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Evaluation of Gaylord, Jackson, Midland, and South Huron Valley Wastewater Treatment Plant (WWTP) Biosolids Sites

Gaylord: 30N2W0-JW01, 30N02W21-RW01

Jackson: 04S01E02-FC01, 01S01E11-MC01, 01S01E14-MT01

Midland: 13N02E15-RG02, 13N02E21-RG03

South Huron Valley: 05S09E10-JU02, 04S08E24-VG02

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1. Introduction

This technical memorandum summarizes and reports the findings of site investigations conducted at Gaylord, Jackson, Midland and South Huron Valley (SHVUA) owned land application Sites listed below (**Figure 1**). 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 below wastewater treatment plants (WWTP) in the soil and adjacent surface water bodies, including standing perched water and tile drains.

WWTP Site	Field Site Nomenclature	Site Name
Gaylord	30N02W07-JW01	Site JW01
	30N02W21-RW01	Site RW01
Jackson	01S01E11-FC01	Site FC01
	01S01E02-MC01	Site MC01
	01S01E14-MT01	Site MT01
Midland	13N02E15-RG02	Site RG02
	13N02E21-RG03	Site RG03
South Huron Valley	05S090E10-JU02	Site JU02
	04S08E24-VG02	Site VG02

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

2. Background

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 the Quality Assurance Project Plan (QAPP), previously developed in 2018.

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

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

The analytical results from sampling the influent, effluent and biosolids at the Gaylord, Jackson, Midland and SHVUA WWTPs represent 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 WWTPs 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 the WWTP biosolids were land applied in the past may not be closely correlated to current concentrations found within the WWTPs. However, biosolids associated with WWTPs that have an Industrial Pretreatment Program (IPP) are expected to have higher PFAS concentrations than those from non-IPP WWTPs. The Gaylord and Midland WWTPs do not have IPPs, while the Jackson and SHUVA WWTPs have IPPs. However, all four (4) WWTPs had low or “typical” concentrations of PFOS in their biosolids when compared to the other WWTPs sampled in the statewide WWTP PFAS assessment. Therefore, the Gaylord, Jackson, Midland, and SHUVA WWTPs were selected to evaluate land application fields that received biosolids with lower or more “typical” levels of PFAS.

2.1 Gaylord Sites 30N02W07-JW01, 30N02W21-RW02

Site JW01 is a 28-acre field (reduced from 30 acres in 2009) located near the intersection of East State Road and Chester Road in Chester Township, Michigan, approximately 3.5 miles east-southeast of the Gaylord WWTP. Site RW01 is a 55-acre field located near the intersection of McCoy Road and Turtle Lake Road in Chester Township, Michigan, approximately 6.5 miles southeast of the Gaylord WWTP. Prior to 2009, Site RW01 consisted of three (3) separate fields, 30N02W21-RW01 (24 acres), 30N02W21-RW02 (16 acres) and 30N02W21-RW03 [seven (7) acres]. These fields were combined into a single 55-acre field (30N02W21-RW01) in 2009. Both Sites JW01 and RW01 are owned and farmed by the same landowner/farmer.

Application to apply biosolids from the Gaylord WWTP to Site JW01 was first received by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD) in 2004. Records indicate Site JW01 received 433 dry tons (dT) of biosolids from 16 applications by the Gaylord WWTP from 2004 to 2016, with an average application rate of 1.4 dT per acre. Application coverage varied between years, ranging from eight (8) to 30 acres (**Table 1a-1**). Application to apply biosolids from the Gaylord WWTP to Site RW01 was first received by the EGLE WRD in 2000. Records indicate Site RW01 received 397 dT of biosolids from 19 applications by the Gaylord WWTP from 2002 to 2015, with an average application rate of 1.5 dT per acre. Application coverage was light to moderate and not consistent across the entire acreage of the Site, ranging from seven (7) to 30 acres (**Table 1a-2**).

AECOM initially sampled the influent, effluent and biosolids from the Gaylord WWTP on November 8, 2018. The Gaylord WWTP does not have an IPP, however has authorization to discharge treated municipal wastewater under Groundwater Discharge Permit number GW1810128. In the spring of 2018, WRD required all municipal WWTPs with approved IPPs to participate in an IPP PFAS Initiative to evaluate their industrial users for discharges of PFAS. The Gaylord WWTP was included in this initiative to provide a range of possible PFAS impacts in WWTPs without significant industrial discharges (i.e. without an IPP). The Gaylord WWTP influent, effluent and biosolids were sampled for 24 PFAS compounds recommended by EGLE as the PFAS Minimum Laboratory Analyte List. The influent and effluent samples did not exceed the Rule 57 Water Quality Standards (WQS) for a surface water body not used as a drinking water source of 12 ng/L for PFOS or 12,000 ng/L for PFOA. The results from the 2018 Gaylord WWTP sampling event is summarized below.

Sample Location	Sample Year	PFOA[1] (detection range)	PFOS[1] (detection range)
Influent	2018	< 2.02	< 2.03
Effluent	2018	**8.72**	**4.26**
Biosolids	2018	**17.7**	**55**

[1]Units 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).

EGLE conducted an initial, limited investigation in April 2019 at the Gaylord Sites JW01 and RW01 that included four (4) surface soil samples and one (1) perched water sample (**Figures 2a-1, 2a-2**).

2.2 Jackson Sites 01S01E11-FC01, 01S01E02-MC01, 01S01E14-MT01

Site FC01 is a 44-acre field located on the south side of Territorial Road between McCreery Road and Fitchburg Road in Henrietta Township, Michigan, approximately 11 miles northeast of the Jackson WWTP. The Cahaogan Creek flows along the eastern edge of Site FC01. Site MC01 is 63-acre field located on the north side of Territorial Road approximately 300 meters west of Site FC01, and approximately 11 miles northeast of the Jackson WWTP. Site MT01 is a 65-acre field located northeast of the intersection of Sayers Road and Kennedy Road in Henrietta Township, Michigan, approximately 9.5 miles northeast of the Jackson WWTP. The Orchard Creek is located approximately a half mile to the east of Site MT01. All Sites are farmed by the same farmer, and Sites FC01 and MC01 are owned by the same landowner.

Application to apply biosolids from the Jackson WWTP to Site FC01 was first received by the EGLE WRD in 2003. Site FC01 received 678 dT of biosolids from seven (7) applications by the Jackson WWTP from October 2002 to August 2016. Applications consistently covered half or more of the total field size, with an average application rate of 2.7 dT per acre. Application to apply biosolids from the Jackson WWTP to Site MC01 was first received by the EGLE WRD in 2015. Site MC01 received 648.9 dT of biosolids from a single application by the Jackson WWTP in November 2016, covering the entire acreage of the field with an application rate of 10.3 dT per acre. Application to apply biosolids from the Jackson WWTP to Site MT01 was first received by the EGLE WRD in 2007. Site MT01 received 928.2 dT of biosolids from five (5) applications by the Jackson WWTP from 2007 to 2018. Applications covered the majority of the field with an average application rate of 3.16 dT per acre. The application of biosolids for all three (3) Sites are attached in **Table 1b**.

The Jackson WWTP was sampled once for its effluent wastewater for PFAS in 2018 before AECOM initially sampled the Jackson WWTP on November 5, 2018. The Jackson WWTP has an approved IPP and authorization to discharge treated municipal wastewater under NPDES permit number MI0023256. The influent, effluent and biosolids were sampled for 24 PFAS compounds recommended by EGLE as the PFAS Minimum Laboratory Analyte List. The Jackson WWTP sampled their effluent wastewater twice after the 2018 AECOM sampling event, once in May 2019 and September 2019. The results from the Jackson WWTP sampling events are summarized below, listed as the range of values detected by year.

Sample Location	Sample Year	PFOA[1] (detection range)	PFOS[1] (detection range)
Influent	2018	< 1.56	**5.98**
Effluent	2018	< 10 – **3.38**	< 10 – **3.17**
Effluent	2019	< 10	< 10
Biosolids	2018	**4.41**	**90.6**

[1]Units 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).

EGLE conducted an initial, limited investigation in April 2019 at the Jackson Sites FC01, MC01 and MT01 that included eight (8) surface soil samples, six (6) surface water samples and one (1) tile drain sample (**Figures 2b-1**, **2b-2**).

2.3 Midland Sites 13N02E15-RG02, 13N02E21-RG03

Site RG02 is a 19-acre field located at the intersection of South Sasse Road and East Freeland Road in Ingersoll Township, Michigan, approximately 5.5 miles south-southwest of the Midland WWTP. The Cron Drain borders the north side of Site RG02. Site RG03 is a 41-acre field located at the intersection of South Poseyville Road and East Freeland in Ingersoll Township, Michigan, approximately six (6) miles south-southwest of the Midland WWTP. Site RG02 is approximately one (1) mile northeast of Site RG03. The Franklin Drain runs southwest to northeast through the southern portion of Site RG03. Both Sites are owned and farmed by the same landowner/farmer.

