS11	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 14:55 Lab Sample: 1804141-06 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 83.0
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	82.0	40 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
d3-MeFOSAA	IS	61.5	50 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
d5-EtFOSAA	IS	65.2	50 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-PFUnA	IS	72.1	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-PFDoA	IS	76.1	30 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1
13C2-PFTeDA	IS	90.4	20 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:14	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: FD1812131500SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804141-07	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 15:00	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS11			% Solids:	84.0		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFPeA	2706-90-3	1.28	0.845	1.00	2.00	J	B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFHxA	307-24-4	1.12	0.845	1.00	2.00	J	B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFOA	335-67-1	1.96	0.845	1.00	2.00	J	B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFOS	1763-23-1	133	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFDA	335-76-2	1.27	0.845	1.00	2.00	J	B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFDS	335-77-3	1.42	0.845	1.00	2.00	J	B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFTTrDA	72629-94-8	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.0	60 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C3-PFPeA	IS	80.6	60 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C3-PFBS	IS	86.3	60 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-4:2 FTS	IS	79.7	40 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-PFHxA	IS	84.0	70 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C4-PFHpA	IS	83.9	60 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
18O2-PFHxS	IS	90.1	60 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-6:2 FTS	IS	95.2	40 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-PFOA	IS	74.1	60 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C5-PFNA	IS	74.8	50 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C8-PFOSA	IS	34.4	20 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C8-PFOS	IS	74.9	60 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-PFDA	IS	64.9	60 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1

Sample ID: FD1812131500SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS11	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 15:00 Lab Sample: 1804141-07 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 84.0
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.5	40 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
d3-MeFOSAA	IS	70.0	50 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
d5-EtFOSAA	IS	65.0	50 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-PFUnA	IS	73.0	60 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-PFDoA	IS	73.3	30 - 130		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1
13C2-PFTeDA	IS	89.4	20 - 150		B8L0237	07-Jan-19	1.19 g	09-Jan-19 16:25	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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: CL01SS121812131545SK
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804141-08	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 15:45	Date Received:	19-Dec-18 11:46				
Location:	CL01-SS12			% Solids:	82.8				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFPeA	2706-90-3	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFBS	375-73-5	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
4:2 FTS	757124-72-4	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFHxA	307-24-4	0.979	0.844	0.998	2.00	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFPeS	2706-91-4	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFHpA	375-85-9	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFHxS	355-46-4	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
6:2 FTS	27619-97-2	4.93	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFOA	335-67-1	1.96	0.844	0.998	2.00	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFHpS	375-92-8	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFNA	375-95-1	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFOSA	754-91-6	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFOS	1763-23-1	141	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFDA	335-76-2	1.44	0.844	0.998	2.00	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
8:2 FTS	39108-34-4	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
MeFOSAA	2355-31-9	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
EtFOSAA	2991-50-6	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFUnA	2058-94-8	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFDS	335-77-3	1.27	0.844	0.998	2.00	J	B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFDoA	307-55-1	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFTTrDA	72629-94-8	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
PFTeDA	376-06-7	ND	0.844	0.998	2.00		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.2	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C3-PFPeA	IS	79.9	60 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C3-PFBS	IS	78.4	60 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-4:2 FTS	IS	72.8	40 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-PFHxA	IS	82.3	70 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C4-PFHpA	IS	81.5	60 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
18O2-PFHxS	IS	81.3	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-6:2 FTS	IS	98.4	40 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-PFOA	IS	78.8	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C5-PFNA	IS	80.7	50 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C8-PFOSA	IS	45.5	20 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C8-PFOS	IS	77.7	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-PFDA	IS	71.3	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1

Sample ID: CL01SS121812131545SK	VAL - PFAS
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Client Data	Laboratory Data
Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS12	Matrix: Soil Date Collected: 13-Dec-18 15:45 Lab Sample: 1804141-08 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 82.8

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.7	40 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
d3-MeFOSAA	IS	65.4	50 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
d5-EtFOSAA	IS	68.0	50 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-PFUnA	IS	77.9	60 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-PFDoA	IS	75.9	30 - 130		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1
13C2-PFTeDA	IS	91.5	20 - 150		B8L0237	07-Jan-19	1.21 g	09-Jan-19 16:35	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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: Method Blank
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	B9A0009-BLK1	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFTTrDA	72629-94-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	105	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C3-PFPeA	IS	112	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C3-PFBS	IS	113	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-4:2 FTS	IS	97.6	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-PFHxA	IS	103	70 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C4-PFHpA	IS	89.6	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
18O2-PFHxS	IS	97.4	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-6:2 FTS	IS	96.2	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-PFOA	IS	99.8	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C5-PFNA	IS	85.2	50 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C8-PFOSA	IS	72.9	20 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C8-PFOS	IS	88.1	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-PFDA	IS	81.4	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1

Sample ID: Method Blank					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Statewide WWTP Biosolids PFAS Evaluation					Laboratory Data Lab Sample: B9A0009-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	78.0	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
d3-MeFOSAA	IS	85.4	50 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
d5-EtFOSAA	IS	74.9	50 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
13C2-PFUnA	IS	75.7	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
13C2-PFDoA	IS	68.1	30 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
13C2-PFTeDA	IS	83.9	20 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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:	B9A0009-BS1	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	43.2	40.0	108	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFPeA	2706-90-3	43.8	40.0	110	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFBS	375-73-5	44.4	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
4:2 FTS	757124-72-4	44.2	40.0	110	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHxA	307-24-4	44.3	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFPeS	2706-91-4	44.4	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHpA	375-85-9	45.7	40.0	114	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHxS	355-46-4	43.8	40.0	109	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
6:2 FTS	27619-97-2	44.5	40.0	111	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFOA	335-67-1	44.5	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHpS	375-92-8	46.6	40.0	117	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFNA	375-95-1	43.2	40.0	108	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFOSA	754-91-6	40.9	40.0	102	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFOS	1763-23-1	42.4	40.0	106	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFDA	335-76-2	49.8	40.0	124	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
8:2 FTS	39108-34-4	44.5	40.0	111	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFNS	68259-12-1	40.1	40.0	100	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
MeFOSAA	2355-31-9	42.3	40.0	106	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
EtFOSAA	2991-50-6	42.1	40.0	105	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFUnA	2058-94-8	47.9	40.0	120	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFDS	335-77-3	37.5	40.0	93.6	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFDoA	307-55-1	43.2	40.0	108	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFTTrDA	72629-94-8	48.5	40.0	121	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFTeDA	376-06-7	45.0	40.0	112	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		97.6	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C3-PFPeA		IS		97.2	60- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C3-PFBS		IS		98.2	60- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-4:2 FTS		IS		93.0	40- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFHxA		IS		99.7	70- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C4-PFHpA		IS		94.5	60- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
18O2-PFHxS		IS		99.7	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-6:2 FTS		IS		95.4	40- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFOA		IS		96.7	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C5-PFNA		IS		86.8	50- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1

Sample ID: OPR					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation					Laboratory Data Lab Sample: B9A0009-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	65.8	20- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C8-PFOS	IS	90.2	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFDA	IS	75.1	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-8:2 FTS	IS	83.4	40- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
d3-MeFOSAA	IS	77.4	50- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
d5-EtFOSAA	IS	77.7	50- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFUnA	IS	69.4	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFDoA	IS	80.4	30- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFTeDA	IS	87.7	20- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1

Sample ID: CL01DR31812131350SK
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Surface Water	Lab Sample:	1804141-03	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 13:50	Date Received:	19-Dec-18 11:46		
Location:	CL01-DR3						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.26	1.35	1.97	3.94	J	B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFPeA	2706-90-3	2.71	1.35	1.97	3.94	J	B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFBS	375-73-5	2.38	1.35	1.97	3.94	J	B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
4:2 FTS	757124-72-4	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFHxA	307-24-4	1.69	1.35	1.97	3.94	J	B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFPeS	2706-91-4	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFHpA	375-85-9	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFHxS	355-46-4	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
6:2 FTS	27619-97-2	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFOA	335-67-1	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFHpS	375-92-8	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFNA	375-95-1	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFOSA	754-91-6	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFOS	1763-23-1	3.66	1.35	1.97	3.94	J	B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFDA	335-76-2	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
8:2 FTS	39108-34-4	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFNS	68259-12-1	ND	1.91	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
MeFOSAA	2355-31-9	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
EtFOSAA	2991-50-6	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFUnA	2058-94-8	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFDS	335-77-3	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFDoA	307-55-1	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFTTrDA	72629-94-8	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
PFTeDA	376-06-7	ND	1.35	1.97	3.94		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	101	60 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C3-PFPeA	IS	99.9	60 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C3-PFBS	IS	106	60 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C2-4:2 FTS	IS	92.9	40 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C2-PFHxA	IS	98.5	70 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C4-PFHpA	IS	83.5	60 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
18O2-PFHxS	IS	100	60 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C2-6:2 FTS	IS	91.7	40 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C2-PFOA	IS	101	60 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C5-PFNA	IS	93.1	50 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C8-PFOSA	IS	93.7	20 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C8-PFOS	IS	90.3	60 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1
13C2-PFDA	IS	85.7	60 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1

Sample ID: CL01DR31812131350SK					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Surface Water Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 13-Dec-18 13:50 Location: CL01-DR3					Laboratory Data Lab Sample: 1804141-03 Column: BEH C18 Date Received: 19-Dec-18 11:46					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	83.7	40 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1	
d3-MeFOSAA	IS	88.4	50 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1	
d5-EtFOSAA	IS	87.6	50 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1	
13C2-PFUnA	IS	83.7	60 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1	
13C2-PFDoA	IS	75.7	30 - 130		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1	
13C2-PFTeDA	IS	94.2	20 - 150		B9A0009	03-Jan-19	0.254 L	05-Jan-19 06:52	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: CL01SW31812131425SK
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Surface Water	Lab Sample:	1804141-04	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 14:25	Date Received:	19-Dec-18 11:46		
Location:	CL01-SW3						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	61.9	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFPeA	2706-90-3	103	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFBS	375-73-5	133	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFHxA	307-24-4	138	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFHpA	375-85-9	67.3	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFHxS	355-46-4	18.0	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFOA	335-67-1	120	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFHpS	375-92-8	8.19	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFNA	375-95-1	18.4	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFOS	1763-23-1	1970	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFDA	335-76-2	9.18	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFTTrDA	72629-94-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C3-PFPeA	IS	99.4	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C3-PFBS	IS	102	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C2-4:2 FTS	IS	78.9	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C2-PFHxA	IS	97.6	70 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C4-PFHpA	IS	84.5	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
18O2-PFHxS	IS	99.6	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C2-6:2 FTS	IS	114	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C2-PFOA	IS	91.9	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C5-PFNA	IS	76.1	50 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C8-PFOSA	IS	74.3	20 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C8-PFOS	IS	98.5	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1
13C2-PFDA	IS	71.3	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1

Sample ID: CL01SW31812131425SK					PFAS Isotope Dilution Method					
Client Data				Laboratory Data						
Name:	Merit Laboratories, Inc.		Matrix:	Surface Water	Lab Sample:	1804141-04		Column:	BEH C18	
Project:	Statewide WWTP Biosolids PFAS Evaluation		Date Collected:	13-Dec-18 14:25	Date Received:	19-Dec-18 11:46				
Location:	CL01-SW3									
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	117	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1	
d3-MeFOSAA	IS	73.5	50 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1	
d5-EtFOSAA	IS	73.0	50 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1	
13C2-PFUnA	IS	71.6	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1	
13C2-PFDoA	IS	62.2	30 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1	
13C2-PFTeDA	IS	72.3	20 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 07:03	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: CL01MW11812140955LEM
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1804141-10	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	14-Dec-18 09:55	Date Received:	19-Dec-18 11:46		
Location:	CL01-MW1						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFPeA	2706-90-3	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFBS	375-73-5	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
4:2 FTS	757124-72-4	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFHxA	307-24-4	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFPeS	2706-91-4	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFHpA	375-85-9	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFHxS	355-46-4	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
6:2 FTS	27619-97-2	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFOA	335-67-1	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFHpS	375-92-8	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFNA	375-95-1	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFOSA	754-91-6	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFOS	1763-23-1	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFDA	335-76-2	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
8:2 FTS	39108-34-4	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFNS	68259-12-1	ND	1.92	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
MeFOSAA	2355-31-9	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
EtFOSAA	2991-50-6	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFUnA	2058-94-8	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFDS	335-77-3	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFDoA	307-55-1	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFTTrDA	72629-94-8	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
PFTeDA	376-06-7	ND	1.36	1.98	3.97		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	107	60 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C3-PFPeA	IS	103	60 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C3-PFBS	IS	115	60 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C2-4:2 FTS	IS	101	40 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C2-PFHxA	IS	98.6	70 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C4-PFHpA	IS	88.0	60 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
18O2-PFHxS	IS	103	60 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C2-6:2 FTS	IS	101	40 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C2-PFOA	IS	102	60 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C5-PFNA	IS	105	50 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C8-PFOSA	IS	78.0	20 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C8-PFOS	IS	99.0	60 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1
13C2-PFDA	IS	99.5	60 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1

Sample ID: CL01MW11812140955LEM					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 14-Dec-18 09:55 Location: CL01-MW1					Laboratory Data Lab Sample: 1804141-10 Column: BEH C18 Date Received: 19-Dec-18 11:46					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	81.2	40 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1	
d3-MeFOSAA	IS	82.6	50 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1	
d5-EtFOSAA	IS	72.8	50 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1	
13C2-PFUnA	IS	95.0	60 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1	
13C2-PFDoA	IS	75.4	30 - 130		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1	
13C2-PFTeDA	IS	86.6	20 - 150		B9A0009	03-Jan-19	0.252 L	05-Jan-19 07:13	1	

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

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: CL01MW21812141100LEM
PFAS Isotope Dilution Method