Application to apply biosolids from the Midland WWTP to Site RG02 was first received by the EGLE WRD in 2009. In 2015, EGLE approved an additional 14 acres, for a total field size of 33 acres. Site RG02 received 220.02 dT of biosolids from two (2) applications by the Midland WWTP from 2014 to 2015. All applications covered the majority or entire acreage of the approved site, with an average application rate of 4.17 dT per acre (**Table 1c**). Application to apply Midland WWTP biosolids to Site RG03 was first received by the EGLE WRD in 2011. Site RG03 received 255.17 dT of biosolids from three (3) applications by the Midland WWTP from 2011 to 2018. Applications covered the majority of the field, ranging from 32 to 39 acres, with an average application rate of 2.35 dT per acre (**Table 1c**).

AECOM initially sampled the influent, effluent and biosolids from the Midland WWTP on November 19, 2018. The Midland WWTP does not have an IPP, however has authorization to discharge treated municipal wastewater under NPDES permit number MI0023582. It was included in the statewide WWTP PFAS assessment to provide a range of possible PFAS impacts in WWTPs without significant industrial discharges (i.e. without an IPP). The Midland WWTP influent, effluent and biosolids were sampled for 24 PFAS compounds recommended by EGLE as the PFAS Minimum Laboratory Analyte List. The results from the 2018 Midland WWTP sampling event is summarized below.

Sample Location	Sample Year	PFOA[1] (detection range)	PFOS[1] (detection range)
Influent	2018	**10.3**	**2.72**
Effluent	2018	**10.5**	**4.03**
Biosolids	2018	**1.93**	**12.7**

[1]Units 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).

EGLE conducted an initial, limited investigation in April 2019 at the Midland Sites RG02 and RG03 that included five (5) surface soil samples, seven (7) surface water samples, one (1) perched water sample and eight (8) tile drain samples (**Figures 2c-1, 2c-2**).

2.4 South Huron Valley (SHVUA) Sites 05S09E10-JU02, 04S08E24-VG02

Site ID JU02 is a 17-acre field located on East Newburg Road in Ash Township, Michigan, approximately seven (7) miles west-northwest of the SHVUA WWTP. The Wagner Drain flows along the southern edge of the field, while railroad tracks border the northern edge. Site VG02 is a 15-acre field located at the intersection of Wear Road and Carleton West Road in Sumpter Township, Michigan, approximately 12.5 miles northwest of the SHVUA WWTP. The North

Branch Swan Creek flows along the western edge of the field. The Sites are farmed by the same farmer, with different landowners.

Application to apply biosolids from the SHUVA WWTP to Site JU02 was first received by the EGLE WRD in 2008. Site JU02 received 389.7 dT of biosolids, with an average application rate of 5.0 dT per acre, from five (5) applications by the SHUVA WWTP from November 2009 to August 2015. Three (3) applications covered the majority or entirety of the field, while two (2) applications covered half of the field (**Table 1d**). Application to apply biosolids from the SHUVA WWTP to Site VG02 was first received by the EGLE WRD in 2010. Site VG02 received 177.0 dT of biosolids from three (3) applications by the SHUVA WWTP from April 2010 to December 2013. Applications covered the majority to entirety of the field, with an average application rate of 4.5 dT per acre (**Table 1d**).

AECOM initially sampled the SHVUA WWTP on November 20, 2018. The SHVUA WWTP has an approved IPP and authorization to discharge treated municipal wastewater under NPDES permit number MI0043800. The influent, effluent and biosolids were sampled for 24 PFAS compounds recommended by EGLE as the PFAS Minimum Laboratory Analyte List. The effluent wastewater of the SHVUA WWTP was sampled four (4) additional times after the AECOM sampling event, once in March, May, July, and October 2019. The results from the SHVUA WWTP sampling events are summarized below, listed as the range of values detected by year.

Sample Location	Sample Year	PFOA[1] (detection range)	PFOS[1] (detection range)
Influent	2018	**3.76**	< 2.14
Effluent	2018	**6.69**	**5.33**
Effluent	2019	< 5 – **28**	< 10 – **14**
Biosolids	2018	**2.46**	< 0.834

[1]Units 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).

EGLE conducted an initial, limited investigation in April 2019 at the SHVUA Sites JU02 and VG02 that included four (4) surface soil samples, nine (9) surface water samples and one (1) perched water sample (**Figure 2d-1, 2d-2**).

3. Hydrogeology/Geology

The geology and topography of the Sites are the result of glacial activity. The glacial aquifers consist of sand and gravel that are part of a thick sequence of Pleistocene glacial deposits. The area is composed of ground moraines and outwash plains of medium-textured till and lacustrine outwash deposits that are predominately composed of loamy sand and till. No soil borings were installed during this investigation.

3.1 Gaylord Sites 30N02W07-JW01, 30N02W21-RW02

At Site JW01, the USDA Natural Resources Conservation Service Web Soil Survey identified three (3) primary types of surface soils: Mancelona loamy sand (33B), Leelanau loamy sand (141C) and Leelanau sandy loam (463F). The lithologies were deposited as outwash plains, terraces, and moraines consisting of a sandy loam over gravelly till. There are no surface water ponds or creeks within Site JW01. Big Lake is located approximately 2,000 feet to the east of Site JW01.

At Site RW01, the USDA Natural Resources Conservation Service Web Soil Survey identified three (3) primary types of surface soils: Blue Lake loamy sand (52B, 52D), Morgan Lake loamy sand (393B) and Mossback sandy loam (464B). These soils were deposited as moraines and outwash plains, consisting of a sandy glaciofluvial deposit and loamy material. There are no surface water ponds or creeks within Site RW01. The lithologies at Sites JW01 and RW01 are described in **Appendix A**.

Regional groundwater flow is expected to generally be towards surface water bodies such as ponds and streams. Due to the lack of surface water bodies and residential or monitoring wells at Sites JW01 and RW01, regional groundwater flow is unable to be determined.

3.2 Jackson Sites 01S01E11-FC01, 01S01E02-MC01, 01S01E14-MT01

At Site FC01, the USDA Natural Resources Conservation Service Web Soil Survey identified three (3) primary types of surface soils: Gillford-Colwood complex (18), Arkport-Okee loamy fine sands (35B), and Dixboro very fine sandy loam (43A). The Gillford-Colwood complex was deposited on glacial drainage channels and consists of sandy or loamy glaciofluvial deposits. The Arkport-Okee loamy fine sands were deposited from flats on outwash plains and consists of loamy and sandy glaciofluvial deposits. The Dixboro very fine sandy loam was deposited from drainageways on outwash deltas and consists of loamy and sandy glaciofluvial deposits. The majority of Site FC01 soils consist of sandy/loamy glacial deposits, however, there is a small southern region that consists of the Palms Muck (37), which consists of higher organic loamy material. Lithologies at Site FC01 are described in **Appendix A**. The Cahaogan Creek runs along the eastern side of the Site, and a small creek runs nearby the western side. These two (2) creeks meet together to the north of Site FC01. Regional groundwater flow is expected to generally be towards surface water bodies such as ponds and streams. The general groundwater flow at Site FC01 is expected to run to the east towards the Cahaogan Creek.

At Site MC01, the USDA Natural Resources Conservation Service Web Soil Survey identified five (5) primary types of surface soils: Capac loam (CpcaaB), Gillford-Colwood complex (18), Arkport-Okee loamy fine sands (35B), Riddles sandy loam (42B) and Marlette-Owosso complex (64B). The Capac loam was deposited as end and ground moraines and consists of a loamy till. The Gillford-Colwood complex was deposited on glacial drainage channels and consists of sandy or loamy glaciofluvial deposits. The Arkport-Okee loamy fine sands were deposited from flats on outwash plains and consists of loamy and sandy glaciofluvial deposits. The Riddles sandy loam was deposited as moraines and consists of a sandy/loamy till from limestone and shale. The Marlette-Owosso complex was deposited as flats on till plains and consists of a loamy till. The majority of these Site soils consist of sandy/loamy glacial deposits and loamy till, however there is a small northeastern region of Edwards muck (30), which consists of herbaceous organic material. Lithologies at Site MC01 are described in **Appendix A**. There are no surface water bodies on Site MC01. Site MC01 is northwest of Site FC01, therefore the small creek to the west of Site FC01 is to the east of Site MC01. The general groundwater flow at Site MC01 is likely towards the east.

At Site MT01, the USDA Natural Resources Conservation Service Web Soil Survey identified three (3) primary types of surface soils: Capac loam (CpcaaB), Hillsdale-Riddles sandy loams (49B), and Marlette-Owosso complex (64B). The Capac loam was deposited as end and ground moraines and consists of a loamy till. The Hillsdale-Riddles sandy loams were deposited as knolls on ground moraines consisting of loamy till. The Marlette-Owosso complex was deposited as flats on till plains and consists of a loamy till. Lithologies at Site MT01 are described in **Appendix A**. The Orchard Creek is located to the east of Site MT01, which runs to the Portage River Drain. The general groundwater flow at Site MT01 is likely towards the east.

3.3 Midland Sites 13N02E15-RG02, 13N02E21-RG03

At Site RG02, the USDA Natural Resources Conservation Service Web Soil Survey identified two (2) primary types of surface soils: Bowers silt loam (BoB) and Lenawee silty clay loam (Le). The Bowers silt loam was deposited as flats on lake plains and consists of stratified loamy glaciolacustrine deposits. The Lenawee silty clay loam was deposited as lakebeds consisting of a clayey glaciolacustrine deposit. Lithologies at Site RG02 are described in **Appendix A**. The only neighboring surface water body is the Cron Drain, which runs along the northern edge of Site RG02. The general groundwater flow at Site RG02 is likely to the north.

At Site RG03, the USDA Natural Resources Conservation Service Web Soil Survey identified five (5) primary types of surface soils: Parkhill loam (Pa), Pipestone sand (PtB), Bowers silt loam (BoB), Lenawee silty clay loam (Le) and Oakville fine sand (OaB). The northern field of Site RG03 consists solely of the Parkhill loam, and the remaining four (4) lithologies comprise the southern field. The Parkhill loam was deposited on wave-worked till plains and moraines and consists of a loamy lodgment till. The Pipestone sand was deposited on flats on lake plains and consists of sandy glaciolacustrine deposits over loamy till. The Bowers silt loam was deposited as flats on lake plains and consists of stratified loamy glaciolacustrine deposits. The Lenawee silty clay loam was deposited as lakebeds consisting of a clayey glaciolacustrine deposit. The Oakville fine sand was deposited on beach ridges on outwash plains and consists of sandy glaciolacustrine deposits. Lithologies at Site RG03 are described in **Appendix A**. The Franklin Drain flows between Site RG03, splitting the northern and southern fields. The groundwater flow is likely to the north in the southern field of Site RG03 and to the south in the northern field of Site RG03.

3.4 South Huron Valley (SHVUA) Sites 05S09E10-JU02, 04S08E24-VG02

At Site JU02, the USDA Natural Resources Conservation Service Web Soil Survey identified two (2) primary types of surface soils: Blount loam, Erie-Huron Lake Plain (13A) and Lenawee silty clay loam (Le, 21). The Blount loam, Erie-Huron Lake Plain lithology was deposited as wave-worked till plains near shore zones, consisting of moderately fine-textured lodgment till. The Lenawee silty clay loam was deposited as lakebeds consisting of a clayey glaciolacustrine deposit. Lithologies at Site JU02 are described in **Appendix A**. The Wager Drain runs along the southern region of Site JU02, therefore regional groundwater flow is expected to be to the south.

At Site VG02, the USDA Natural Resources Conservation Service Web Soil Survey identified two (2) primary types of surface soils: Corunna fine sandy loam (Co) and Selfridge-Pewamo-Metea complex (SgB). The Corunna fine sandy loam was deposited on depressions on till plains and lake plains, consisting of a loamy glaciofluvial deposit. The Selfridge-Pewamo-Metea complex was deposited on drainageways on lake plains, consisting of a sandy glaciofluvial deposit over loamy till. Lithologies at Site VG02 are described in **Appendix A**. The North Branch Swan Creek runs along the western edge of Site VG02. Regional groundwater flow is likely towards the west in Site JU02.

4. Scope of Work

Soil, surface water, perched water and tile drain samples were collected from the agricultural fields to evaluate the potential PFAS impact from the Gaylord, Jackson, Midland and SHVUA WWTP biosolids. The soil, surface water, perched water and tile drain samples were submitted to Vista Analytical Laboratory 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 Laboratory 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
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

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

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

[3]Perfluoroalkane 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

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

[6]N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (MeFASAAs) 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. A total of 21 50 by 50 feet Decision Units (DUs) were identified for soil sampling, with the following amount of DUs per Site: Site JW01 (2), Site RW01 (2), Site FC01 (3), Site MC01 (3), Site MT01 (2), Site RG02 (2), Site RG03 (3), Site JU02 (2) and Site VG02 (2). 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 for each DU, which consisted of one (1) sample composed of nine (9) aliquots, from a depth of six (6) to eight (8) inches using a ¾" diameter soil sampler core. All nine (9) aliquots from each DU were homogenized into one sample. The 21 soil samples were analyzed for PFAS and TOC.

5.1 Gaylord Sites 30N02W07-JW01, 30N02W21-RW02

Within Site JW01, the first DU soil sample (JW01-DU1) was collected within the Leelanau sandy loam. The second DU (JW01-DU2) was sampled within the Leelanau loamy sand. Within Site RW01, the first DU (RW01-DU1) was sampled within the Morgan Lake loamy sand. The second DU (RW01-DU2) was collected from the Blue Lake loamy sand. The soils identified at the Gaylord Sites JW01 and RW01 are shown in **Figures 2a-1 and 2a-2** and described in **Appendix A.** The analytical results are summarized in the table below and attached in **Table 2a** and **Figures 3a-1, 3a-2.**

Soil Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SXDU11904171200RL	4/17/2019	JW01-DU1	**2.03**	< 0.949	**1.18**
SXDU21904171225RL	4/17/2019	JW01-DU2	**0.812**	< 0.961	< 0.961
SXDU11904171115RL	4/17/2019	RW01-DU1	< 0.985	< 0.985	< 0.985
SXDU21904171025RL	4/17/2019	RW01-DU2	**1.19**	< 0.948	**1.19**

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

Three (3) of the four (4) soil samples collected had some PFAS compounds detected. The sample collected from RW01-DU1 reported PFAS levels below detectable limits. Of the 24 PFAS compounds analyzed, PFDA and PFOS were the only two (2) compounds detected in the samples. PFOA was not detected in any of the soil samples. PFOS was detected in only two (2) samples, with low values of 1.18 and 1.19 µg/Kg in JW01-DU1 and RW01-DU2. All soil samples collected resulted in relatively low total PFAS concentrations (**Table 2a**) compared to soil samples collected from other agricultural fields associated with industrially impacted biosolids from other municipal WWTPs with significant industrial sources.

The TOC analytical results ranged from 9,100 to 14,000 milligrams per kilogram (mg/Kg). The maximum TOC value is associated with RW01-DU1 and the Morgan Lake loamy sand lithology. **Table 4a** summarizes the soil PFAS and TOC data by DU, and **Figures 3a-1, 3a-2** show the total PFAS concentration and soil classification for each sample.

5.2 Jackson Sites 01S01E11-FC01, 01S01E02-MC01, 01S01E14-MT01

At Site FC01, three (3) Decision Units (FC01-DU1, FC01-DU2, and FC01-DU3) were sampled within the Dixboro very fine sandy loam, Gilford-Colwood complex and Arkport-Okee loamy fine sands. At Site MC01, three (3) Decision Units (MC01-DU1, MC01-DU2, and MC01-DU3) were sampled from the Riddles sandy loam, Arkport-Okee loamy fine sands, and Edwards muck. At Site MT01, two (2) Decision Units (MT01-DU1 and MT01-DU2) were sampled within the Marlette-Owosso complex and Hillsdale-Riddles sandy loams. The soils identified at the

Jackson Sites FC01, MC01 and MT01 are shown in **Figures 2b-1, 2b-2** and described in **Appendix A.** The analytical results are summarized in the table below and attached in **Table 2b** and **Figures 3b-1, 3b-2.**

Soil Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SXDU11904101300RL	4/10/2019	FC01-DU1	**11.44**	**0.886**	**7.97**
SXDU21904101330RL	4/10/2019	FC01-DU2	**10.74**	**1.33**	**6.64**
SXDU31904101355RL	4/10/2019	FC01-DU3	**3.00**	< 0.975	**3.00**
SXDU11904101005RL	4/10/2019	MC01-DU1	< 0.987	< 0.987	< 0.987
SXDU21904101050RL	4/10/2019	MC01-DU2	< 0.955	< 0.955	< 0.955
SXDU31904101120RL	4/10/2019	MC01-DU3	< 0.995	< 0.995	< 0.995
SXDU11904101540RL	4/10/2019	MT01-DU1	**1.93**	< 0.959	**1.05**
SXDU21904101505RL	4/10/2019	MT01-DU2	**2.01**	< 0.990	**1.08**

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

The five (5) soil samples collected from Sites FC01 and MT01 had some PFAS compounds detected. The soil samples collected from Site MC01 did not report detectable values of PFAS. Of the 24 PFAS compounds analyzed, PFOA, PFOS, PFPeA, PFDA and PFDS were the only compounds detected in the samples. PFOS had the highest concentrations detected within the soil samples with values from 1.05 to 7.97 µg/Kg. All soil samples collected resulted in relatively low total PFAS concentrations (**Table 2b**) compared to soil samples collected from other agricultural fields associated with industrially impacted biosolids from other municipal WWTPs with significant industrial sources.

The TOC analytical results ranged from 7,600 to 49,000 mg/Kg. The maximum TOC values are associated with FC01-DU2 (43,000 mg/Kg) sampled within the Gilford-Colwood complex, and MC01-DU3 (49,000 mg/Kg) sampled within the Edwards muck. **Table 4b** summarizes the soil PFAS and TOC data by DU, and **Figures 3b-1, 3b-2** show the total PFAS concentration and soil classification for each sample.