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1804141-11	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	14-Dec-18 11:00	Date Received:	19-Dec-18 11:46				
Location:	CL01-MW2								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	5.21	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFPeA	2706-90-3	8.48	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFBS	375-73-5	3.93	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
4:2 FTS	757124-72-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFHxA	307-24-4	7.57	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFPeS	2706-91-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFHpA	375-85-9	3.04	1.33	1.94	3.88	J	B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFHxS	355-46-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
6:2 FTS	27619-97-2	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFOA	335-67-1	5.10	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFHpS	375-92-8	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFNA	375-95-1	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFOSA	754-91-6	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFOS	1763-23-1	8.43	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFDA	335-76-2	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
8:2 FTS	39108-34-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFNS	68259-12-1	ND	1.88	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
MeFOSAA	2355-31-9	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
EtFOSAA	2991-50-6	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PfUnA	2058-94-8	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFDS	335-77-3	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFDoA	307-55-1	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFTTrDA	72629-94-8	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
PFTeDA	376-06-7	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	105	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C3-PFPeA	IS	100	60 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C3-PFBS	IS	108	60 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C2-4:2 FTS	IS	91.8	40 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C2-PFHxA	IS	96.7	70 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C4-PFHpA	IS	86.6	60 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
18O2-PFHxS	IS	96.8	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C2-6:2 FTS	IS	98.6	40 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C2-PFOA	IS	104	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C5-PFNA	IS	89.7	50 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C8-PFOSA	IS	83.9	20 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C8-PFOS	IS	101	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1
13C2-PFDA	IS	86.7	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1

Sample ID: CL01MW21812141100LEM					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 14-Dec-18 11:00 Location: CL01-MW2					Laboratory Data Lab Sample: 1804141-11 Column: BEH C18 Date Received: 19-Dec-18 11:46					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	89.9	40 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1	
d3-MeFOSAA	IS	81.3	50 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1	
d5-EtFOSAA	IS	81.9	50 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1	
13C2-PFUnA	IS	85.1	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1	
13C2-PFDoA	IS	75.1	30 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1	
13C2-PFTeDA	IS	92.9	20 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:24	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: FD1812141115LEM
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1804141-12	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	14-Dec-18 11:15	Date Received:	19-Dec-18 11:46		
Location:	CL01-MW2 Field DUP						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.86	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFPeA	2706-90-3	7.90	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFBS	375-73-5	3.95	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
4:2 FTS	757124-72-4	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFHxA	307-24-4	7.06	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFPeS	2706-91-4	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFHpA	375-85-9	3.48	1.32	1.92	3.85	J	B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFHxS	355-46-4	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
6:2 FTS	27619-97-2	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFOA	335-67-1	4.84	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFHpS	375-92-8	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFNA	375-95-1	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFOSA	754-91-6	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFOS	1763-23-1	8.82	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFDA	335-76-2	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
8:2 FTS	39108-34-4	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFNS	68259-12-1	ND	1.86	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
MeFOSAA	2355-31-9	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
EtFOSAA	2991-50-6	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFUnA	2058-94-8	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFDS	335-77-3	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFDoA	307-55-1	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFTTrDA	72629-94-8	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
PFTeDA	376-06-7	ND	1.32	1.92	3.85		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	106	60 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C3-PFPeA	IS	100	60 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C3-PFBS	IS	104	60 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C2-4:2 FTS	IS	88.6	40 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C2-PFHxA	IS	97.6	70 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C4-PFHpA	IS	88.2	60 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
18O2-PFHxS	IS	96.5	60 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C2-6:2 FTS	IS	96.6	40 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C2-PFOA	IS	98.4	60 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C5-PFNA	IS	82.7	50 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C8-PFOSA	IS	73.5	20 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C8-PFOS	IS	98.4	60 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1
13C2-PFDA	IS	84.3	60 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1

Sample ID: FD1812141115LEM					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 14-Dec-18 11:15 Location: CL01-MW2 Field DUP					Laboratory Data Lab Sample: 1804141-12 Column: BEH C18 Date Received: 19-Dec-18 11:46					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	96.2	40 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1	
d3-MeFOSAA	IS	79.0	50 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1	
d5-EtFOSAA	IS	77.7	50 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1	
13C2-PFUnA	IS	81.4	60 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1	
13C2-PFDoA	IS	77.8	30 - 130		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1	
13C2-PFTeDA	IS	91.3	20 - 150		B9A0009	03-Jan-19	0.260 L	05-Jan-19 07:34	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

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: CL01MW41812141220LEM
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1804141-13	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	14-Dec-18 12:20	Date Received:	19-Dec-18 11:46		
Location:	CL01-MW4						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	79.0	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFPeA	2706-90-3	121	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFBS	375-73-5	91.6	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
4:2 FTS	757124-72-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFHxA	307-24-4	122	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFPeS	2706-91-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFHpA	375-85-9	44.3	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFHxS	355-46-4	4.81	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
6:2 FTS	27619-97-2	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFOA	335-67-1	60.8	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFHpS	375-92-8	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFNA	375-95-1	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFOSA	754-91-6	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFOS	1763-23-1	18.0	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFDA	335-76-2	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
8:2 FTS	39108-34-4	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFNS	68259-12-1	ND	1.88	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
MeFOSAA	2355-31-9	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
EtFOSAA	2991-50-6	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFUnA	2058-94-8	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFDS	335-77-3	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFDoA	307-55-1	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFTTrDA	72629-94-8	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
PFTeDA	376-06-7	ND	1.33	1.94	3.88		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	108	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C3-PFPeA	IS	107	60 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C3-PFBS	IS	108	60 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-4:2 FTS	IS	97.2	40 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-PFHxA	IS	100	70 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C4-PFHpA	IS	88.0	60 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
18O2-PFHxS	IS	106	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-6:2 FTS	IS	103	40 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-PFOA	IS	102	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C5-PFNA	IS	94.1	50 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C8-PFOSA	IS	95.3	20 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C8-PFOS	IS	110	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-PFDA	IS	88.1	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1

Sample ID: CL01MW41812141220LEM	PFAS Isotope Dilution Method
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Client Data	Laboratory Data
Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-MW4	Matrix: Aqueous Date Collected: 14-Dec-18 12:20 Lab Sample: 1804141-13 Date Received: 19-Dec-18 11:46 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	97.7	40 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
d3-MeFOSAA	IS	93.8	50 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
d5-EtFOSAA	IS	84.6	50 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-PFUnA	IS	85.0	60 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-PFDoA	IS	76.0	30 - 130		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1
13C2-PFTeDA	IS	98.9	20 - 150		B9A0009	03-Jan-19	0.258 L	05-Jan-19 07:45	1

DL - Detection Limit	LOD - Limit of Detection	Results reported to the DL.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation		

Sample ID: CL01MW31812141325LEM
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Aqueous	Lab Sample:	1804141-14	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	14-Dec-18 13:25	Date Received:	19-Dec-18 11:46		
Location:	CL01-MW3						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFPeA	2706-90-3	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFBS	375-73-5	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
4:2 FTS	757124-72-4	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFHxA	307-24-4	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFPeS	2706-91-4	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFHpA	375-85-9	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFHxS	355-46-4	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
6:2 FTS	27619-97-2	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFOA	335-67-1	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFHpS	375-92-8	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFNA	375-95-1	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFOSA	754-91-6	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFOS	1763-23-1	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFDA	335-76-2	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
8:2 FTS	39108-34-4	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFNS	68259-12-1	ND	1.85	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
MeFOSAA	2355-31-9	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
EtFOSAA	2991-50-6	3.98	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFUnA	2058-94-8	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFDS	335-77-3	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFDoA	307-55-1	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFTTrDA	72629-94-8	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
PFTeDA	376-06-7	ND	1.31	1.91	3.82		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.9	60 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C3-PFPeA	IS	96.9	60 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C3-PFBS	IS	102	60 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-4:2 FTS	IS	88.3	40 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-PFHxA	IS	101	70 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C4-PFHpA	IS	95.1	60 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
18O2-PFHxS	IS	108	60 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-6:2 FTS	IS	104	40 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-PFOA	IS	93.5	60 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C5-PFNA	IS	90.9	50 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C8-PFOSA	IS	88.0	20 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C8-PFOS	IS	101	60 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-PFDA	IS	92.3	60 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1

Sample ID: CL01MW31812141325LEM					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 14-Dec-18 13:25 Location: CL01-MW3					Laboratory Data Lab Sample: 1804141-14 Column: BEH C18 Date Received: 19-Dec-18 11:46				
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	82.7	40 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
d3-MeFOSAA	IS	105	50 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
d5-EtFOSAA	IS	112	50 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-PFUnA	IS	86.6	60 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-PFDoA	IS	81.7	30 - 130		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1
13C2-PFTeDA	IS	94.4	20 - 150		B9A0009	03-Jan-19	0.262 L	12-Jan-19 05:08	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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	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.

Vista Analytical Laboratory 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
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-009
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-18-9
Virginia Department of General Services	9618
Washington Department of Ecology	C584-18
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 #: 1804141 Temp: 1.7 °C
Storage ID: WR-2 Storage Secured: Yes ☐ No ☐

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Lauren McNeely
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) Lauren McNeely Date 12/18/18 Time 1600 Received by (printed name and signature) B. Benedict Date 12/19/18 Time 1146
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: <u>Jennifer Miller</u>				Method of Shipment: Tracking No.:		Add Analysis(es) Requested		PFAS Isotope Dilution				USEPA Method 537				Comments
						Container(s)										
						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	PFOM/PFOS	
Sample ID	Date	Time	Location/Sample Description													
CL01SS091812131255SK	12/13/18	1255	CL01-SS09	1	PJ	SO			X							
CL01SS101812131315SK	12/13/18	1315	CL01-SS10	1	PJ	SO			X							
CL01DR31812131350SK	12/13/18	1350	CL01-DR3	2	P	SW			X							
CL01SW31812131425SK	12/13/18	1425	CL01-SW3	2	P	SW			X							
FB1812131440LEM	12/13/18	1440	FIELD BLANK	1	P	AQ			X							
CL01SS111812131455SK	12/13/18	1455	CL01-SS11	1	PJ	SO			X							
FD1812131500SK	12/13/18	1500	CL01-SS11	1	PJ	SO			X							
CL01SS121812131545SK	12/13/18	1545	CL01-SS12	1	PJ	SO			X							
EB1812131600LEM	12/13/18	1600	SHOVEL	1	P	AQ			X							
CL01MW11812140955LEM	12/14/18	0955	CL01-MW1	2	P	AQ			X							

Special Instructions/Comments: Send Results and Acknowledgements to the list provided

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street, Constitution Hall, 1st South West
City: Lansing State: MI Zip: 30242
Phone: 517-897-1597 Fax: 517-241-3571
Email: dorin.bogdan@aecom.com

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

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____ NONE

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

Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 1804141

 TAT Std

Samples Arrival:	Date/Time 12/19/18 1146	Initials: CRB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 12/19/18 1524	Initials: CRB	Location: WR-2
			Shelf/Rack: B4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 1.8 (uncorrected)	Probe used: Y / ☒ N		Thermometer ID: IR-4
Temp °C: 1.7 (corrected)			

	YES	NO	NA
Adequate Sample Volume Received?	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill	☒		
Trk # 4377 0528 8058			
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:	☐ Yes	☐ No	☒ NA
☐ Na ₂ S ₂ O ₃			
☐ Trizma			
☐ Other			
Shipping Container	☒ Vista	☐ Client	☒ Retain
	☐ Return	☐ Dispose	

Comments:



January 15, 2019

Vista Work Order No. 1804142

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 December 19, 2018 under your Project Name 'Statewide WWTP Biosolids PFAS Evaluation'.

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,

A handwritten signature in blue ink that reads "Martha Maier".

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. 1804142

Case Narrative

Sample Condition on Receipt:

Eight soil samples and two surface 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:

PFAS Isotope Dilution Method

The aqueous samples were extracted and analyzed for a selected list of PFAS using Vista's PFAS Isotope Dilution Method. This method is listed on Vista's NELAP certificate as 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.

Sample "CL01DR21812131035SK" contained particulate and was centrifuged prior to extraction.

Holding Times

The samples were originally extracted and analyzed within the method hold times. The samples required re-extractions; the re-extractions were performed outside of the hold time.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method 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 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

VAL-PFAS

The soil samples were extracted and analyzed for a selected list of PFAS using VAL Method PFAS. 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 samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method 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 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	13C8-PFOSA	H	18.0
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	13C2-PFDA	H	51.8
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	d3-MeFOSAA	H	42.7
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	d5-EtFOSAA	H	37.7
B8L0237-BLK1	B8L0237-BLK1	VAL - PFAS	13C2-PFUnA	H	46.7
B8L0237-BS1	B8L0237-BS1	VAL - PFAS	13C8-PFOSA	H	18.7

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1804142-01	CL01SS011812130910SK	13-Dec-18 09:10	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-02	CL01SS021812130945SK	13-Dec-18 09:45	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-03	CL01SS031812131000SK	13-Dec-18 10:00	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-04	CL01SS041812131020SK	13-Dec-18 10:20	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-05	CL01DR21812131035SK	13-Dec-18 10:35	19-Dec-18 11:46	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1804142-06	CL01SS051812131055SK	13-Dec-18 10:55	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-07	CL01SS061812131120SK	13-Dec-18 11:20	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-08	CL01SS071812131155SK	13-Dec-18 11:55	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-09	CL01SS081812131220SK	13-Dec-18 12:20	19-Dec-18 11:46	HDPE Jar, 6 oz
1804142-10	CL01SW51812131235SK	13-Dec-18 12:35	19-Dec-18 11:46	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:	B9A0009-BLK1	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFTTrDA	72629-94-8	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	105	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C3-PFPeA	IS	112	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C3-PFBS	IS	113	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-4:2 FTS	IS	97.6	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-PFHxA	IS	103	70 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C4-PFHpA	IS	89.6	60 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
18O2-PFHxS	IS	97.4	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-6:2 FTS	IS	96.2	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-PFOA	IS	99.8	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C5-PFNA	IS	85.2	50 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C8-PFOSA	IS	72.9	20 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C8-PFOS	IS	88.1	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1
13C2-PFDA	IS	81.4	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1