5.3 Midland Sites 13N02E15-RG02, 13N02E21-RG03

At Site RG02, two (2) DUs were sampled: RG02-DU1 within the Lenawee silty clay loam, and RG02-DU2 within the Bowers silt loam. At Site RG03, three (3) DUs were sampled: RG03-DU1 within the Parkhill loam, RG03-DU2 within the Pipestone sand, loamy substratum, and RG03-DU3 within the Bowers silt loam. The soils identified at the Midland Sites RG02 and RG03 are shown in **Figures 2c-1, 2c-2** and described in **Appendix A.** The analytical results are summarized in the table below and attached in **Table 2c** and **Figures 3c-1, 3c-2**

Soil Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SXDU11904161430MK	4/16/2019	RG02-DU1	< 0.932	< 0.932	< 0.932
SXDU21904161505MK	4/16/2019	RG02-DU2	**8.81**	< 0.959	4.44
SXDU11904161245MK	4/16/2019	RG03-DU1	< 0.935	< 0.935	< 0.935
SXDU21904161200MK	4/16/2019	RG03-DU2	< 0.959	< 0.959	< 0.959
SXDU31904161120MK	4/16/2019	RG03-DU3	< 0.876	< 0.876	< 0.876

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

Of the five (5) soil samples collected from Sites RG02 and RG03, only the soil sample from RG02-DU2 reported detectable concentrations of PFAS. Of the 24 PFAS compounds analyzed, PFDA, PFOS, EtFOSAA, and MeFOSAA were the only compounds detected in RG02-DU2. The soils sampled at Sites RG02 and RG03 reported low total PFAS concentrations (**Table 2c**)

compared to soil samples collected from other agricultural fields associated with industrially impacted biosolids from other municipal WWTPs with significant industrial sources.

The TOC analytical results ranged from 8,400 to 18,000 mg/Kg. The maximum TOC value is associated with RG03-DU1 and the Parkhill loam, with a TOC value of 18,000 mg/Kg. **Table 4c** summarizes the soil PFAS and TOC data by DU, and **Figures 3c-1, 3c-2** show the total PFAS concentration and soil classification for each sample.

5.4 South Huron Valley (SHVUA) Sites 05S09E10-JU02, 04S08E24-VG02

At Site JU02, two (2) DUs were sampled: JU02-DU1 within the Blount loam, and JU02-DU2 within the Lenawee silty clay loam. At Site VG02, two (2) DUs were sampled: VG02-DU1 within the Corunna fine sandy loam and VG02-DU2 within the Selfridge-Pewamo-Metea complex. The soils identified at Sites JU02 and VG02 are shown in **Figures 2d-1, 2d-2** and described in **Appendix A.** The analytical results are summarized in the table below and attached in **Table 2d** and **Figures 3d-1, 3d-2.**

Soil Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SXDU11904120855RL	4/12/2019	JU02-DU1	**3.51**	**2.18**	**1.33**
SXDU21904120935RL	4/12/2019	JU02-DU2	**5.38**	**1.71**	**2.51**
SXDU11904121200RL	4/12/2019	VG02-DU1	< 0.995	< 0.995	< 0.995
SXDU21904121120RL	4/12/2019	VG02-DU2	< 0.961	< 0.961	< 0.961

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

The two (2) samples collected from Site JU02 detected PFAS compounds. Of the 24 PFAS compounds analyzed, only PFOA, PFDA and PFOS were detected. The two (2) soil samples collected at Site VG02 reported concentrations below detectable limits. These soil samples reported low total PFAS concentrations (**Table 2d**) compared to soil samples collected from other agricultural fields associated with industrially impacted biosolids from other municipal WWTPs with significant industrial sources.

The TOC analytical results ranged from non-detect (< 110) to 20,000 mg/Kg. TOC was below detectable limits at sample JU02-DU1. The maximum TOC value is associated with JU02-DU2 and the Lenawee silty clay loam. **Table 4d** summarizes the soil PFAS and TOC data by DU, and **Figures 3d-1, 3d-2** show the total PFAS concentration and soil classification for each sample.

6. Surface Water

Within Sites JW01, FC01, MC01, RG02, RG03, JU02 and VG02, 22 surface water samples, three (3) perched water samples, and nine (9) tile drain water samples were collected. Surface water samples were collected from nearby creeks and drains. Due to excessive wet conditions on the field, standing water was available for sampling and noted as “PEW” for perched water instead of “SW” for surface water. Tile drain samples were collected and noted as “TD” in its sample ID nomenclature. The analytical results and sampling descriptions are detailed below.

6.1 Gaylord Site 30N02W07-JW01

There are no surface water bodies on Site JW01 or RW02. A single perched water sample was collected at Site JW01 from standing water located centrally within the field. The analytical results are summarized in the table below and attached in **Table 3a** and **Figure 4a**.

Surface Water Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
PEW011904171220MK	4/17/2019	JW01-PEW01	12.51	< 1.99	1.67

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

The single perched water sample collected was below the Rule 57 WQS for PFOS (12 ng/L) and PFOA (12,000 ng/L) (**Section 9**). PFOA concentrations were below detection limits, and PFOS concentrations reported as 1.67 ng/L (**Table 3a**).

6.2 Jackson Sites 01S01E11-FC01, 01S01E02-MC01

Four (4) surface water samples were collected from Site FC01. The four (4) samples were taken at the following locations: the southeast corner of the field, along the Cahaogan Creek near the northeast and southeast edges of the Site, and along the creek near the northwest edge of the field. Two (2) surface water samples and one (1) tile drain sample were collected from Site MC01. The surface water samples were collected at the northern tip of the field, and along the Cahaogan Creek approximately 1,200 feet east of the northern tip of Site MC01. The single tile drain sample was collected centrally along the eastern edge of Site MC01. No surface water, perched water, or tile drain samples were collected from Site MT01. The analytical results are summarized in the table below and attached in **Table 3b** and **Figure 4b**.

Surface Water Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SW011904101150MK	4/10/2019	FC01-SW01	**2.25**	< 2.02	< 2.02
SW021904101335MK	4/10/2019	FC01-SW02	**3.70**	< 2.02	< 2.02
SW031904101145MK	4/10/2019	FC01-SW03	**3.56**	< 2.10	< 2.10
SW041904101325MK	4/10/2019	FC01-SW04	**25.10**	**2.10**	< 1.98
SW011904101030MK	4/10/2019	MC01-SW01	**30.1**	**3.32**	< 1.87
SW021904101100MK	4/10/2019	MC01-SW02	**2.30**	< 2.07	< 2.07

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

Tile Drain Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
TD011904101125MK	4/10/2019	MC01-TD	**9.52**	< 2.12	< 2.12

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

The six (6) surface water samples and single tile drain sample collected at Sites FC01 and MC01 all reported values below the Rule 57 WQS for PFOS (12 ng/L) and PFOA (12,000 ng/L) (**Section 9**). All samples reported non-detectable values of PFOS, and only two (2) samples reported values of PFOA, at 2.10 and 3.32 ng/L. All samples collected resulted in relatively low total PFAS, ranging from 3.56 to 30.1 ng/L. Samples FC01-SW04 and MC01-SW01 detected the highest total PFAS, with concentrations of 25.10 and 30.1 ng/L (**Table 3b**).

6.3 Midland Sites 13N02E15-RG02, 13N02E21-RG03

Three (3) surface water samples and a single tile drain sample were collected from Site RG02. The first and second surface water samples were collected near the northwest and northeast edge of Site RG02 along the Cron Drain. The third surface water sample was collected from the southeast edge of the field, along the nearby creek. The single tile drain was sampled near the second surface water sample, to the northeast of Site RG02 along the Cron Drain. At Site RG03, four (4) surface water, one (1) perched water, and seven (7) tile drain samples were collected. The single perched water sample was collected along the eastern edge of the Site. All surface water and tile drain samples were taken along the Franklin Drain which runs from the southwest to the northeast through the field. The analytical results are summarized in the tables below and attached in **Table 3c** and **Figure 4c-1, 4c-2**.