Sample ID: Method Blank					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Statewide WWTP Biosolids PFAS Evaluation					Laboratory Data Lab Sample: B9A0009-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	78.0	40 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
d3-MeFOSAA	IS	85.4	50 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
d5-EtFOSAA	IS	74.9	50 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
13C2-PFUnA	IS	75.7	60 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
13C2-PFDoA	IS	68.1	30 - 130		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	
13C2-PFTeDA	IS	83.9	20 - 150		B9A0009	03-Jan-19	0.250 L	05-Jan-19 04:34	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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 Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation						Laboratory Data Lab Sample: B9A0009-BS1 Column: BEH C18					
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	43.2	40.0	108	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFPeA	2706-90-3	43.8	40.0	110	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFBS	375-73-5	44.4	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
4:2 FTS	757124-72-4	44.2	40.0	110	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHxA	307-24-4	44.3	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFPeS	2706-91-4	44.4	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHpA	375-85-9	45.7	40.0	114	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHxS	355-46-4	43.8	40.0	109	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
6:2 FTS	27619-97-2	44.5	40.0	111	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFOA	335-67-1	44.5	40.0	111	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFHpS	375-92-8	46.6	40.0	117	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFNA	375-95-1	43.2	40.0	108	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFOSA	754-91-6	40.9	40.0	102	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFOS	1763-23-1	42.4	40.0	106	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFDA	335-76-2	49.8	40.0	124	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
8:2 FTS	39108-34-4	44.5	40.0	111	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFNS	68259-12-1	40.1	40.0	100	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
MeFOSAA	2355-31-9	42.3	40.0	106	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
EtFOSAA	2991-50-6	42.1	40.0	105	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFUnA	2058-94-8	47.9	40.0	120	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFDS	335-77-3	37.5	40.0	93.6	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFDoA	307-55-1	43.2	40.0	108	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFTTrDA	72629-94-8	48.5	40.0	121	60 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
PFTeDA	376-06-7	45.0	40.0	112	70 - 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
Labeled Standards	Type			% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS			97.6	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C3-PFPeA	IS			97.2	60- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C3-PFBS	IS			98.2	60- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-4:2 FTS	IS			93.0	40- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFHxA	IS			99.7	70- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C4-PFHpA	IS			94.5	60- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
18O2-PFHxS	IS			99.7	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-6:2 FTS	IS			95.4	40- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFOA	IS			96.7	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C5-PFNA	IS			86.8	50- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1

Sample ID: OPR					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation					Laboratory Data Lab Sample: B9A0009-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	65.8	20- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C8-PFOS	IS	90.2	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFDA	IS	75.1	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-8:2 FTS	IS	83.4	40- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
d3-MeFOSAA	IS	77.4	50- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
d5-EtFOSAA	IS	77.7	50- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFUnA	IS	69.4	60- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFDoA	IS	80.4	30- 130		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1
13C2-PFTeDA	IS	87.7	20- 150		B9A0009	03-Jan-19	0.250 L	06-Jan-19 17:46	1

Sample ID: CL01DR21812131035SK
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Surface Water	Lab Sample:	1804142-05	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 10:35	Date Received:	19-Dec-18 11:46		
Location:	CL01-DR2						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	78.6	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFPeA	2706-90-3	131	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFBS	375-73-5	154	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
4:2 FTS	757124-72-4	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFHxA	307-24-4	178	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFPeS	2706-91-4	1.94	1.36	1.99	3.98	J	B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFHpA	375-85-9	79.4	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFHxS	355-46-4	13.7	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
6:2 FTS	27619-97-2	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFOA	335-67-1	93.0	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFHpS	375-92-8	2.64	1.36	1.99	3.98	J	B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFNA	375-95-1	11.2	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFOSA	754-91-6	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFOS	1763-23-1	814	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFDA	335-76-2	6.73	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
8:2 FTS	39108-34-4	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFNS	68259-12-1	ND	1.92	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
MeFOSAA	2355-31-9	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
EtFOSAA	2991-50-6	1.67	1.36	1.99	3.98	J	B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFUnA	2058-94-8	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFDS	335-77-3	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFDoA	307-55-1	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFTTrDA	72629-94-8	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
PFTeDA	376-06-7	ND	1.36	1.99	3.98		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.2	60 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C3-PFPeA	IS	96.5	60 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C3-PFBS	IS	108	60 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C2-4:2 FTS	IS	73.5	40 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C2-PFHxA	IS	90.6	70 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C4-PFHpA	IS	77.6	60 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
18O2-PFHxS	IS	109	60 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C2-6:2 FTS	IS	90.2	40 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C2-PFOA	IS	95.3	60 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C5-PFNA	IS	89.3	50 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C8-PFOSA	IS	71.0	20 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C8-PFOS	IS	93.3	60 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1
13C2-PFDA	IS	80.3	60 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1

Sample ID: CL01DR21812131035SK					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Surface Water Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 13-Dec-18 10:35 Location: CL01-DR2					Laboratory Data Lab Sample: 1804142-05 Column: BEH C18 Date Received: 19-Dec-18 11:46					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	94.8	40 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1	
d3-MeFOSAA	IS	74.6	50 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1	
d5-EtFOSAA	IS	65.0	50 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1	
13C2-PFUnA	IS	74.3	60 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1	
13C2-PFDoA	IS	56.2	30 - 130		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1	
13C2-PFTeDA	IS	62.2	20 - 150		B9A0009	03-Jan-19	0.251 L	05-Jan-19 08:06	1	

DL - Detection Limit
LOD - Limit of Detection
Results reported to the DL.

LOQ - Limit of quantitation
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: CL01SW51812131235SK
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Surface Water	Lab Sample:	1804142-10	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 12:35	Date Received:	19-Dec-18 11:46		
Location:	CL01-SW5						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.38	1.33	1.95	3.89	J	B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFPeA	2706-90-3	2.39	1.33	1.95	3.89	J	B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFBS	375-73-5	2.74	1.33	1.95	3.89	J	B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
4:2 FTS	757124-72-4	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFHxA	307-24-4	2.05	1.33	1.95	3.89	J	B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFPeS	2706-91-4	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFHpA	375-85-9	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFHxS	355-46-4	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
6:2 FTS	27619-97-2	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFOA	335-67-1	1.36	1.33	1.95	3.89	J	B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFHpS	375-92-8	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFNA	375-95-1	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFOSA	754-91-6	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFOS	1763-23-1	6.30	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFDA	335-76-2	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
8:2 FTS	39108-34-4	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFNS	68259-12-1	ND	1.88	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
MeFOSAA	2355-31-9	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
EtFOSAA	2991-50-6	1.71	1.33	1.95	3.89	J	B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFUnA	2058-94-8	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFDS	335-77-3	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFDoA	307-55-1	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFTTrDA	72629-94-8	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
PFTeDA	376-06-7	ND	1.33	1.95	3.89		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.9	60 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C3-PFPeA	IS	98.1	60 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C3-PFBS	IS	111	60 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C2-4:2 FTS	IS	96.3	40 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C2-PFHxA	IS	95.7	70 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C4-PFHpA	IS	81.6	60 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
18O2-PFHxS	IS	102	60 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C2-6:2 FTS	IS	92.3	40 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C2-PFOA	IS	97.5	60 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C5-PFNA	IS	82.7	50 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C8-PFOSA	IS	88.0	20 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C8-PFOS	IS	95.0	60 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1
13C2-PFDA	IS	82.8	60 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1

Sample ID: CL01SW51812131235SK					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Surface Water Project: Statewide WWTP Biosolids PFAS Evaluation Date Collected: 13-Dec-18 12:35 Location: CL01-SW5					Laboratory Data Lab Sample: 1804142-10 Column: BEH C18 Date Received: 19-Dec-18 11:46					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	91.3	40 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1	
d3-MeFOSAA	IS	78.3	50 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1	
d5-EtFOSAA	IS	80.7	50 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1	
13C2-PFUnA	IS	85.7	60 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1	
13C2-PFDoA	IS	68.9	30 - 130		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1	
13C2-PFTeDA	IS	91.6	20 - 150		B9A0009	03-Jan-19	0.257 L	05-Jan-19 08:17	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: Method Blank
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Solid	Lab Sample:	B8L0237-BLK1	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation						

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFTTrDA	72629-94-8	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.4	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C3-PFPeA	IS	81.4	60 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C3-PFBS	IS	90.5	60 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-4:2 FTS	IS	79.4	40 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFHxA	IS	87.2	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C4-PFHpA	IS	83.5	60 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
18O2-PFHxS	IS	90.9	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-6:2 FTS	IS	94.2	40 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFOA	IS	72.7	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C5-PFNA	IS	63.8	50 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C8-PFOSA	IS	18.0	20 - 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C8-PFOS	IS	85.1	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFDA	IS	51.8	60 - 130	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1

Sample ID: Method Blank	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation	Laboratory Data Matrix: Solid Lab Sample: B8L0237-BLK1 Column: BEH C18
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.5	40 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
d3-MeFOSAA	IS	42.7	50 - 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
d5-EtFOSAA	IS	37.7	50 - 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFUnA	IS	46.7	60 - 130	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFDoA	IS	42.5	30 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1
13C2-PFTeDA	IS	63.8	20 - 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:24	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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

VAL - PFAS

Client Data						Laboratory Data					
Name:	Merit Laboratories, Inc.	Matrix:	Solid			Lab Sample:	B8L0237-BS1	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation										
Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.7	10.0	107	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFPeA	2706-90-3	11.3	10.0	113	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFBS	375-73-5	11.6	10.0	116	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
4:2 FTS	757124-72-4	10.9	10.0	109	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHxA	307-24-4	10.9	10.0	109	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFPeS	2706-91-4	11.6	10.0	116	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHpA	375-85-9	11.1	10.0	111	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHxS	355-46-4	9.62	10.0	96.2	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
6:2 FTS	27619-97-2	12.5	10.0	125	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFOA	335-67-1	11.2	10.0	112	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFHpS	375-92-8	10.7	10.0	107	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFNA	375-95-1	10.2	10.0	102	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFOSA	754-91-6	10.1	10.0	101	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFOS	1763-23-1	11.0	10.0	110	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFDA	335-76-2	11.7	10.0	117	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
8:2 FTS	39108-34-4	10.3	10.0	103	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFNS	68259-12-1	10.7	10.0	107	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
MeFOSAA	2355-31-9	9.79	10.0	97.9	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
EtFOSAA	2991-50-6	11.4	10.0	114	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFUnA	2058-94-8	11.3	10.0	113	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFDS	335-77-3	9.86	10.0	98.6	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFDoA	307-55-1	10.9	10.0	109	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFTTrDA	72629-94-8	11.5	10.0	115	60 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
PFTeDA	376-06-7	10.2	10.0	102	70 - 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		90.7	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C3-PFPeA		IS		84.2	60- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C3-PFBS		IS		83.4	60- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-4:2 FTS		IS		82.2	40- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFHxA		IS		88.4	70- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C4-PFHpA		IS		84.9	60- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
18O2-PFHxS		IS		94.4	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-6:2 FTS		IS		87.7	40- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C2-PFOA		IS		80.4	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1
13C5-PFNA		IS		74.6	50- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1

Sample ID: OPR					VAL - PFAS					
Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation					Laboratory Data Lab Sample: B8L0237-BS1 Column: BEH C18					
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C8-PFOSA	IS	18.7	20- 150	H	B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
13C8-PFOS	IS	88.3	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
13C2-PFDA	IS	60.3	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
13C2-8:2 FTS	IS	95.0	40- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
d3-MeFOSAA	IS	62.6	50- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
d5-EtFOSAA	IS	55.8	50- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
13C2-PFUnA	IS	62.7	60- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
13C2-PFDoA	IS	65.2	30- 130		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	
13C2-PFTeDA	IS	82.6	20- 150		B8L0237	07-Dec-18	1.00 g	09-Jan-19 15:34	1	

Sample ID: CL01SS011812130910SK
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-01	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 09:10	Date Received:	19-Dec-18 11:46				
Location:	CL01-SS01			% Solids:	87.3				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFPeA	2706-90-3	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFBS	375-73-5	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
4:2 FTS	757124-72-4	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFHxA	307-24-4	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFPeS	2706-91-4	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFHpA	375-85-9	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFHxS	355-46-4	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
6:2 FTS	27619-97-2	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFOA	335-67-1	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFHpS	375-92-8	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFNA	375-95-1	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFOSA	754-91-6	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFOS	1763-23-1	57.3	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFDA	335-76-2	1.25	0.842	0.996	1.99	J	B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
8:2 FTS	39108-34-4	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFNS	68259-12-1	ND	1.42	1.49	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
MeFOSAA	2355-31-9	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
EtFOSAA	2991-50-6	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFUnA	2058-94-8	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFDS	335-77-3	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFDoA	307-55-1	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFTTrDA	72629-94-8	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
PFTeDA	376-06-7	ND	0.842	0.996	1.99		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	82.9	60 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C3-PFPeA	IS	75.3	60 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C3-PFBS	IS	69.8	60 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-4:2 FTS	IS	68.7	40 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-PFHxA	IS	80.0	70 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C4-PFHpA	IS	78.4	60 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
18O2-PFHxS	IS	70.9	60 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-6:2 FTS	IS	78.5	40 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-PFOA	IS	68.4	60 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C5-PFNA	IS	74.6	50 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C8-PFOSA	IS	47.4	20 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C8-PFOS	IS	73.9	60 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-PFDA	IS	63.4	60 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1

Sample ID: CL01SS011812130910SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS01	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 09:10 Lab Sample: 1804142-01 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 87.3
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	75.2	40 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
d3-MeFOSAA	IS	55.8	50 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
d5-EtFOSAA	IS	63.6	50 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-PFUnA	IS	73.7	60 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-PFDoA	IS	68.5	30 - 130		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1
13C2-PFTeDA	IS	91.9	20 - 150		B8L0237	07-Dec-18	1.15 g	09-Jan-19 16:46	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CL01SS021812130945SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-02	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 09:45	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS02			% Solids:	83.7		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFPeA	2706-90-3	1.12	0.848	1.00	2.01	J	B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFBS	375-73-5	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
4:2 FTS	757124-72-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFHxA	307-24-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFPeS	2706-91-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFHpA	375-85-9	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFHxS	355-46-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
6:2 FTS	27619-97-2	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFOA	335-67-1	1.24	0.848	1.00	2.01	J	B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFHpS	375-92-8	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFNA	375-95-1	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFOSA	754-91-6	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFOS	1763-23-1	103	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFDA	335-76-2	1.63	0.848	1.00	2.01	J	B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
8:2 FTS	39108-34-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFNS	68259-12-1	ND	1.44	1.51	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
MeFOSAA	2355-31-9	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
EtFOSAA	2991-50-6	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFUnA	2058-94-8	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFDS	335-77-3	1.09	0.848	1.00	2.01	J	B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFDoA	307-55-1	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFTTrDA	72629-94-8	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
PFTeDA	376-06-7	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	81.5	60 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C3-PFPeA	IS	76.5	60 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C3-PFBS	IS	71.8	60 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-4:2 FTS	IS	73.6	40 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-PFHxA	IS	77.7	70 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C4-PFHpA	IS	77.6	60 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
18O2-PFHxS	IS	79.1	60 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-6:2 FTS	IS	84.5	40 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-PFOA	IS	69.8	60 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C5-PFNA	IS	68.8	50 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C8-PFOSA	IS	46.1	20 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C8-PFOS	IS	74.3	60 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-PFDA	IS	60.1	60 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1

Sample ID: CL01SS021812130945SK	VAL - PFAS
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Client Data	Laboratory Data
Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS02	Matrix: Soil Date Collected: 13-Dec-18 09:45 Lab Sample: 1804142-02 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 83.7

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	84.2	40 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
d3-MeFOSAA	IS	68.9	50 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
d5-EtFOSAA	IS	64.3	50 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-PFUnA	IS	70.3	60 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-PFDoA	IS	73.7	30 - 130		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1
13C2-PFTeDA	IS	86.7	20 - 150		B8L0237	07-Dec-18	1.19 g	09-Jan-19 16:57	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CL01SS031812131000SK
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-03	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 10:00	Date Received:	19-Dec-18 11:46				
Location:	CL01-SS03			% Solids:	76.6				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFPeA	2706-90-3	0.921	0.835	0.989	1.98	J	B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFBS	375-73-5	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
4:2 FTS	757124-72-4	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFHxA	307-24-4	1.08	0.835	0.989	1.98	J	B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFPeS	2706-91-4	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFHpA	375-85-9	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFHxS	355-46-4	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
6:2 FTS	27619-97-2	1.12	0.835	0.989	1.98	J	B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFOA	335-67-1	1.32	0.835	0.989	1.98	J	B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFHpS	375-92-8	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFNA	375-95-1	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFOSA	754-91-6	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFOS	1763-23-1	95.9	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFDA	335-76-2	0.966	0.835	0.989	1.98	J	B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
8:2 FTS	39108-34-4	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFNS	68259-12-1	ND	1.41	1.48	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
MeFOSAA	2355-31-9	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
EtFOSAA	2991-50-6	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFUnA	2058-94-8	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFDS	335-77-3	1.29	0.835	0.989	1.98	J	B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFDoA	307-55-1	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFTTrDA	72629-94-8	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
PFTeDA	376-06-7	ND	0.835	0.989	1.98		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.7	60 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C3-PFPeA	IS	81.1	60 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C3-PFBS	IS	81.1	60 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-4:2 FTS	IS	72.2	40 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-PFHxA	IS	85.5	70 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C4-PFHpA	IS	80.1	60 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
18O2-PFHxS	IS	77.5	60 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-6:2 FTS	IS	95.2	40 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-PFOA	IS	72.4	60 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C5-PFNA	IS	68.5	50 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C8-PFOSA	IS	53.0	20 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C8-PFOS	IS	82.7	60 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-PFDA	IS	67.2	60 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1

Sample ID: CL01SS031812131000SK **VAL - PFAS**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-03	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 10:00	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS03			% Solids:	76.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	96.1	40 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
d3-MeFOSAA	IS	61.7	50 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
d5-EtFOSAA	IS	64.1	50 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-PFUnA	IS	69.7	60 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-PFDoA	IS	72.7	30 - 130		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1
13C2-PFTeDA	IS	79.0	20 - 150		B8L0237	07-Dec-18	1.32 g	09-Jan-19 17:08	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	linear and branched isomers. Only the linear isomer is reported for all other
		Results reported to the DL.	analytes.

Sample ID: CL01SS041812131020SK
VAL - PFAS

Client Data					Laboratory Data				
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-04	Column:	BEH C18		
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 10:20	Date Received:	19-Dec-18 11:46				
Location:	CL01-SS04			% Solids:	84.4				

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFPeA	2706-90-3	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFBS	375-73-5	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
4:2 FTS	757124-72-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFHxA	307-24-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFPeS	2706-91-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFHpA	375-85-9	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFHxS	355-46-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
6:2 FTS	27619-97-2	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFOA	335-67-1	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFHpS	375-92-8	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFNA	375-95-1	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFOSA	754-91-6	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFOS	1763-23-1	40.7	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFDA	335-76-2	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
8:2 FTS	39108-34-4	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFNS	68259-12-1	ND	1.44	1.51	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
MeFOSAA	2355-31-9	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
EtFOSAA	2991-50-6	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFUnA	2058-94-8	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFDS	335-77-3	1.12	0.848	1.00	2.01	J	B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFDoA	307-55-1	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFTTrDA	72629-94-8	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
PFTeDA	376-06-7	ND	0.848	1.00	2.01		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.7	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C3-PFPeA	IS	80.0	60 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C3-PFBS	IS	87.6	60 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-4:2 FTS	IS	72.6	40 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-PFHxA	IS	84.6	70 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C4-PFHpA	IS	81.8	60 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
18O2-PFHxS	IS	83.9	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-6:2 FTS	IS	94.0	40 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-PFOA	IS	75.4	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C5-PFNA	IS	79.3	50 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C8-PFOSA	IS	42.5	20 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C8-PFOS	IS	77.0	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-PFDA	IS	72.9	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1

Sample ID: CL01SS041812131020SK **VAL - PFAS**

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-04	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 10:20	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS04			% Solids:	84.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	86.3	40 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
d3-MeFOSAA	IS	59.1	50 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
d5-EtFOSAA	IS	65.4	50 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-PFUnA	IS	75.2	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-PFDoA	IS	78.9	30 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1
13C2-PFTeDA	IS	89.5	20 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 17:21	1

DL - Detection Limit	LOD - Limit of Detection LOQ - Limit of quantitation	The results are reported in dry weight. The sample size is reported in wet weight. Results reported to the DL.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
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Sample ID: CL01SS051812131055SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-06	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 10:55	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS05			% Solids:	90.3		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFPeA	2706-90-3	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFBS	375-73-5	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
4:2 FTS	757124-72-4	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFHxA	307-24-4	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFPeS	2706-91-4	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFHpA	375-85-9	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFHxS	355-46-4	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
6:2 FTS	27619-97-2	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFOA	335-67-1	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFHpS	375-92-8	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFNA	375-95-1	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFOSA	754-91-6	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFOS	1763-23-1	20.8	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFDA	335-76-2	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
8:2 FTS	39108-34-4	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFNS	68259-12-1	ND	1.43	1.50	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
MeFOSAA	2355-31-9	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
EtFOSAA	2991-50-6	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFUnA	2058-94-8	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFDS	335-77-3	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFDoA	307-55-1	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFTTrDA	72629-94-8	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
PFTeDA	376-06-7	ND	0.843	0.997	1.99		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.3	60 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C3-PFPeA	IS	79.3	60 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C3-PFBS	IS	79.0	60 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-4:2 FTS	IS	73.6	40 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-PFHxA	IS	82.8	70 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C4-PFHpA	IS	81.1	60 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
18O2-PFHxS	IS	81.7	60 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-6:2 FTS	IS	83.3	40 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-PFOA	IS	77.5	60 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C5-PFNA	IS	73.0	50 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C8-PFOSA	IS	46.4	20 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C8-PFOS	IS	86.6	60 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-PFDA	IS	63.6	60 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1

Sample ID: CL01SS051812131055SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS05	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 10:55 Lab Sample: 1804142-06 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 90.3
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.3	40 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
d3-MeFOSAA	IS	68.9	50 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
d5-EtFOSAA	IS	73.8	50 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-PFUnA	IS	71.1	60 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-PFDoA	IS	69.3	30 - 130		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1
13C2-PFTeDA	IS	91.7	20 - 150		B8L0237	07-Dec-18	1.11 g	09-Jan-19 17:31	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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: CL01SS061812131120SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-07	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 11:20	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS06			% Solids:	91.0		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFPeA	2706-90-3	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFBS	375-73-5	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
4:2 FTS	757124-72-4	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFHxA	307-24-4	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFPeS	2706-91-4	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFHpA	375-85-9	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFHxS	355-46-4	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
6:2 FTS	27619-97-2	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFOA	335-67-1	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFHpS	375-92-8	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFNA	375-95-1	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFOSA	754-91-6	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFOS	1763-23-1	28.4	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFDA	335-76-2	0.919	0.845	0.999	2.00	J	B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
8:2 FTS	39108-34-4	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
MeFOSAA	2355-31-9	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
EtFOSAA	2991-50-6	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFUnA	2058-94-8	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFDS	335-77-3	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFDoA	307-55-1	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFTTrDA	72629-94-8	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
PFTeDA	376-06-7	ND	0.845	0.999	2.00		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.2	60 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C3-PFPeA	IS	79.0	60 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C3-PFBS	IS	72.7	60 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-4:2 FTS	IS	73.3	40 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-PFHxA	IS	86.2	70 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C4-PFHpA	IS	80.7	60 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
18O2-PFHxS	IS	76.6	60 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-6:2 FTS	IS	86.2	40 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-PFOA	IS	73.9	60 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C5-PFNA	IS	70.3	50 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C8-PFOSA	IS	52.0	20 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C8-PFOS	IS	74.3	60 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-PFDA	IS	65.9	60 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1

Sample ID: CL01SS061812131120SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS06	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 11:20 Lab Sample: 1804142-07 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 91.0
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	83.0	40 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
d3-MeFOSAA	IS	58.4	50 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
d5-EtFOSAA	IS	67.7	50 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-PFUnA	IS	73.2	60 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-PFDoA	IS	73.4	30 - 130		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1
13C2-PFTeDA	IS	91.9	20 - 150		B8L0237	07-Dec-18	1.10 g	09-Jan-19 18:03	1

DL - Detection Limit	LOD - Limit of Detection	The results are reported in dry weight.	When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
	LOQ - Limit of quantitation	The sample size is reported in wet weight.	
		Results reported to the DL.	

Sample ID: CL01SS071812131155SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-08	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 11:55	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS07			% Solids:	85.7		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFPeA	2706-90-3	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFBS	375-73-5	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
4:2 FTS	757124-72-4	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFHxA	307-24-4	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFPeS	2706-91-4	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFHpA	375-85-9	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFHxS	355-46-4	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
6:2 FTS	27619-97-2	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFOA	335-67-1	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFHpS	375-92-8	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFNA	375-95-1	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFOSA	754-91-6	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFOS	1763-23-1	67.4	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFDA	335-76-2	1.71	0.836	0.989	1.98	J	B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
8:2 FTS	39108-34-4	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFNS	68259-12-1	ND	1.41	1.48	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
MeFOSAA	2355-31-9	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
EtFOSAA	2991-50-6	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFUnA	2058-94-8	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFDS	335-77-3	1.64	0.836	0.989	1.98	J	B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFDoA	307-55-1	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFTTrDA	72629-94-8	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
PFTeDA	376-06-7	ND	0.836	0.989	1.98		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	84.6	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C3-PFPeA	IS	81.6	60 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C3-PFBS	IS	79.9	60 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-4:2 FTS	IS	73.6	40 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-PFHxA	IS	84.4	70 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C4-PFHpA	IS	79.8	60 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
18O2-PFHxS	IS	79.5	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-6:2 FTS	IS	87.5	40 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-PFOA	IS	83.5	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C5-PFNA	IS	76.7	50 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C8-PFOSA	IS	50.8	20 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C8-PFOS	IS	80.5	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-PFDA	IS	71.0	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1

Sample ID: CL01SS071812131155SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS07	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 11:55 Lab Sample: 1804142-08 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 85.7
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	87.1	40 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
d3-MeFOSAA	IS	59.8	50 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
d5-EtFOSAA	IS	64.6	50 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-PFUnA	IS	80.3	60 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-PFDoA	IS	88.7	30 - 130		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1
13C2-PFTeDA	IS	88.0	20 - 150		B8L0237	07-Dec-18	1.18 g	09-Jan-19 18:14	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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: CL01SS081812131220SK
VAL - PFAS

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Soil	Lab Sample:	1804142-09	Column:	BEH C18
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	13-Dec-18 12:20	Date Received:	19-Dec-18 11:46		
Location:	CL01-SS08			% Solids:	83.4		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFPeA	2706-90-3	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFBS	375-73-5	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
4:2 FTS	757124-72-4	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFHxA	307-24-4	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFPeS	2706-91-4	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFHpA	375-85-9	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFHxS	355-46-4	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
6:2 FTS	27619-97-2	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFOA	335-67-1	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFHpS	375-92-8	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFNA	375-95-1	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFOSA	754-91-6	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFOS	1763-23-1	53.8	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFDA	335-76-2	1.13	0.837	0.991	1.98	J	B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
8:2 FTS	39108-34-4	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFNS	68259-12-1	ND	1.42	1.49	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
MeFOSAA	2355-31-9	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
EtFOSAA	2991-50-6	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFUnA	2058-94-8	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFDS	335-77-3	0.993	0.837	0.991	1.98	J	B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFDoA	307-55-1	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFTTrDA	72629-94-8	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
PFTeDA	376-06-7	ND	0.837	0.991	1.98		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.4	60 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C3-PFPeA	IS	81.1	60 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C3-PFBS	IS	86.0	60 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-4:2 FTS	IS	78.8	40 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-PFHxA	IS	83.5	70 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C4-PFHpA	IS	78.8	60 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
18O2-PFHxS	IS	81.7	60 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-6:2 FTS	IS	92.0	40 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-PFOA	IS	78.2	60 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C5-PFNA	IS	73.8	50 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C8-PFOSA	IS	56.1	20 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C8-PFOS	IS	80.3	60 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-PFDA	IS	66.2	60 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1

Sample ID: CL01SS081812131220SK	VAL - PFAS
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Client Data Name: Merit Laboratories, Inc. Project: Statewide WWTP Biosolids PFAS Evaluation Location: CL01-SS08	Laboratory Data Matrix: Soil Date Collected: 13-Dec-18 12:20 Lab Sample: 1804142-09 Date Received: 19-Dec-18 11:46 Column: BEH C18 % Solids: 83.4
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	88.0	40 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
d3-MeFOSAA	IS	53.9	50 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
d5-EtFOSAA	IS	72.5	50 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-PFUnA	IS	74.4	60 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-PFDoA	IS	80.6	30 - 130		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1
13C2-PFTeDA	IS	88.7	20 - 150		B8L0237	07-Dec-18	1.21 g	09-Jan-19 18:24	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

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	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.