Surface Water Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
SW011904161440RL	4/16/2019	RG02-SW01	**2.07**	< 2.22	< 2.22
SW021904161350MK	4/16/2019	RG02-SW02	< 2.20	< 2.20	< 2.20
SW031904161450RL	4/16/2019	RG02-SW03	**6.87**	< 2.31	< 2.31
PEW011904161300RL	4/16/2019	RG03-PEW01	**6.29**	< 2.43	< 2.43
SW011904161115RL	4/16/2019	RG03-SW01	**24.81**	**3.76**	**3.08**
SW021904161310RL	4/16/2019	RG03-SW02	**23.62**	**3.03**	**1.57**
SW031904161230RL	4/16/2019	RG03-SW03	**7.43**	< 2.23	< 2.23
SW041904161235RL	4/16/2019	RG03-SW04	**18.76**	**2.81**	< 2.30

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

Tile Drain Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
TD011904161345MK	4/16/2019	RG02-TD	< 2.21	< 2.21	< 2.21
TD011904161125RL	4/16/2019	RG03-TD01	< 2.20	< 2.20	< 2.20
TD021904161130RL	4/16/2019	RG03-TD02	< 2.18	< 2.18	< 2.18
TD031904161135RL	4/16/2019	RG03-TD03	**39.0**	< 2.23	< 2.23
TD041904161140RL	4/16/2019	RG03-TD04	**58.1**	< 2.19	< 2.19
TD051904161145RL	4/16/2019	RG03-TD05	< 2.28	< 2.28	< 2.28
TD061904161250RL	4/16/2019	RG03-TD06	**36.2**	< 2.22	< 2.22
TD071904161255RL	4/16/2019	RG03-TD07	**21.1**	< 2.22	< 2.22

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

All surface water, perched water and tile drain samples collected were below the Rule 57 WQS for PFOS (12 ng/L) and PFOA (12,000 ng/L) (**Section 9**). The surface water samples with the highest total PFAS concentrations were at RG03-SW01 and RG03-SW02, with values of 24.81 and 23.63 ng/L. The tile drain sample collected at RG03-TD04 reported the highest total PFAS detection, at 58.1 ng/L (**Table 3c**).

6.4 South Huron Valley (SHVUA) Sites 05S09E10-JU02, 04S08E24-VG02

Five (5) surface water samples and a single perched water sample were collected from Site JU02. Three (3) of the surface water samples were collected along the northern edge of the field, and the remaining two (2) were collected on the southern edge, along the Wagner Drain. The single perched water sample was collected on the southwest corner of the field. At Site VG02, four (4) surface water samples were collected: two (2) along the North Branch Swan Creek that flows along the western edge of the field, and one (1) each on the southeast and northeast corners of the field. The analytical results are summarized in the table below and attached in **Table 3d** and **Figure 4d-1, 4d-2**.

Surface Water Sample ID	Sample Date	Field Site	Total PFAS[1]	PFOA[1]	PFOS[1]
PEW011904120925MK	4/12/2019	JU02-PEW01	**346.4**	**52.7**	**2.01**
SW011904120955MK	4/12/2019	JU02-SW01	**2.01**	< 2.07	< 2.07
SW021904120945MK	4/12/2019	JU02-SW02	**5.49**	< 2.08	< 2.08
SW031904120805MK	4/12/2019	JU02-SW03	**2.95**	< 2.12	< 2.12
SW041904120915MK	4/12/2019	JU02-SW04	**29.54**	**3.04**	< 2.18
SW051904120905MK	4/12/2019	JU02-SW05	**55.2**	**5.87**	< 2.14
SW011904121130MK	4/12/2019	VG02-SW01	**8.99**	< 2.08	< 2.08
SW021904121145MK	4/12/2019	VG02-SW02	**45.7**	**4.17**	**4.05**
SW031904121215MK	4/12/2019	VG02-SW03	**10.15**	< 2.06	< 2.06
SW041904121155MK	4/12/2019	VG02-SW04	**43.95**	**4.01**	**5.39**

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

All nine (9) surface water samples and the single perched water sample were below Rule 57 WQS for PFOS (12 ng/L) and PFOA (12,000 ng/L) (**Section 9**). The highest total surface water PFAS concentration was detected in the surface water sample VG02-SW02, at 45.7 ng/L. The single perched water sample detected a noticeably higher total PFAS concentration, at 346.4 ng/L (**Table 3d**).

7. QA/QC Results

Laboratory reports for soil, surface water, perched water, and tile drain samples for the Gaylord WWTP (1900815), Jackson WWTP (1900729), Midland WWTP (1900814) and SHVUA WWTP (1900760) from Vista Analytical Laboratories and soil (TOC) laboratory reports J179559, J179735 and J180141 from Test America/Eurofins Laboratories were subjected to data quality review (**Appendix B).** 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 of the results were considered usable.

8. Investigation-Derived Waste (IDW)

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

- Disposable material such as personal protective equipment (PPE), sampling equipment, etc.
- Decontamination water

Minimally contaminated disposable sampling materials and PPE were containerized and disposed of as ordinary solid waste. Decontamination water was discharged to the ground surface away from where soil sampling occurred.

9. Pathway and Receptors Evaluation

An exposure pathway includes five 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 water quality values or soil screening values. Potentially complete groundwater exposure pathways associated with Gaylord, Jackson, Midland and SHVUA Sites 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
  - Hexafluoropropylene oxide dimer acid (HFPO-DA) 370 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 all Sites 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

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

Potentially complete soil exposure pathways associated with all Sites 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

9.1 Surface Soil Evaluation

On-site farm workers may encounter surficial soils with detectable PFAS concentrations; however, no Part 201 direct contact criteria have been established for any PFAS compounds, including PFOS and PFOA. 10 of the soil samples collected between all Sites (Gaylord, Jackson, Midland and SHVUA WWTP related fields) resulted in non-detectable values for PFAS. The remaining samples resulted in relatively low total PFAS values ranging from 0.812 to 11.44 µg/Kg. The highest total PFAS values are associated with sample locations FC01-DU1 and FC01-DU2, with 11.44 and 10.74 µg/Kg. All soil samples collected resulted in relatively low total PFAS concentrations (**Tables 2a-2d**) compared to soil samples collected from other agricultural fields associated with industrially impacted biosolids from other municipal WWTPs with significant PFAS sources.

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.

9.2 Surface Water, Perched Water and Tile Drain Evaluation

PFAS concentrations were detected in all water samples (i.e. surface water, perched water, and tile drains) collected at the Gaylord, Jackson and SHVUA Sites, and 11 out of 16 samples collected from the Midland Sites (**Tables 3a-3d**). Only two (2) of the samples collected at the Jackson Sites, five (5) of the samples collected at the Midland Sites, and five (5) of the samples collected at the SHVUA Sites reported detectable values of PFOA, ranging from 2.10 to 52.7 ng/L. Rule 57 WQS for PFOA (12,000 ng/L) was not exceeded in any samples. The single perched water sample collected from the Gaylord Sites, two (2) of the samples from the Midland Sites, and three (3) of the samples from the SHVUA Sites reported detectable values of PFOS, ranging from 1.57 to 5.39 ng/L. Rule 57 WQS for PFOS (12 ng/L) was not exceeded in any of the samples.

10. Summary and Discussion

AECOM conducted a field investigation to determine the impact, if any, from the land application of biosolids containing relatively low levels of PFAS concentrations from the Gaylord, Jackson, Midland and SHVUA WWTPs. 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 Sites JW01, RW01, FC01, MC01, MT01, RG02, RG03, JU02 and VG02 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 and surface water (including perched water and tile drains) sampling results indicate low PFAS in the surficial soil, however medium to high PFAS concentrations in the surface water matrices, due to the land applications of biosolids (**Table 2a-2d**, and **Table 3a-3d)**. PFAS were detected in 11 of the 21 surface soil samples, 24 of 25 surface/perched water locations, and five (5) of the nine (9) tile drain samples. The laboratory reports are included in **Appendix B**.

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 the low micrograms per kilogram (µg/Kg) or parts per billion (ppb) range. For the aqueous phase (i.e., surface water, tile drains, and groundwater), the detection limits are in the low 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 very low 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.

10.1 Soil

Based on EGLE's assessment of WWTPs, long-chain PFAS (e.g., PFOS and PFOA) are accumulating at higher concentrations in sludge and biosolids; as a result, less short-chain PFAS are expected to be present in the land-applied biosolids when compared to long-chain PFAS. The short-chain PFAS compounds PFBA, PFHxA, PFHpA, PFBS and PFPeS were not detected in any of the soil samples across all sites, supporting the mobility of short-chain PFAS in the environment and their typical low detections in soil. The soil results indicated the highest PFAS compound concentration detected was PFOS (a long-chain PFAS), varying from 1.05 to 7.97 µg/Kg across all Sites, which supports the lack of mobility of long-chain PFAS in the environment. Long-chain PFAS compounds are known to adsorb more strongly to fine particles such as silt and clay, which contain more TOC. Due to lower PFAS values across all Sites (including long-chain PFOS and PFOA), the correlation is not as strong between TOC and PFAS. A discussion about the PFAS concentrations in surface water, perched water, and tile drains in relation to the soil samples is provided in **Section 10.2** below.

10.2 Surface Water

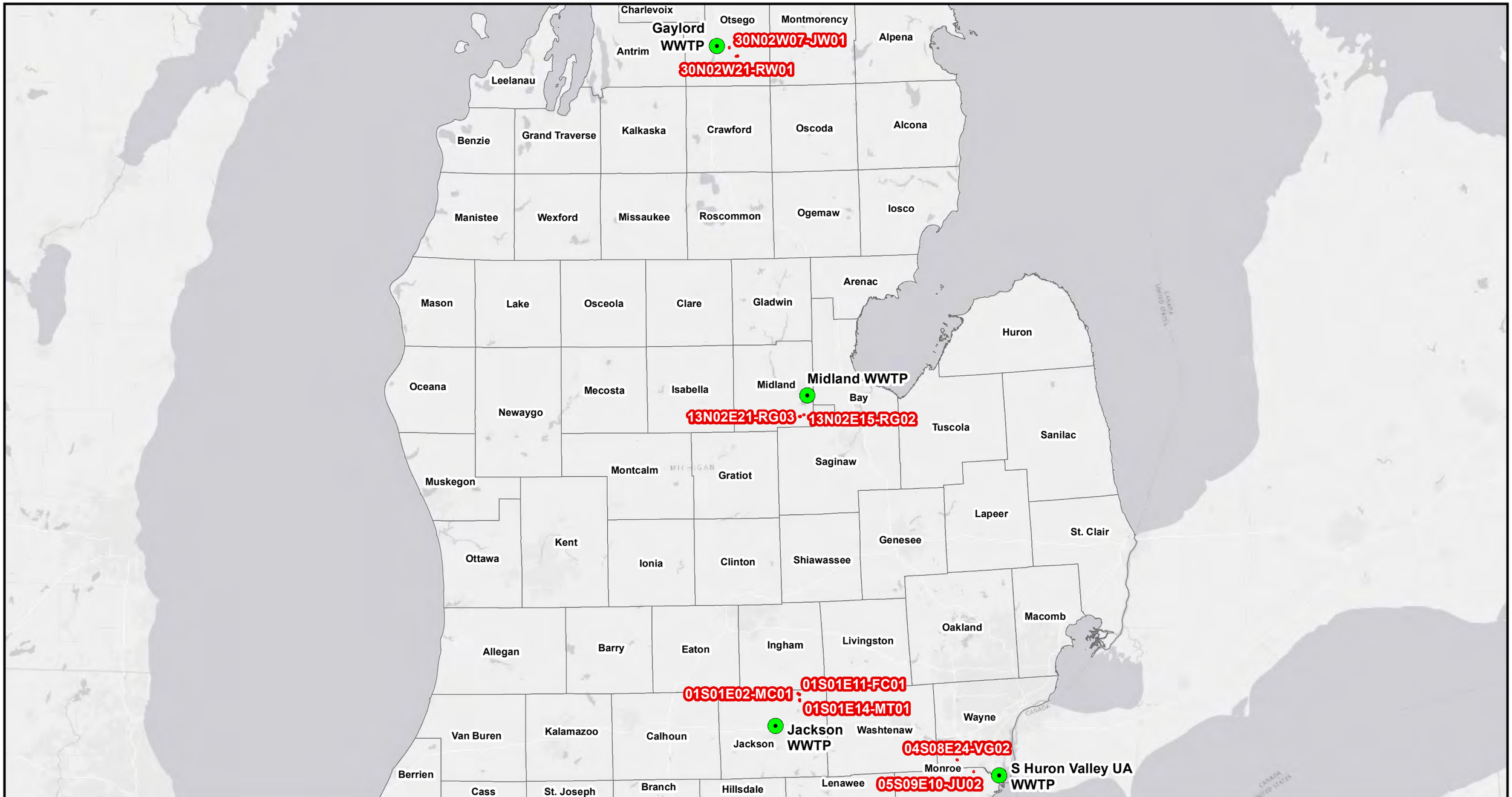
PFAS concentrations detected in surface water are likely related to surface runoff and potential discharge of shallow groundwater into the surface water body. Rule 57 WQS was not exceeded

for PFOA and PFOS in any surface water, perched water or tile drain samples collected from the Gaylord, Jackson, Midland and SHVUA Sites. The lack of PFOA and PFOS exceedances supports the limited mobility of long-chain PFAS into surface water bodies. Short-chain PFAS are more mobile in the environment and are expected to be more frequently detected in aqueous matrices such as surface water, perched water and tile drain samples. In 29 of the 34 total aqueous samples collected across all Sites, one (1) of the short-chain PFAS compounds, either PFBA or PFBS, was detected depending on the sample. The absence of short-chain PFAS in the soil samples (mentioned above in **Section 10.1**), and the majority of aqueous samples containing PFBA or PFBS shows significant movement of short-chain PFAS from the biosolids through the soil and to the surface water bodies.

The highest total PFAS concentration was reported from the SHVUA Site perched water sample JU02-PEW01, at 346.4 ng/L, located in the southern region of the field near the Wagner Drain. This detection appears to be an outlier of the data, as the remaining surface water (including perched water and tile drain) samples reported total PFAS varying from 2.01 to 55.2 ng/L. This high concentration of total PFAS from the southern region of Site JU02 could be explained by the higher TOC content in that region. The soil sample from JU02-DU2 reported 20,000 mg/Kg TOC. Long-chain PFAS compounds (such as PFOA and PFOS), are known to adsorb more strongly to fine particles such as silt and clay, which contain more TOC. The perched water sample JU02-PEW01 also detected a higher PFOA concentration of 52.7 ng/L. The high total PFAS concentration in this perched water sample may be due to the stagnant water collected in a high TOC concentrated area, and lack of flow to mobilize the PFAS compounds further downgradient.

Excluding the sample from JU02-PEW01, the remaining samples collected do not show a significant environmental impact on the adjacent soils and surface waters from the land-application of biosolids at the Gaylord, Jackson, Midland and SHVUA WWTP Sites.

Figures



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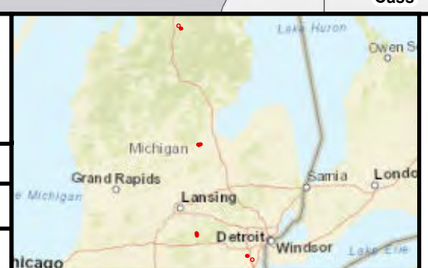

Legend

- Waste Water Treatment
- Biosolids Application

N

0 60 120 Miles

FIGURE 1
GAYLORD, JACKSON, MIDLAND, AND SOUTH HURON VALLEY BIOSOLIDS APPLICATION FIELDS OVERVIEW

MICHIGAN

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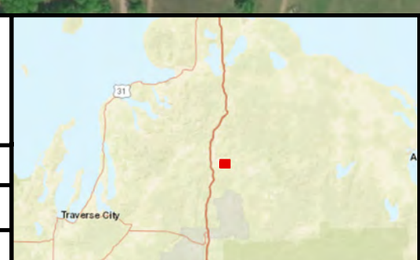

Legend

- Biosolids Application Field
- Soil Type
- 50' x 50' Sampling Grid
- Purge Water Sample

N

0 240 480 720 960 1,200 2,400 Feet

FIGURE 2a-1
30N02W07-JW01
SAMPLING LOCATIONS

GAYLORD, MI

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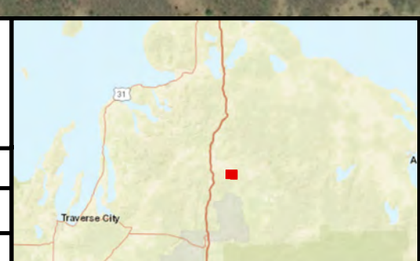