Vista Analytical Laboratory 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
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-009
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-18-9
Virginia Department of General Services	9618
Washington Department of Ecology	C584-18
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 #: 1804142 Temp: 1.7 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Lauren McNeely
(name)

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

Invoice to: Name Stephanie Kammer Company MDEQ Address 525 W. Allegan Street City Lansing State MI Ph# 517-897-1597 Fax# 517-241-3571

Relinquished by (printed name and signature) Lauren McNeely Date 12/18/18 Time 1600 Received by (printed name and signature) B. Benedict Date 12/19/18 Time 1146
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		PFAS Isotope Dilution						USEPA Method 537		
						Container(s)										
						Quantity	Type									
Sample ID	Date	Time	Location/Sample Description													Comments
CL01SS011812130910SK	12/13/18	0910	CL01-SS01	1	PJ	SO			X							
CL01SS021812130945SK	12/13/18	0945	CL01-SS02	1	PJ	SO			X							
CL01SS031812131000SK	12/13/18	1000	CL01-SS03	1	PJ	SO			X							
CL01SS041812131020SK	12/13/18	1020	CL01-SS04	1	PJ	SO			X							
CL01DR21812131035SK	12/13/18	1035	CL01-DR2	2	P	SW			X							
CL01SS051812131055SK	12/13/18	1055	CL01-SS05	1	PJ	SO			X							
CL01SS061812131120SK	12/13/18	1120	CL01-SS06	1	PJ	SO			X							
CL01SS071812131155SK	12/13/18	1155	CL01-SS07	1	PJ	SO			X							
CL01SS081812131220SK	12/13/18	1220	CL01-SS08	1	PJ	SO			X							
CL01SW51812131235SK	12/13/18	1235	CL01-SW5	2	P	SW			X							

Special Instructions/Comments: Send Results and Acknowledgements to the list provided

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Stephanie Kammer
Company: MDEQ
Address: 525 W. Allegan Street, Constitution Hall, 1st South West
City: Lansing State: MI Zip: 30242
Phone: 517-897-1597 Fax: 517-241-3571
Email: dorin.bogdan@aecom.com

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

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____ NONE

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

Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 1804142

 TAT Std

Samples Arrival:	Date/Time 12/19/18 1146	Initials: CRB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 12/19/18 1616	Initials: BAB	Location: WR-2
			Shelf/Rack: B4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 1.8 (uncorrected)	Probe used: Y / ☒ N		Thermometer ID: IR-4
Temp °C: 1.7 (corrected)			

	YES	NO	NA
Adequate Sample Volume Received?	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill	☒		
Trk #	4377 0528 8058		
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:	☒ Yes	☐ No	☐ NA
	☐ Na ₂ S ₂ O ₃	☐ Trizma	☒ None
Shipping Container	☒ Vista	☐ Client	☒ Retain
	☐ Return	☐ Dispose	

Comments:



November 12, 2019

Vista Work Order No. 1903833

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 October 25, 2019 under your Project Name 'Lapeer Corn/Soil 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. 1903833

Case Narrative

Sample Condition on Receipt:

Five leachate 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:

PFAS Isotope Dilution Method

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (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 samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method 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 1/2 the LOQ concentrations. The OPR recoveries were within the method acceptance criteria.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1903833-01	FSC 1/ 343226	PFAS Isotope Dilution Method	13C3-PFBA	H	15.2
1903833-02	FSC 2/ 343227	PFAS Isotope Dilution Method	13C3-PFBA	H	13.5
1903833-03	FSC 3/ 343228	PFAS Isotope Dilution Method	13C3-PFBA	H	12.5

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1903833-01	FSC 1	24-Oct-19 09:00	25-Oct-19 08:40	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903833-02	FSC 2	24-Oct-19 09:00	25-Oct-19 08:40	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903833-03	FSC 3	24-Oct-19 09:00	25-Oct-19 08:40	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903833-04	S Blank	24-Oct-19 09:00	25-Oct-19 08:40	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1903833-05	V Blank	24-Oct-19 09:00	25-Oct-19 08:40	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:	B9J0324-BLK1	Column:	BEH C18
Project:	Lapeer Corn/Soil Sampling						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFTTrDA	72629-94-8	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C3-PFPeA	IS	99.5	60 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C3-PFBS	IS	94.9	60 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C2-4:2 FTS	IS	99.4	20 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C2-PFHxA	IS	98.0	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C4-PFHpA	IS	101	60 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C3-PFHxS	IS	95.2	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C2-6:2 FTS	IS	106	40 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C5-PFNA	IS	108	50 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C8-PFOSA	IS	41.6	20 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C2-PFOA	IS	107	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C8-PFOS	IS	99.0	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1
13C2-PFDA	IS	102	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1

Sample ID: Method Blank					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Aqueous Project: Lapeer Corn/Soil Sampling					Laboratory Data Lab Sample: B9J0324-BLK1 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	98.8	40 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1	
d3-MeFOSAA	IS	104	50 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1	
13C2-PFUnA	IS	104	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1	
d5-EtFOSAA	IS	86.9	50 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1	
13C2-PFDoA	IS	76.7	30 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1	
13C2-PFTeDA	IS	83.3	20 - 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 07:55	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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:	B9J0324-BS1	Column:	BEH C18		
Project:	Lapeer Corn/Soil Sampling										
Analyte	CAS Number	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	36.5	40.0	91.3	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFPeA	2706-90-3	37.1	40.0	92.7	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFBS	375-73-5	37.2	40.0	93.1	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
4:2 FTS	757124-72-4	34.4	40.0	86.1	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFHxA	307-24-4	36.2	40.0	90.6	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFPeS	2706-91-4	41.7	40.0	104	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFHpA	375-85-9	39.9	40.0	99.7	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFHxS	355-46-4	36.2	40.0	90.5	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
6:2 FTS	27619-97-2	40.8	40.0	102	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFOA	335-67-1	38.0	40.0	95.1	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFHpS	375-92-8	38.8	40.0	96.9	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFNA	375-95-1	40.4	40.0	101	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFOSA	754-91-6	38.4	40.0	95.9	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFOS	1763-23-1	34.6	40.0	86.4	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFDA	335-76-2	41.3	40.0	103	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
8:2 FTS	39108-34-4	42.0	40.0	105	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFNS	68259-12-1	42.0	40.0	105	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
MeFOSAA	2355-31-9	35.4	40.0	88.5	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
EtFOSAA	2991-50-6	35.3	40.0	88.2	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFUnA	2058-94-8	41.5	40.0	104	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFDS	335-77-3	35.4	40.0	88.4	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFDoA	307-55-1	40.3	40.0	101	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFTTrDA	72629-94-8	36.9	40.0	92.3	60 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
PFTeDA	376-06-7	38.2	40.0	95.5	70 - 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
Labeled Standards		Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA		IS		101	60- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C3-PFPeA		IS		100	60- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C3-PFBS		IS		102	60- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-4:2 FTS		IS		103	20- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-PFHxA		IS		99.6	70- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C4-PFHpA		IS		95.6	60- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C3-PFHxS		IS		91.9	60- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-6:2 FTS		IS		100	40- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C5-PFNA		IS		96.4	50- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C8-PFOSA		IS		43.6	20- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1

Sample ID: OPR					PFAS Isotope Dilution Method				
Client Data Name: Merit Laboratories, Inc. Project: Lapeer Corn/Soil Sampling					Laboratory Data Lab Sample: B9J0324-BS1 Column: BEH C18				
Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFOA	IS	103	60- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C8-PFOS	IS	105	60- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-PFDA	IS	91.0	60- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-8:2 FTS	IS	94.0	40- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
d3-MeFOSAA	IS	87.5	50- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-PFUnA	IS	90.8	60- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
d5-EtFOSAA	IS	81.6	50- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-PFDoA	IS	77.5	30- 130		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1
13C2-PFTeDA	IS	79.3	20- 150		B9J0324	01-Nov-19	0.250 L	05-Nov-19 08:06	1

Sample ID: FSC 1/ 343226
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Leachate	Lab Sample:	1903833-01	Column:	BEH C18
Project:	Lapeer Corn/Soil Sampling	Date Collected:	24-Oct-19 09:00	Date Received:	25-Oct-19 08:40		
Location:	SPLP						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	11.8	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFPeA	2706-90-3	12.7	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFBS	375-73-5	3.52	1.44	2.10	4.20	J	B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
4:2 FTS	757124-72-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFHxA	307-24-4	10.6	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFPeS	2706-91-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFHpA	375-85-9	9.35	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFHxS	355-46-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
6:2 FTS	27619-97-2	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFOA	335-67-1	23.5	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFHpS	375-92-8	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFNA	375-95-1	6.73	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFOSA	754-91-6	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFOS	1763-23-1	451	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFDA	335-76-2	2.95	1.44	2.10	4.20	J	B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
8:2 FTS	39108-34-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFNS	68259-12-1	ND	2.03	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
MeFOSAA	2355-31-9	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
EtFOSAA	2991-50-6	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFUnA	2058-94-8	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFDS	335-77-3	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFDoA	307-55-1	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFTTrDA	72629-94-8	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
PFTeDA	376-06-7	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	15.2	60 - 130	H	B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C3-PFPeA	IS	92.9	60 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C3-PFBS	IS	109	60 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C2-4:2 FTS	IS	124	20 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C2-PFHxA	IS	98.3	70 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C4-PFHpA	IS	99.2	60 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C3-PFHxS	IS	101	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C2-6:2 FTS	IS	107	40 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C5-PFNA	IS	96.0	50 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C8-PFOSA	IS	76.1	20 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C2-PFOA	IS	106	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C8-PFOS	IS	92.8	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1
13C2-PFDA	IS	97.9	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1

Sample ID: FSC 1/ 343226					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Leachate Project: Lapeer Corn/Soil Sampling Date Collected: 24-Oct-19 09:00 Location: SPLP					Laboratory Data Lab Sample: 1903833-01 Column: BEH C18 Date Received: 25-Oct-19 08:40					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	107	40 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1	
d3-MeFOSAA	IS	104	50 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1	
13C2-PFUnA	IS	98.8	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1	
d5-EtFOSAA	IS	105	50 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1	
13C2-PFDoA	IS	74.9	30 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1	
13C2-PFTeDA	IS	80.7	20 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:48	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: FSC 2/ 343227
PFAS Isotope Dilution Method

Client Data				Laboratory Data			
Name:	Merit Laboratories, Inc.	Matrix:	Leachate	Lab Sample:	1903833-02	Column:	BEH C18
Project:	Lapeer Corn/Soil Sampling	Date Collected:	24-Oct-19 09:00	Date Received:	25-Oct-19 08:40		
Location:	SPLP						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	12.7	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFPeA	2706-90-3	13.7	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFBS	375-73-5	3.54	1.44	2.10	4.20	J	B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
4:2 FTS	757124-72-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFHxA	307-24-4	11.3	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFPeS	2706-91-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFHpA	375-85-9	10.0	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFHxS	355-46-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
6:2 FTS	27619-97-2	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFOA	335-67-1	24.3	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFHpS	375-92-8	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFNA	375-95-1	5.54	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFOSA	754-91-6	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFOS	1763-23-1	458	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFDA	335-76-2	3.04	1.44	2.10	4.20	J	B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
8:2 FTS	39108-34-4	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFNS	68259-12-1	ND	2.03	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
MeFOSAA	2355-31-9	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
EtFOSAA	2991-50-6	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFUnA	2058-94-8	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFDS	335-77-3	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFDoA	307-55-1	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFTTrDA	72629-94-8	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
PFTeDA	376-06-7	ND	1.44	2.10	4.20		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	13.5	60 - 130	H	B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C3-PFPeA	IS	100	60 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C3-PFBS	IS	101	60 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-4:2 FTS	IS	119	20 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-PFHxA	IS	101	70 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C4-PFHpA	IS	100	60 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C3-PFHxS	IS	94.6	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-6:2 FTS	IS	107	40 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C5-PFNA	IS	100	50 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C8-PFOSA	IS	72.6	20 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-PFOA	IS	98.2	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C8-PFOS	IS	92.2	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-PFDA	IS	100	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1

Sample ID: FSC 2/ 343227	PFAS Isotope Dilution Method
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Client Data Name: Merit Laboratories, Inc. Project: Lapeer Corn/Soil Sampling Location: SPLP	Laboratory Data Matrix: Leachate Date Collected: 24-Oct-19 09:00 Lab Sample: 1903833-02 Date Received: 25-Oct-19 08:40 Column: BEH C18
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Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	101	40 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
d3-MeFOSAA	IS	98.0	50 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-PFUnA	IS	98.2	60 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
d5-EtFOSAA	IS	106	50 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-PFDoA	IS	79.5	30 - 130		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1
13C2-PFTeDA	IS	83.1	20 - 150		B9J0324	01-Nov-19	0.238 L	05-Nov-19 08:59	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: FSC 3/ 343228
PFAS Isotope Dilution Method

Client Data						Laboratory Data					
Name:	Merit Laboratories, Inc.			Matrix:	Leachate		Lab Sample:	1903833-03		Column:	BEH C18
Project:	Lapeer Corn/Soil Sampling			Date Collected:	24-Oct-19 09:00		Date Received:	25-Oct-19 08:40			
Location:	SPLP										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	17.0	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFPeA	2706-90-3	16.3	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFBS	375-73-5	3.66	1.43	2.09	4.19	J	B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
4:2 FTS	757124-72-4	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFHxA	307-24-4	13.2	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFPeS	2706-91-4	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFHpA	375-85-9	8.95	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFHxS	355-46-4	1.51	1.43	2.09	4.19	J	B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
6:2 FTS	27619-97-2	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFOA	335-67-1	23.6	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFHpS	375-92-8	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFNA	375-95-1	5.50	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFOSA	754-91-6	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFOS	1763-23-1	414	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFDA	335-76-2	3.52	1.43	2.09	4.19	J	B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
8:2 FTS	39108-34-4	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFNS	68259-12-1	ND	2.03	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
MeFOSAA	2355-31-9	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
EtFOSAA	2991-50-6	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFUnA	2058-94-8	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFDS	335-77-3	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFDoA	307-55-1	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFTTrDA	72629-94-8	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
PFTeDA	376-06-7	ND	1.43	2.09	4.19		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	12.5	60 - 130	H	B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C3-PFPeA	IS	102	60 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C3-PFBS	IS	95.4	60 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-4:2 FTS	IS	125	20 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-PFHxA	IS	97.7	70 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C4-PFHpA	IS	103	60 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C3-PFHxS	IS	88.2	60 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-6:2 FTS	IS	115	40 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C5-PFNA	IS	100	50 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C8-PFOSA	IS	72.2	20 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-PFOA	IS	99.1	60 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C8-PFOS	IS	103	60 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-PFDA	IS	94.1	60 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1