Legend

- Biosolids Application Field
- 50' x 50' Sampling Grid
- Soil Type

N

0 300 600 900 1,200 1,500 3,000 Feet

FIGURE 2a-2
30N02W21-RW01
SAMPLING LOCATIONS

GAYLORD, MI

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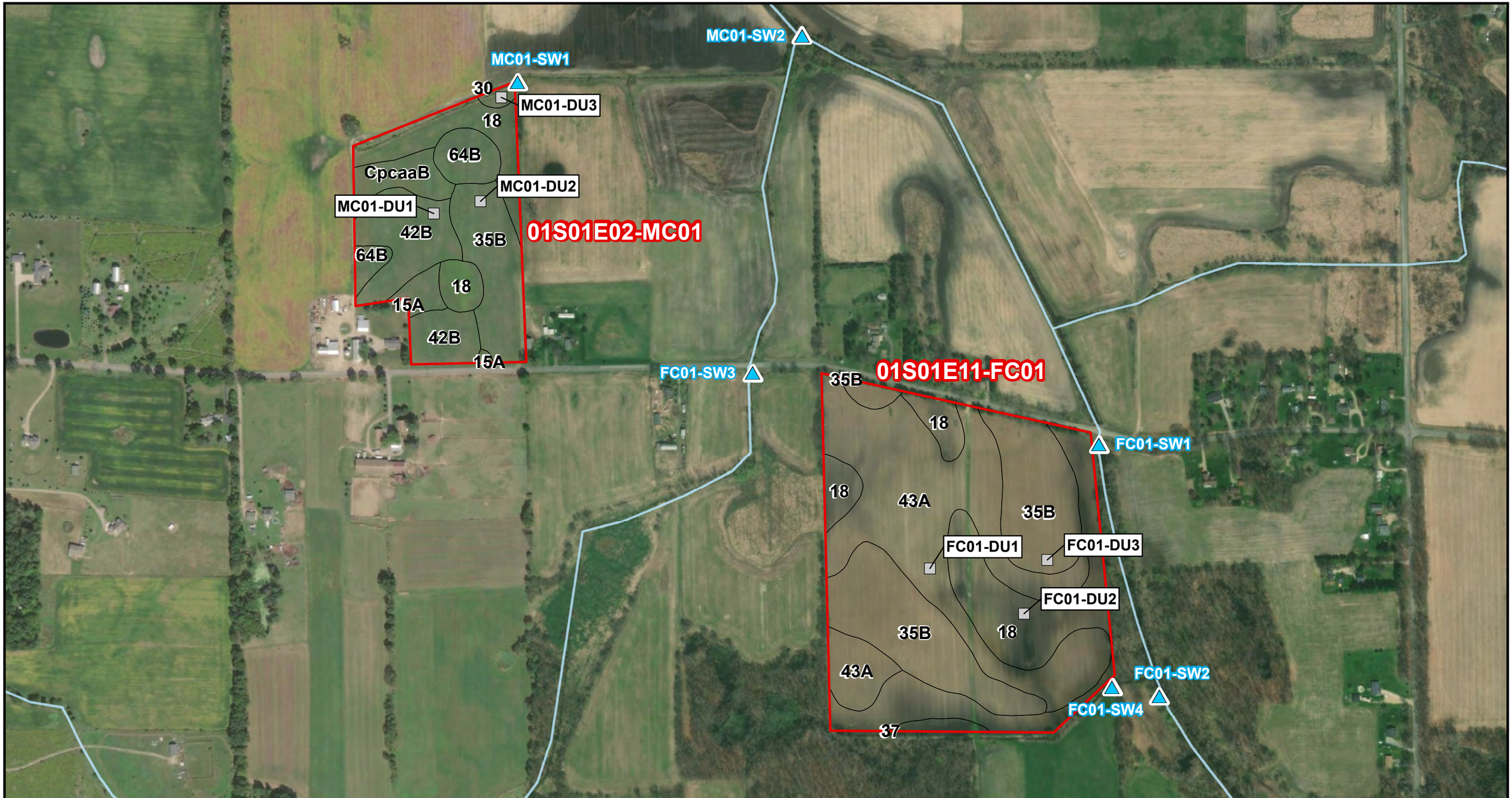

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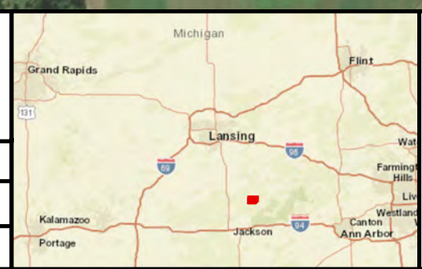

Legend

- Biosolids Application Field
- 50' x 50' Sampling Grid
- Soil Type
- Surface Water Sample

0 200 400 600 800 1,000 2,000 Feet

N

FIGURE 2b-1
01S01E11-FC01 & 01S01E02-MC01
SAMPLING LOCATIONS

JACKSON, MI

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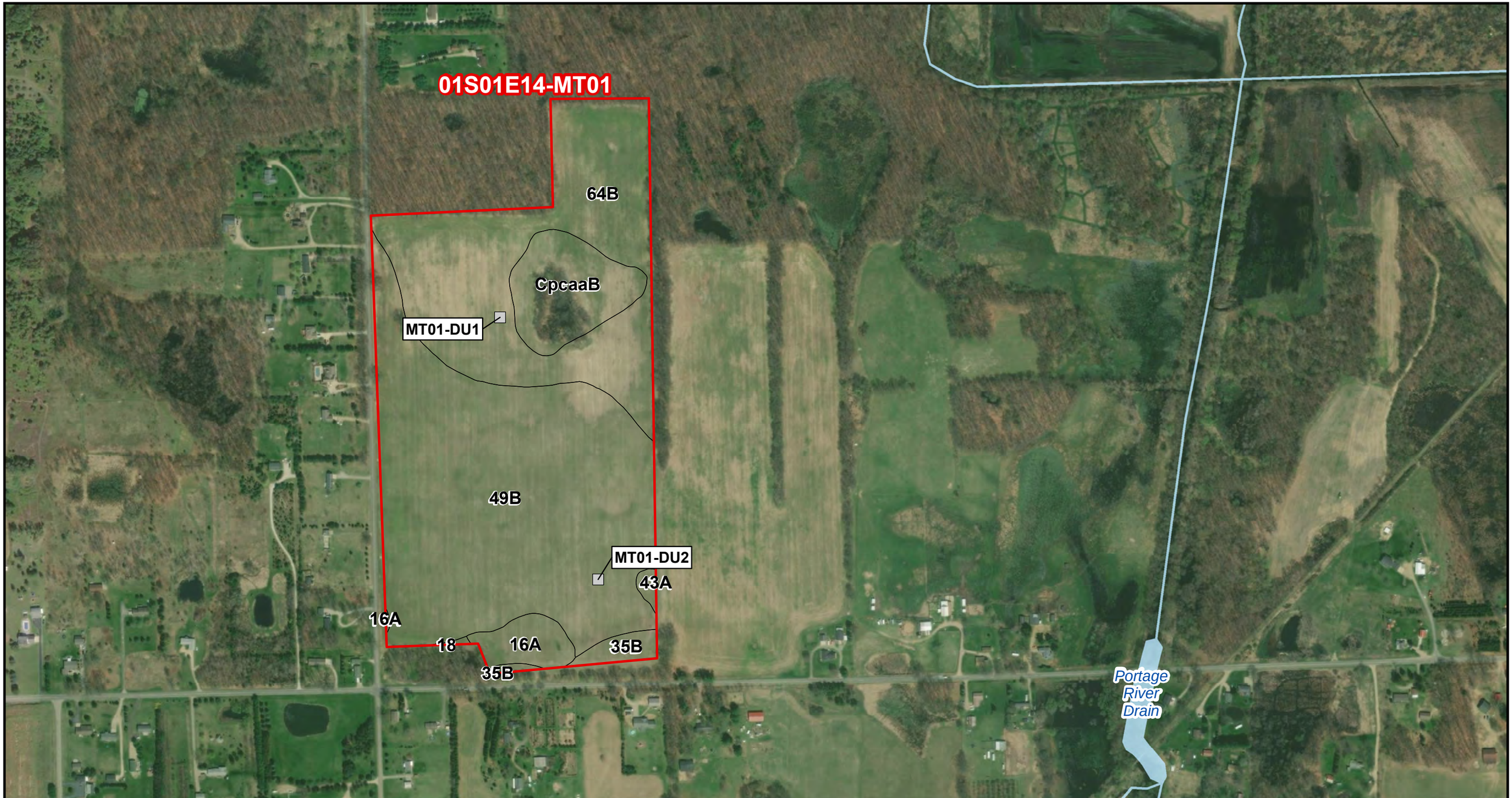

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Project #: 60588767	

Legend

- Biosolids Application Field
- 50' x 50' Sampling Grid
- Soil Type

0 250 500 750 1,000 1,250 2,500 Feet

N

FIGURE 2b-2
01S01E14-MT01
SAMPLING LOCATIONS

JACKSON, MI

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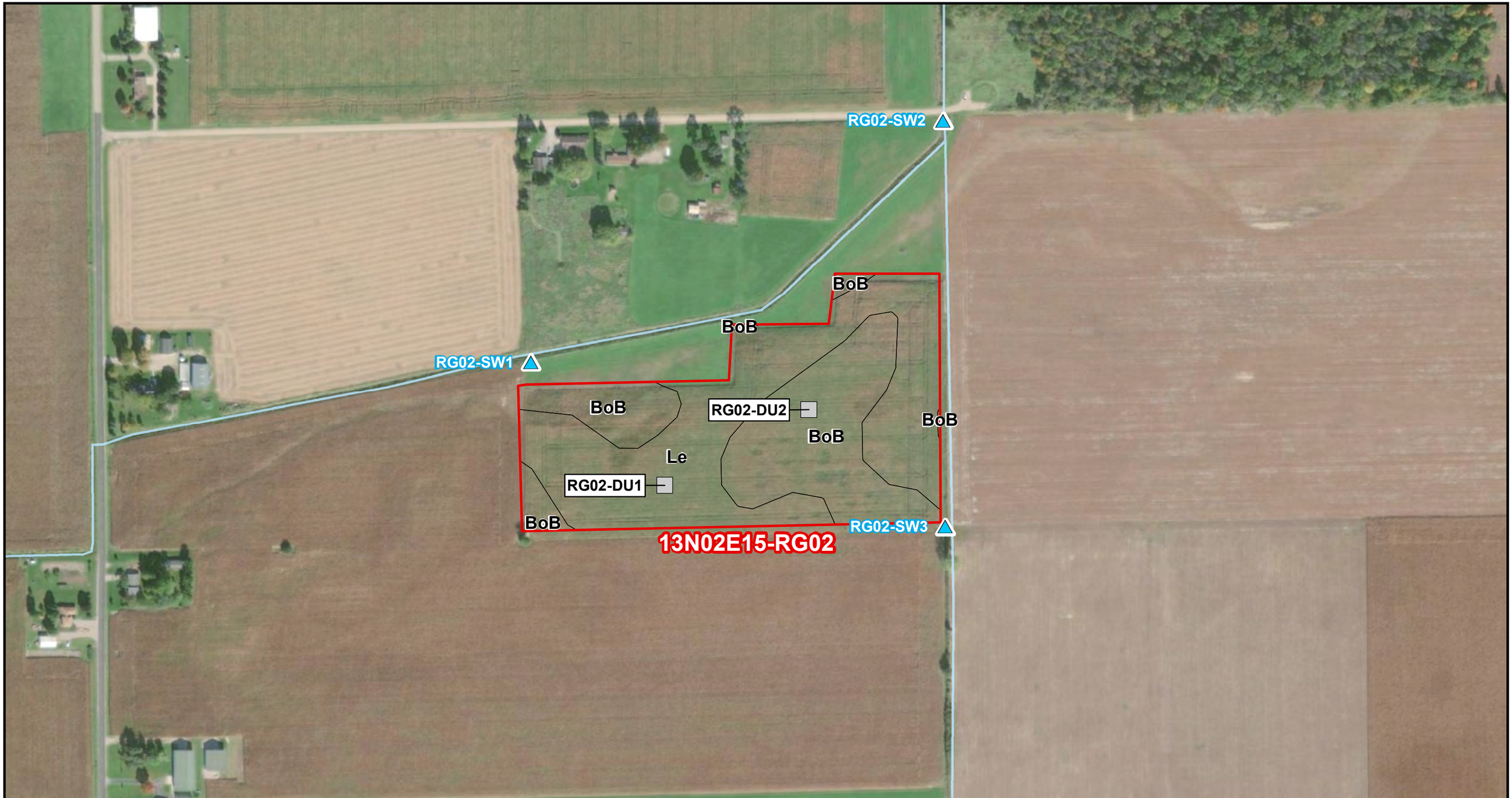