Sample ID: FSC 3/ 343228	PFAS Isotope Dilution Method
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Client Data	Laboratory Data
Name: Merit Laboratories, Inc.	Lab Sample: 1903833-03
Project: Lapeer Corn/Soil Sampling	Column: BEH C18
Location: SPLP	Date Received: 25-Oct-19 08:40
Matrix: Leachate	
Date Collected: 24-Oct-19 09:00	

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	120	40 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
d3-MeFOSAA	IS	96.0	50 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-PFUnA	IS	92.0	60 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
d5-EtFOSAA	IS	101	50 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-PFDoA	IS	83.4	30 - 130		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1
13C2-PFTeDA	IS	81.0	20 - 150		B9J0324	01-Nov-19	0.239 L	05-Nov-19 09:30	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: S Blank

PFAS Isotope Dilution Method

Client Data						Laboratory Data					
Name:	Merit Laboratories, Inc.			Matrix:	Leachate		Lab Sample:	1903833-04		Column:	BEH C18
Project:	Lapeer Corn/Soil Sampling			Date Collected:	24-Oct-19 09:00		Date Received:	25-Oct-19 08:40			
Location:	SPLP										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFPeA	2706-90-3	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFBS	375-73-5	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
4:2 FTS	757124-72-4	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFHxA	307-24-4	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFPeS	2706-91-4	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFHpA	375-85-9	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFHxS	355-46-4	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
6:2 FTS	27619-97-2	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFOA	335-67-1	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFHpS	375-92-8	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFNA	375-95-1	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFOSA	754-91-6	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFOS	1763-23-1	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFDA	335-76-2	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
8:2 FTS	39108-34-4	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFNS	68259-12-1	ND	1.98	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
MeFOSAA	2355-31-9	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
EtFOSAA	2991-50-6	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFUnA	2058-94-8	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFDS	335-77-3	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFDoA	307-55-1	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFTTrDA	72629-94-8	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
PFTeDA	376-06-7	ND	1.40	2.05	4.10		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.2	60 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C3-PFPeA	IS	94.9	60 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C3-PFBS	IS	103	60 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C2-4:2 FTS	IS	98.6	20 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C2-PFHxA	IS	93.9	70 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C4-PFHpA	IS	91.0	60 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C3-PFHxS	IS	95.7	60 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C2-6:2 FTS	IS	94.6	40 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C5-PFNA	IS	96.3	50 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C8-PFOSA	IS	47.5	20 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C2-PFOA	IS	103	60 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C8-PFOS	IS	94.5	60 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1
13C2-PFDA	IS	102	60 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1

Sample ID: S Blank					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Project: Lapeer Corn/Soil Sampling Location: SPLP					Laboratory Data Lab Sample: 1903833-04 Date Received: 25-Oct-19 08:40 Column: BEH C18					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	87.7	40 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1	
d3-MeFOSAA	IS	87.3	50 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1	
13C2-PFUnA	IS	86.0	60 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1	
d5-EtFOSAA	IS	87.0	50 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1	
13C2-PFDoA	IS	79.9	30 - 130		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1	
13C2-PFTeDA	IS	79.9	20 - 150		B9J0324	01-Nov-19	0.244 L	05-Nov-19 09:41	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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: V Blank
PFAS Isotope Dilution Method

Client Data						Laboratory Data					
Name:	Merit Laboratories, Inc.			Matrix:	Leachate		Lab Sample:	1903833-05		Column:	BEH C18
Project:	Lapeer Corn/Soil Sampling			Date Collected:	24-Oct-19 09:00		Date Received:	25-Oct-19 08:40			
Location:	SPLP										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFPeA	2706-90-3	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFBS	375-73-5	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
4:2 FTS	757124-72-4	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFHxA	307-24-4	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFPeS	2706-91-4	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFHpA	375-85-9	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFHxS	355-46-4	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
6:2 FTS	27619-97-2	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFOA	335-67-1	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFHpS	375-92-8	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFNA	375-95-1	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFOSA	754-91-6	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFOS	1763-23-1	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFDA	335-76-2	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
8:2 FTS	39108-34-4	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFNS	68259-12-1	ND	1.99	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
MeFOSAA	2355-31-9	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
EtFOSAA	2991-50-6	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFUnA	2058-94-8	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFDS	335-77-3	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFDoA	307-55-1	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFTTrDA	72629-94-8	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
PFTeDA	376-06-7	ND	1.41	2.06	4.12		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	80.9	60 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C3-PFPeA	IS	102	60 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C3-PFBS	IS	98.4	60 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C2-4:2 FTS	IS	105	20 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C2-PFHxA	IS	99.1	70 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C4-PFHpA	IS	94.4	60 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C3-PFHxS	IS	98.9	60 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C2-6:2 FTS	IS	103	40 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C5-PFNA	IS	93.1	50 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C8-PFOSA	IS	66.5	20 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C2-PFOA	IS	99.0	60 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C8-PFOS	IS	98.1	60 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1
13C2-PFDA	IS	102	60 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1

Sample ID: V Blank					PFAS Isotope Dilution Method					
Client Data Name: Merit Laboratories, Inc. Matrix: Leachate Project: Lapeer Corn/Soil Sampling Date Collected: 24-Oct-19 09:00 Location: SPLP					Laboratory Data Lab Sample: 1903833-05 Column: BEH C18 Date Received: 25-Oct-19 08:40					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-8:2 FTS	IS	107	40 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1	
d3-MeFOSAA	IS	99.5	50 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1	
13C2-PFUnA	IS	98.4	60 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1	
d5-EtFOSAA	IS	99.1	50 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1	
13C2-PFDoA	IS	85.8	30 - 130		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1	
13C2-PFTeDA	IS	75.6	20 - 150		B9J0324	01-Nov-19	0.243 L	05-Nov-19 09:52	1	

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

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
CRS	Cleanup Recovery Standard
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
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
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	E87777-23
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
Vermont Department of Health	VT-4042
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 Record

1903833 0.1°C



Samples from:
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
916-673-1520
Project Number: 1903472
Requested TAT: Standard

Samples sent to:
Brett Szymanski
CT Laboratories, LLC
1230 Lange Court
Baraboo, WI 53913
Phone: 608-356-2760
BSzymanski@ctlaboratories.com

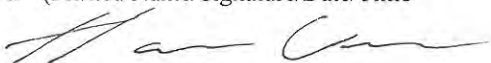
Folder #: 148954
Company: VISTA ANALYTICAL L
Project: NORTH KENT
Logged By: JRB PM: BM

Sample Information

LabNumber	SampleName	Sampled	Matrix	#Containers	SPLP Analysis		
1903472-01	FCS 1	20-Oct-18 00:00	Soil	1	x		343 JRB
1903472-02	FCS 2	20-Oct-18 00:00	Soil	1	x		343 226
1903472-03	FCS 3	20-Oct-18 00:00	Soil	1	x		343 227
							343 228

Special Requests:

* received by: USGPA/MA Marissa Sparks 10/25/19 0840

Relinquished (Printed Name/Signature/Date/Time)
Iayden Ganas  10/16/2019 15:00

Received (Printed Name/Signature/Date/Time)
FedEx  10/17/19 11:00 2.1

Relinquished (Printed Name/Signature/Date/Time)
FedEx

Received (Printed Name/Signature/Date/Time)

Jen Brooks  10/17/19 1333 *

ENVIRONMENTAL WATER PFAS TEST REQUISITION

Michigan Department of Health and Human Services
Bureau of Laboratories – Analytical Chemistry Section

P.O. Box 30035 3350 North Martin Luther King Jr. Boulevard, Lansing, MI 48906
Phone: 517-335-8059 Fax: 517-335-9871 Web: www.michigan.gov/mdhhs/ab

1903472 3.50C

MDHHS Use Only	
Date Received at MDHHS	Initials

Print in UPPERCASE using dark pen

Site Code/Project Number CL01	Project Name Lapeer Corn/Soil Sampling	Project TAT Days 120 days	Project Due Date
Sample Collector Collected by AECOM, Processed by Ankita Bhattacharya (MSU)		Sample Collector Phone (517) 582-9281	
Contact Firm Michigan State University	Contact Firm Primary Contact Courtney Carignan	Primary Contact Phone (517) 884-2039	
Department-Division-District Food Science & Human Nutrition	Project Lapeer Corn/Soil Sampling	Phase	
State Project Manager Michael Jury	State Project Manager Email jurym1@Michigan.gov	State Project Manager Phone (517) 242-9578	
CC Email 1 carigna4@msu.edu	CC Email 2	CC Email 3	

SAMPLE INFORMATION – INDICATE SAMPLE

Sample ID	Collection Date (MM-DD-YY)	Collection Time (Military)	Water Type	Sample # MDHHS Use Only	Hold Time
1 FCS 1	10-20-18		☐ Drinking ☐ Surface ☐ Ground ☒ Other *		☐ Within ☐ Out of
2 FCS 2	10-20-18		☐ Drinking ☐ Surface ☐ Ground ☒ Other *		☐ Within ☐ Out of
3 FCS 3	10-20-18		☐ Drinking ☐ Surface ☐ Ground ☒ Other *		☐ Within ☐ Out of
4			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of
5			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of
6			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of
7			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of
8			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of
9			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of
10			☐ Drinking ☐ Surface ☐ Ground ☐ Other *		☐ Within ☐ Out of

*If "Other" water type is selected, note the type here: Field composites of soil

Received on Ice ☐ Yes ☐ No	MDHHS Use Only	Sample Receipt Temperature	°C
--	----------------	----------------------------	----

1903472 3.5°C

ENVIRONMENTAL WATER PFAS TEST REQUISITION CHAIN OF CUSTODY

Released by <i>J. L. L.</i>	Released to <i>Dorinda Boyd</i>	Date/Time (24 hour) 9/30/19 - 9:05AM
Released by <i>Dorinda Boyd</i>	Released to Fedex	Date/Time (24 hour) 10/3/19 - 2:00PM
Released by Fedex	Released to <i>Hayden (Gina) Hardin</i>	Date/Time (24 hour) 10/4/19 09:05
Released by	Released to	Date/Time (24 hour)

INSTRUCTIONS FOR COMPLETING THE WATER PFAS TEST REQUISITION

When preparing the request form, it is very important that the form is completely and properly filled out.

If a specimen container is received leaking, it may have to be recollected.

- Do not write in the upper right corner of the form marked MDHHS USE ONLY.
- Legibly print the information on the form or complete the editable form online at www.michigan.gov/mdhhs/lab and print off the necessary copies.
- Be sure to retain a copy of the request form for your records.

SUBMITTER INFORMATION

Submitter Code – If you do not have a submitter code, contact the MDHHS DASH unit prior to sample submission, at 517-335-8059.

SAMPLE INFORMATION

The sample container **MUST** have **TWO** unique identifiers matching the requisition form; the lab reserves the right to **NOT** report testing results until the proper information is obtained.

Sample ID – is a unique identifier you provide. Record this unique identifier on the specimen label.

Collection Date and Time – is the date (MM-DD-YY) and time of specimen collection in military time (00:00 – 24:00).

Sample Type – Check the appropriate box.

SUBMITTING TO THE LAB

Sample should be shipped on ice to the lab.

The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group because of race, religion, age, national origin, color, height, weight, marital status, genetic information, sex, sexual orientation, gender identity or expression, political beliefs or disability.

By Authority of Act 368, P.A. 1978.

Sample Log-In Checklist

 Page # 1 of 1

 Vista Work Order #: 1903833 TAT std

Samples Arrival:	Date/Time <u>10/25/19 0840</u>	Initials: <u>WWS</u>	Location: <u>WR-2</u>
			Shelf/Rack: <u>N/A</u>
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: <u>0.1</u> (uncorrected)	Probe used: Y / ☒ N		Thermometer ID: <u>IR-3</u>
Temp °C: <u>0.1</u> (corrected)			

	YES	NO	NA
Shipping Container(s) Intact?	☒	☐	☐
Shipping Custody Seals Intact?	☒	☐	☐
Airbill <u>—</u> Trk # <u>7909 9952 7328</u>	☒	☐	☐
Shipping Documentation Present?	☒	☐	☐
Shipping Container	☐ Vista	☒ Client	☐ Retain
			☒ Return
			☐ Dispose
Chain of Custody / Sample Documentation Present?	☒	☐	☐
Chain of Custody / Sample Documentation Complete?	☒	☐	☐
Holding Time Acceptable?	☒	☐	☐

Logged In:	Date/Time <u>10/28/19 1350</u>	Initials: <u>WWS</u>	Location: <u>R-13, WR-2</u>
			Shelf/Rack: <u>2-1, F-7</u>
COC Anomaly/Sample Acceptance Form completed?			☐
			☒

Comments: RECEIVE TWO ADDITIONAL SAMPLES ALONG WITH THE SLP SAMPLES :

1. V-BLANK
2. S-BLANK

CoC/Label Reconciliation Report WO# 1903833

LabNumber	CoC Sample ID	Label ID matches		SampleAlias	Sampled	Label Sampled matches	Sampled doesn't match	Container	Container Correct	BaseMatrix	Sample Comments
		COCID	Label ID doesn't match COCID								
1903833-01	A FSC 1/ 343226	☐	X	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-01	B FSC 1/ 343226	☐	X	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-02	A FSC 2/ 343227	☐	X	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-02	B FSC 2/ 343227	☐	X	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-03	A FSC 3/ 343228	☐	X	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-03	B FSC 3/ 343228	☐	X	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-04	A S Blank	☐	X*	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-04	B S Blank	☐	X*	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-05	A V Blank	☐	X*	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	
1903833-05	B V Blank	☐	X*	SPLP	24-Oct-19 09:00	☒		HDPE Bottle, 250 mL	☒	Aqueous	

	Yes	No	NA
Sample Container Intact?	☒	☐	☐
Sample Custody Seals Intact?	☐	☐	☒
Adequate Sample Volume?	☒	☐	☐
Preservation Documented: Na2S2O3 Trizma None Other	☐	☐	☒
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	☐	☐	☒

Verified by/Date: Kg 10/28/19

Comments: SAMPLE IDS WERE RECONCILED USING A
* MIX OF ORIGINAL COC & SPLP'S ID#
1903472
** NOT INCLUDED ON ORIGINAL COC OR
SUB COC.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Edison

777 New Durham Road

Edison, NJ 08817

Tel: (732)549-3900

TestAmerica Job ID: 460-159581-1

Client Project/Site: Lloyd Kahn Samples

For:

AECOM

250 Apollo Drive

Chelmsford, Massachusetts 01824

Attn: Mr. Robert Kennedy



Authorized for release by:

7/19/2018 5:32:13 PM

Kris Brooks, Project Manager II

(330)966-9790

kris.brooks@testamericainc.com

LINKS

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results through

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Job ID: 460-159581-1

Laboratory: TestAmerica Edison

Narrative

CASE NARRATIVE

Client: AECOM

Project: Lloyd Kahn Samples

Report Number: 460-159581-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The Lloyd Kahn Total Organic Carbon analysis was performed at the TestAmerica Edison laboratory.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 6/28/2018 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 19.7° C.

TOTAL ORGANIC CARBON

Samples CLIDU10100180501N (460-159581-1), CLIDU10300180501N (460-159581-2), CLIDU10200180501N (460-159581-3), CLIDU20100180501N (460-159581-4), CLIDU20200180501N (460-159581-5), CLIDU20300180501N (460-159581-6), CLIDU30100180502N (460-159581-7), CLIDU30200180502N (460-159581-8), CLIDU30300180502N (460-159581-9), TGIDU30100180426N (460-159581-10), TGIDU30200180426N (460-159581-11), TGIDU30300180426N (460-159581-12), TGIDU10200180427N (460-159581-13), TGIDU10300180427N (460-159581-14), TGIDU10100180426N (460-159581-15), TGIDU20100180426N (460-159581-16), TGIDU20200180426N (460-159581-17) and TGIDU20300180426N (460-159581-18) were analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 07/18/2018.

The following samples were received outside of analytical holding time for Lloyd Kahn: CLIDU10100180501N (460-159581-1), CLIDU10300180501N (460-159581-2), CLIDU10200180501N (460-159581-3), CLIDU20100180501N (460-159581-4), CLIDU20200180501N (460-159581-5), CLIDU20300180501N (460-159581-6), CLIDU30100180502N (460-159581-7),

Case Narrative

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Job ID: 460-159581-1 (Continued)

Laboratory: TestAmerica Edison (Continued)

CLIDU30200180502N (460-159581-8), CLIDU30300180502N (460-159581-9), TGIDU30100180426N (460-159581-10), TGIDU30200180426N (460-159581-11), TGIDU30300180426N (460-159581-12), TGIDU10200180427N (460-159581-13), TGIDU10300180427N (460-159581-14), TGIDU10100180426N (460-159581-15), TGIDU20100180426N (460-159581-16), TGIDU20200180426N (460-159581-17) and TGIDU20300180426N (460-159581-18).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples CLIDU10100180501N (460-159581-1), CLIDU10300180501N (460-159581-2), CLIDU10200180501N (460-159581-3), CLIDU20100180501N (460-159581-4), CLIDU20200180501N (460-159581-5), CLIDU20300180501N (460-159581-6), CLIDU30100180502N (460-159581-7), CLIDU30200180502N (460-159581-8), CLIDU30300180502N (460-159581-9), TGIDU30100180426N (460-159581-10), TGIDU30200180426N (460-159581-11), TGIDU30300180426N (460-159581-12), TGIDU10200180427N (460-159581-13), TGIDU10300180427N (460-159581-14), TGIDU10100180426N (460-159581-15), TGIDU20100180426N (460-159581-16), TGIDU20200180426N (460-159581-17) and TGIDU20300180426N (460-159581-18) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 07/14/2018.

Percent Moisture exceeded the RPD limit for the duplicate of sample TGIDU30200180426NDU (460-159581-11). Refer to the QC report for details.

The sample duplicate precision for the following sample associated with analytical batch 460-536386 was outside control limits:

CLIDU10100180501N (460-159581-1), CLIDU10300180501N (460-159581-2), CLIDU10200180501N (460-159581-3), CLIDU20100180501N (460-159581-4), CLIDU20200180501N (460-159581-5), CLIDU20300180501N (460-159581-6), CLIDU30100180502N (460-159581-7), CLIDU30200180502N (460-159581-8), CLIDU30300180502N (460-159581-9), TGIDU30100180426N (460-159581-10), TGIDU30200180426N (460-159581-11) and (460-159581-A-11 DU).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU10100180501N

Lab Sample ID: 460-159581-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	15000	H	110	72	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU10300180501N

Lab Sample ID: 460-159581-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	17000	H	100	71	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU10200180501N

Lab Sample ID: 460-159581-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	13000	H	100	70	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU20100180501N

Lab Sample ID: 460-159581-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	20000	H	100	71	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU20200180501N

Lab Sample ID: 460-159581-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	23000	H	100	70	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU20300180501N

Lab Sample ID: 460-159581-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	20000	H	100	70	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU30100180502N

Lab Sample ID: 460-159581-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	17000	H	100	71	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU30200180502N

Lab Sample ID: 460-159581-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	14000	H	100	72	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: CLIDU30300180502N

Lab Sample ID: 460-159581-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	15000	H	100	71	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU30100180426N

Lab Sample ID: 460-159581-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8800	H	100	69	mg/Kg	1	✱	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU30200180426N

Lab Sample ID: 460-159581-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1									

This Detection Summary does not include radiochemical test results.

TestAmerica Edison

Detection Summary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU30200180426N (Continued)

Lab Sample ID: 460-159581-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	7600	H	100	70	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU30300180426N

Lab Sample ID: 460-159581-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	7000	H	100	70	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU10200180427N

Lab Sample ID: 460-159581-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	10000	H	100	69	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU10300180427N

Lab Sample ID: 460-159581-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	9400	H	100	69	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU10100180426N

Lab Sample ID: 460-159581-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	11000	H	100	69	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU20100180426N

Lab Sample ID: 460-159581-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8600	H	100	69	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU20200180426N

Lab Sample ID: 460-159581-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	7300	H	100	69	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: TGIDU20300180426N

Lab Sample ID: 460-159581-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8400	H	100	69	mg/Kg	1	☼	Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Edison

Client Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU10100180501N

Date Collected: 05/01/18 10:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-1

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.1		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	94.9		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU10100180501N

Date Collected: 05/01/18 10:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-1

Matrix: Solid

Percent Solids: 94.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	15000	H	110	72	mg/Kg	☼		07/18/18 08:41	1

Client Sample ID: CLIDU10300180501N

Date Collected: 05/01/18 12:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-2

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.3		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	96.7		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU10300180501N

Date Collected: 05/01/18 12:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-2

Matrix: Solid

Percent Solids: 96.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	17000	H	100	71	mg/Kg	☼		07/18/18 09:11	1

Client Sample ID: CLIDU10200180501N

Date Collected: 05/01/18 12:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-3

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.7		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	98.3		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU10200180501N

Date Collected: 05/01/18 12:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-3

Matrix: Solid

Percent Solids: 98.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	13000	H	100	70	mg/Kg	☼		07/18/18 09:18	1

TestAmerica Edison

Client Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU20100180501N

Date Collected: 05/01/18 15:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-4

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.5		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	96.5		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU20100180501N

Date Collected: 05/01/18 15:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-4

Matrix: Solid

Percent Solids: 96.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	20000	H	100	71	mg/Kg	☼		07/18/18 09:26	1

Client Sample ID: CLIDU20200180501N

Date Collected: 05/01/18 17:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-5

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.7		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	97.3		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU20200180501N

Date Collected: 05/01/18 17:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-5

Matrix: Solid

Percent Solids: 97.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	23000	H	100	70	mg/Kg	☼		07/18/18 09:34	1

Client Sample ID: CLIDU20300180501N

Date Collected: 05/01/18 18:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-6

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.4		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	97.6		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU20300180501N

Date Collected: 05/01/18 18:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-6

Matrix: Solid

Percent Solids: 97.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	20000	H	100	70	mg/Kg	☼		07/18/18 10:20	1

TestAmerica Edison

Client Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU30100180502N

Date Collected: 05/02/18 18:25

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-7

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.1		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	96.9		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU30100180502N

Date Collected: 05/02/18 18:25

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-7

Matrix: Solid

Percent Solids: 96.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	17000	H	100	71	mg/Kg	☼		07/18/18 10:28	1

Client Sample ID: CLIDU30200180502N

Date Collected: 05/02/18 18:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-8

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.7		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	95.3		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU30200180502N

Date Collected: 05/02/18 18:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-8

Matrix: Solid

Percent Solids: 95.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	14000	H	100	72	mg/Kg	☼		07/18/18 10:35	1

Client Sample ID: CLIDU30300180502N

Date Collected: 05/02/18 18:35

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-9

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.9		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	97.1		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: CLIDU30300180502N

Date Collected: 05/02/18 18:35

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-9

Matrix: Solid

Percent Solids: 97.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	15000	H	100	71	mg/Kg	☼		07/18/18 10:43	1

TestAmerica Edison

Client Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU30100180426N

Lab Sample ID: 460-159581-10

Date Collected: 04/26/18 15:30

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.4		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	98.6		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: TGIDU30100180426N

Lab Sample ID: 460-159581-10

Date Collected: 04/26/18 15:30

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 98.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8800	H	100	69	mg/Kg	☼		07/18/18 10:50	1

Client Sample ID: TGIDU30200180426N

Lab Sample ID: 460-159581-11

Date Collected: 04/26/18 15:35

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.6		1.0	1.0	%			07/14/18 08:07	1
Percent Solids	98.4		1.0	1.0	%			07/14/18 08:07	1

Client Sample ID: TGIDU30200180426N

Lab Sample ID: 460-159581-11

Date Collected: 04/26/18 15:35

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 98.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	7600	H	100	70	mg/Kg	☼		07/18/18 10:58	1

Client Sample ID: TGIDU30300180426N

Lab Sample ID: 460-159581-12

Date Collected: 04/26/18 15:40

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	2.2		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	97.8		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU30300180426N

Lab Sample ID: 460-159581-12

Date Collected: 04/26/18 15:40

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 97.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	7000	H	100	70	mg/Kg	☼		07/18/18 11:05	1

TestAmerica Edison

Client Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU10200180427N

Lab Sample ID: 460-159581-13

Date Collected: 04/27/18 09:25

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	0.7		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	99.3		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU10200180427N

Lab Sample ID: 460-159581-13

Date Collected: 04/27/18 09:25

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	10000	H	100	69	mg/Kg	☼		07/18/18 11:13	1

Client Sample ID: TGIDU10300180427N

Lab Sample ID: 460-159581-14

Date Collected: 04/27/18 09:30

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.1		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	98.9		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU10300180427N

Lab Sample ID: 460-159581-14

Date Collected: 04/27/18 09:30

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 98.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	9400	H	100	69	mg/Kg	☼		07/18/18 11:21	1

Client Sample ID: TGIDU10100180426N

Lab Sample ID: 460-159581-15

Date Collected: 04/26/18 17:15

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	0.7		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	99.3		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU10100180426N

Lab Sample ID: 460-159581-15

Date Collected: 04/26/18 17:15

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	11000	H	100	69	mg/Kg	☼		07/18/18 11:28	1

TestAmerica Edison

Client Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU20100180426N

Lab Sample ID: 460-159581-16

Date Collected: 04/30/18 18:35

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	0.5		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	99.5		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU20100180426N

Lab Sample ID: 460-159581-16

Date Collected: 04/30/18 18:35

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8600	H	100	69	mg/Kg	☼		07/18/18 11:53	1

Client Sample ID: TGIDU20200180426N

Lab Sample ID: 460-159581-17

Date Collected: 04/30/18 18:40

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	1.0		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	99.0		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU20200180426N

Lab Sample ID: 460-159581-17

Date Collected: 04/30/18 18:40

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.0

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	7300	H	100	69	mg/Kg	☼		07/18/18 12:01	1

Client Sample ID: TGIDU20300180426N

Lab Sample ID: 460-159581-18

Date Collected: 04/30/18 18:45

Matrix: Solid

Date Received: 06/28/18 09:40

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	0.6		1.0	1.0	%			07/14/18 08:19	1
Percent Solids	99.4		1.0	1.0	%			07/14/18 08:19	1

Client Sample ID: TGIDU20300180426N

Lab Sample ID: 460-159581-18

Date Collected: 04/30/18 18:45

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8400	H	100	69	mg/Kg	☼		07/18/18 12:09	1

TestAmerica Edison

QC Sample Results

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 460-537570/3

Matrix: Solid

Analysis Batch: 537570

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		100	69	mg/Kg			07/18/18 08:17	1

Lab Sample ID: LCSSRM 460-537570/4

Matrix: Solid

Analysis Batch: 537570

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
TOC Result 1	5770	5520		mg/Kg		95.7	35.4 - 194. 1

Method: Moisture - Percent Moisture

Lab Sample ID: 460-159581-11 DU

Matrix: Solid

Analysis Batch: 536386

Client Sample ID: TGIDU30200180426N

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Percent Moisture	1.6		1.3	F5	%		22	20
Percent Solids	98.4		98.7		%		0.3	20

QC Association Summary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

General Chemistry

Analysis Batch: 536386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-159581-1	CLIDU10100180501N	Total/NA	Solid	Moisture	
460-159581-2	CLIDU10300180501N	Total/NA	Solid	Moisture	
460-159581-3	CLIDU10200180501N	Total/NA	Solid	Moisture	
460-159581-4	CLIDU20100180501N	Total/NA	Solid	Moisture	
460-159581-5	CLIDU20200180501N	Total/NA	Solid	Moisture	
460-159581-6	CLIDU20300180501N	Total/NA	Solid	Moisture	
460-159581-7	CLIDU30100180502N	Total/NA	Solid	Moisture	
460-159581-8	CLIDU30200180502N	Total/NA	Solid	Moisture	
460-159581-9	CLIDU30300180502N	Total/NA	Solid	Moisture	
460-159581-10	TGIDU30100180426N	Total/NA	Solid	Moisture	
460-159581-11	TGIDU30200180426N	Total/NA	Solid	Moisture	
460-159581-11 DU	TGIDU30200180426N	Total/NA	Solid	Moisture	

Analysis Batch: 536389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-159581-12	TGIDU30300180426N	Total/NA	Solid	Moisture	
460-159581-13	TGIDU10200180427N	Total/NA	Solid	Moisture	
460-159581-14	TGIDU10300180427N	Total/NA	Solid	Moisture	
460-159581-15	TGIDU10100180426N	Total/NA	Solid	Moisture	
460-159581-16	TGIDU20100180426N	Total/NA	Solid	Moisture	
460-159581-17	TGIDU20200180426N	Total/NA	Solid	Moisture	
460-159581-18	TGIDU20300180426N	Total/NA	Solid	Moisture	

Analysis Batch: 537570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-159581-1	CLIDU10100180501N	Total/NA	Solid	Lloyd Kahn	
460-159581-2	CLIDU10300180501N	Total/NA	Solid	Lloyd Kahn	
460-159581-3	CLIDU10200180501N	Total/NA	Solid	Lloyd Kahn	
460-159581-4	CLIDU20100180501N	Total/NA	Solid	Lloyd Kahn	
460-159581-5	CLIDU20200180501N	Total/NA	Solid	Lloyd Kahn	
460-159581-6	CLIDU20300180501N	Total/NA	Solid	Lloyd Kahn	
460-159581-7	CLIDU30100180502N	Total/NA	Solid	Lloyd Kahn	
460-159581-8	CLIDU30200180502N	Total/NA	Solid	Lloyd Kahn	
460-159581-9	CLIDU30300180502N	Total/NA	Solid	Lloyd Kahn	
460-159581-10	TGIDU30100180426N	Total/NA	Solid	Lloyd Kahn	
460-159581-11	TGIDU30200180426N	Total/NA	Solid	Lloyd Kahn	
460-159581-12	TGIDU30300180426N	Total/NA	Solid	Lloyd Kahn	
460-159581-13	TGIDU10200180427N	Total/NA	Solid	Lloyd Kahn	
460-159581-14	TGIDU10300180427N	Total/NA	Solid	Lloyd Kahn	
460-159581-15	TGIDU10100180426N	Total/NA	Solid	Lloyd Kahn	
460-159581-16	TGIDU20100180426N	Total/NA	Solid	Lloyd Kahn	
460-159581-17	TGIDU20200180426N	Total/NA	Solid	Lloyd Kahn	
460-159581-18	TGIDU20300180426N	Total/NA	Solid	Lloyd Kahn	
MB 460-537570/3	Method Blank	Total/NA	Solid	Lloyd Kahn	
LCSSRM 460-537570/4	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	

TestAmerica Edison

Lab Chronicle

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU10100180501N

Date Collected: 05/01/18 10:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU10100180501N

Date Collected: 05/01/18 10:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-1

Matrix: Solid

Percent Solids: 94.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 08:41	JXT	TAL EDI

Client Sample ID: CLIDU10300180501N

Date Collected: 05/01/18 12:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU10300180501N

Date Collected: 05/01/18 12:00

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-2

Matrix: Solid

Percent Solids: 96.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 09:11	JXT	TAL EDI

Client Sample ID: CLIDU10200180501N

Date Collected: 05/01/18 12:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-3

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU10200180501N

Date Collected: 05/01/18 12:30

Date Received: 06/28/18 09:40

Lab Sample ID: 460-159581-3

Matrix: Solid

Percent Solids: 98.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 09:18	JXT	TAL EDI

TestAmerica Edison

Lab Chronicle

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU20100180501N

Lab Sample ID: 460-159581-4

Date Collected: 05/01/18 15:00

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU20100180501N

Lab Sample ID: 460-159581-4

Date Collected: 05/01/18 15:00

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 09:26	JXT	TAL EDI

Client Sample ID: CLIDU20200180501N

Lab Sample ID: 460-159581-5

Date Collected: 05/01/18 17:00

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU20200180501N

Lab Sample ID: 460-159581-5

Date Collected: 05/01/18 17:00

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 97.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 09:34	JXT	TAL EDI

Client Sample ID: CLIDU20300180501N

Lab Sample ID: 460-159581-6

Date Collected: 05/01/18 18:00

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU20300180501N

Lab Sample ID: 460-159581-6

Date Collected: 05/01/18 18:00

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 97.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 10:20	JXT	TAL EDI

TestAmerica Edison

Lab Chronicle

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: CLIDU30100180502N

Lab Sample ID: 460-159581-7

Date Collected: 05/02/18 18:25

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU30100180502N

Lab Sample ID: 460-159581-7

Date Collected: 05/02/18 18:25

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 96.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 10:28	JXT	TAL EDI

Client Sample ID: CLIDU30200180502N

Lab Sample ID: 460-159581-8

Date Collected: 05/02/18 18:30

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU30200180502N

Lab Sample ID: 460-159581-8

Date Collected: 05/02/18 18:30

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 10:35	JXT	TAL EDI

Client Sample ID: CLIDU30300180502N

Lab Sample ID: 460-159581-9

Date Collected: 05/02/18 18:35

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: CLIDU30300180502N

Lab Sample ID: 460-159581-9

Date Collected: 05/02/18 18:35

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 97.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 10:43	JXT	TAL EDI

TestAmerica Edison

Lab Chronicle

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU30100180426N

Lab Sample ID: 460-159581-10

Date Collected: 04/26/18 15:30

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: TGIDU30100180426N

Lab Sample ID: 460-159581-10

Date Collected: 04/26/18 15:30

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 98.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 10:50	JXT	TAL EDI

Client Sample ID: TGIDU30200180426N

Lab Sample ID: 460-159581-11

Date Collected: 04/26/18 15:35

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536386	07/14/18 08:07	BJP	TAL EDI

Client Sample ID: TGIDU30200180426N

Lab Sample ID: 460-159581-11

Date Collected: 04/26/18 15:35

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 98.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 10:58	JXT	TAL EDI

Client Sample ID: TGIDU30300180426N

Lab Sample ID: 460-159581-12

Date Collected: 04/26/18 15:40

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU30300180426N

Lab Sample ID: 460-159581-12

Date Collected: 04/26/18 15:40

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 97.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 11:05	JXT	TAL EDI

TestAmerica Edison

Lab Chronicle

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU10200180427N

Lab Sample ID: 460-159581-13

Date Collected: 04/27/18 09:25

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU10200180427N

Lab Sample ID: 460-159581-13

Date Collected: 04/27/18 09:25

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 11:13	JXT	TAL EDI

Client Sample ID: TGIDU10300180427N

Lab Sample ID: 460-159581-14

Date Collected: 04/27/18 09:30

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU10300180427N

Lab Sample ID: 460-159581-14

Date Collected: 04/27/18 09:30

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 98.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 11:21	JXT	TAL EDI

Client Sample ID: TGIDU10100180426N

Lab Sample ID: 460-159581-15

Date Collected: 04/26/18 17:15

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU10100180426N

Lab Sample ID: 460-159581-15

Date Collected: 04/26/18 17:15

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 11:28	JXT	TAL EDI

TestAmerica Edison

Lab Chronicle

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Client Sample ID: TGIDU20100180426N

Lab Sample ID: 460-159581-16

Date Collected: 04/30/18 18:35

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU20100180426N

Lab Sample ID: 460-159581-16

Date Collected: 04/30/18 18:35

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 11:53	JXT	TAL EDI

Client Sample ID: TGIDU20200180426N

Lab Sample ID: 460-159581-17

Date Collected: 04/30/18 18:40

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU20200180426N

Lab Sample ID: 460-159581-17

Date Collected: 04/30/18 18:40

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 12:01	JXT	TAL EDI

Client Sample ID: TGIDU20300180426N

Lab Sample ID: 460-159581-18

Date Collected: 04/30/18 18:45

Matrix: Solid

Date Received: 06/28/18 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	536389	07/14/18 08:19	BJP	TAL EDI

Client Sample ID: TGIDU20300180426N

Lab Sample ID: 460-159581-18

Date Collected: 04/30/18 18:45

Matrix: Solid

Date Received: 06/28/18 09:40

Percent Solids: 99.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	537570	07/18/18 12:09	JXT	TAL EDI

Laboratory References:

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

TestAmerica Edison

Accreditation/Certification Summary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Laboratory: TestAmerica Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0200	09-30-18
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-18
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-19
Pennsylvania	NELAP	3	68-00522	02-28-19
Rhode Island	State Program	1	LAO00132	12-30-18
USDA	Federal		NJCA-003-08	06-13-20

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18 *
Nevada	State Program	9	OH-000482008A	07-31-18 *
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-18 *
Texas	NELAP	6	T104704517-17-9	08-31-18 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Edison

Method Summary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Method	Method Description	Protocol	Laboratory
Lloyd Kahn	Organic Carbon, Total (TOC)	EPA	TAL EDI
Moisture	Percent Moisture	EPA	TAL EDI

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: AECOM
Project/Site: Lloyd Kahn Samples

TestAmerica Job ID: 460-159581-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-159581-1	CLIDU10100180501N	Solid	05/01/18 10:30	06/28/18 09:40
460-159581-2	CLIDU10300180501N	Solid	05/01/18 12:00	06/28/18 09:40
460-159581-3	CLIDU10200180501N	Solid	05/01/18 12:30	06/28/18 09:40
460-159581-4	CLIDU20100180501N	Solid	05/01/18 15:00	06/28/18 09:40
460-159581-5	CLIDU20200180501N	Solid	05/01/18 17:00	06/28/18 09:40
460-159581-6	CLIDU20300180501N	Solid	05/01/18 18:00	06/28/18 09:40
460-159581-7	CLIDU30100180502N	Solid	05/02/18 18:25	06/28/18 09:40
460-159581-8	CLIDU30200180502N	Solid	05/02/18 18:30	06/28/18 09:40
460-159581-9	CLIDU30300180502N	Solid	05/02/18 18:35	06/28/18 09:40
460-159581-10	TGIDU30100180426N	Solid	04/26/18 15:30	06/28/18 09:40
460-159581-11	TGIDU30200180426N	Solid	04/26/18 15:35	06/28/18 09:40
460-159581-12	TGIDU30300180426N	Solid	04/26/18 15:40	06/28/18 09:40
460-159581-13	TGIDU10200180427N	Solid	04/27/18 09:25	06/28/18 09:40
460-159581-14	TGIDU10300180427N	Solid	04/27/18 09:30	06/28/18 09:40
460-159581-15	TGIDU10100180426N	Solid	04/26/18 17:15	06/28/18 09:40
460-159581-16	TGIDU20100180426N	Solid	04/30/18 18:35	06/28/18 09:40
460-159581-17	TGIDU20200180426N	Solid	04/30/18 18:40	06/28/18 09:40
460-159581-18	TGIDU20300180426N	Solid	04/30/18 18:45	06/28/18 09:40

Chain-of-Custody Record



Samples from:
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
916-673-1520

19, 7⁰⁰ SR11
on ice packs

Samples sent to:
TestAmerica Edison
Attn: Sample Receiving/Kris Brooks
777 New Durham Road
Edison, NJ 08817-2859
732-549-3900

TAL Project 24020552



Sample Information

Vista ID	Sample Name	Sampled	Matrix	#Containers	Lloyd Kahn TOC analysis	Method 2	Method 3
1800898-01	CLIDU10100180501N	01-May-18 10:30	Soil	1	X		1
1800898-02	CLIDU10300180501N	01-May-18 12:00	Soil	1	X		2
1800898-03	CLIDU10200180501N	01-May-18 12:30	Soil	1	X		3
1800898-04	CLIDU20100180501N	01-May-18 15:00	Soil	1	X		4
1800898-05	CLIDU20200180501N	01-May-18 17:00	Soil	1	X		5
1800898-06	CLIDU20300180501N	01-May-18 18:00	Soil	1	X		6
1800898-07	CLIDU30100180502N	02-May-18 18:25	Soil	1	X		7
1800898-08	CLIDU30200180502N	02-May-18 18:30	Soil	1	X		8
1800898-09	CLIDU30300180502N	02-May-18 18:35	Soil	1	X		9
1800898-10	TGIDU30100180426N	26-Apr-18 15:30	Soil	1	X		10
1800898-11	TGIDU30200180426N	26-Apr-18 15:35	Soil	1	X		11
1800898-12	TGIDU30300180426N	26-Apr-18 15:40	Soil	1	X		12
1800898-13	TGIDU10200180427N	27-Apr-18 09:25	Soil	1	X		13
1800898-14	TGIDU10300180427N	27-Apr-18 09:30	Soil	1	X		14
1800898-15	TGIDU10100180426N	26-Apr-18 17:15	Soil	1	X		15

Special Requests:

Relinquished (Printed Name/Signature/Date/Time) Sydney Roughton 6/25/18 <i>Sydney Roughton</i> 1531	Received (Printed Name/Signature/Date/Time) <i>CE</i> via <i>Reddy</i> 6/28/18 0946
Relinquished (Printed Name/Signature/Date/Time)	Received (Printed Name/Signature/Date/Time)

Chain-of-Custody Record



167661

Samples from:
Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
916-673-1520

Samples sent to:
TestAmerica Edison
Attn: Sample Receiving/Kris Brooks
777 New Durham Road
Edison, NJ 08817-2859
732-549-3900

TAL Project 24020552

Continued Sample Information

Vista ID	Sample Name	Sampled	Matrix	# Containers	Lloyd Kahn TOC analysis	Method 2	Method 3
1800898-16	TGIDU20100180430N	30-Apr-18 18:35	Soil	1	X		16
1800898-17	TGIDU20200180430N	30-Apr-18 18:40	Soil	1	X		17
1800898-18	TGIDU20300180430N	30-Apr-18 18:45	Soil	1	X		18

Special Requests:

Relinquished (Printed Name/Signature/Date/Time)
Sydney Roughton 6/25/18

Sydney Roughton 1531

Relinquished (Printed Name/Signature/Date/Time)

Received (Printed Name/Signature/Date/Time)

TA Ed: via FedEx 6/28/18

Received (Printed Name/Signature/Date/Time)

Job Number: 159831

[illegible]

Date: 6/28/18

Login Sample Receipt Checklist

Client: AECOM

Job Number: 460-159581-1

Login Number: 159581

List Number: 1

Creator: Meyers, Gary

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.



About AECOM

AECOM is built to deliver a better world. We design, build, finance and operate critical infrastructure assets for governments, businesses and organizations. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM had revenue of approximately \$20.2 billion during fiscal year 2019.

See how we deliver what others can only imagine at aecom.com and [@AECOM](https://twitter.com/AECOM).