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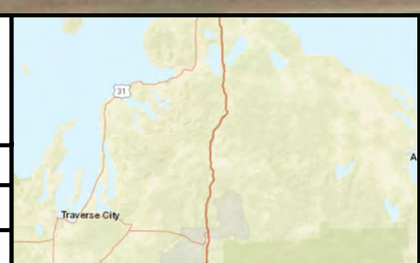

Legend

- Biosolids Application Field
- Surface Water Sample
- 50' x 50' Sampling Grid
- Soil Type

0 150 300 450 600 750 1,500 Feet

N

FIGURE 2c-1
13N02E15-RG02
SAMPLING LOCATIONS

MIDLAND, MI

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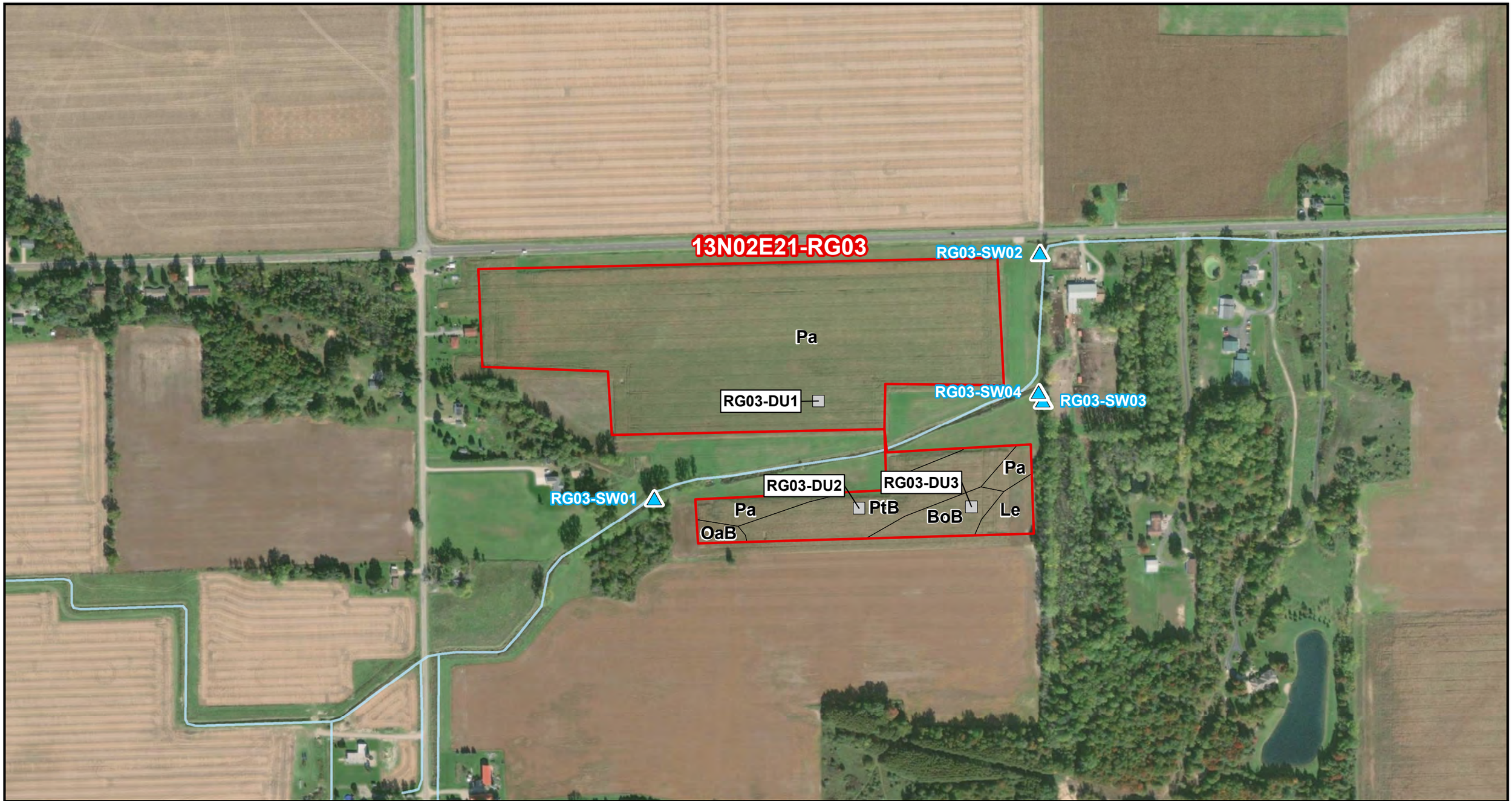

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Approved: DB	Date: 1/20/2021
Project #: 60588767	

Legend

- Biosolids Application Field
- Surface Water Sample
- 50' x 50' Sampling Grid
- Soil Type

0 200 400 600 800 1,000 2,000 Feet

N

FIGURE 2c-2
13N02E21-RG03
SAMPLING LOCATIONS

MIDLAND, MI

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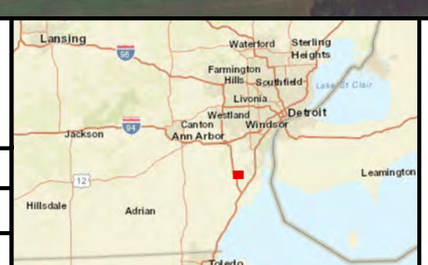
Project #: 60588767



Legend

- Biosolids Application Field
- Surface Water Sample
- 50' x 50' Sampling Grid
- Soil Type

0 200 400 600 800 1,000 2,000 Feet

N

FIGURE 2d-1
05S09E10-JU02
SAMPLING LOCATIONS

S HURON VALLEY, MI

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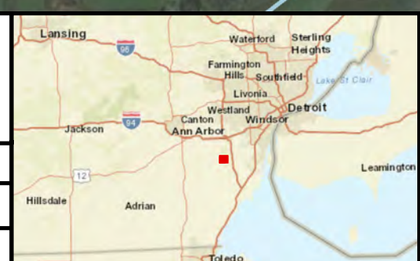

Legend

- Biosolids Application Field
- Surface Water Sample
- 50' x 50' Sampling Grid
- Soil Type

0 150 300 450 600 750 1,500 Feet

N

FIGURE 2d-2
04S08E24-VG02
SAMPLING LOCATIONS

S HURON VALLEY, MI

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AECOM

Drawn: DP	Date: 12/17/2020
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Project #: 60588767	

Legend

50' x 50' Soil Sampling Grid
PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application Field
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

N

0 500 1,000 2,000 Feet

FIGURE 3a-1
30N02W07-JW01
SOIL SAMPLING RESULTS

GAYLORD, MI

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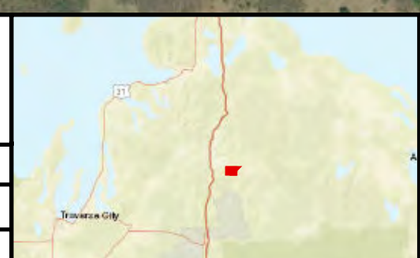

Legend

50' x 50' Soil Sampling Grid
PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application Field
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

N

0 500 1,000 2,000 Feet

FIGURE 3a-2
30N02W21-RW01
SOIL SAMPLING RESULTS

GAYLORD, MI

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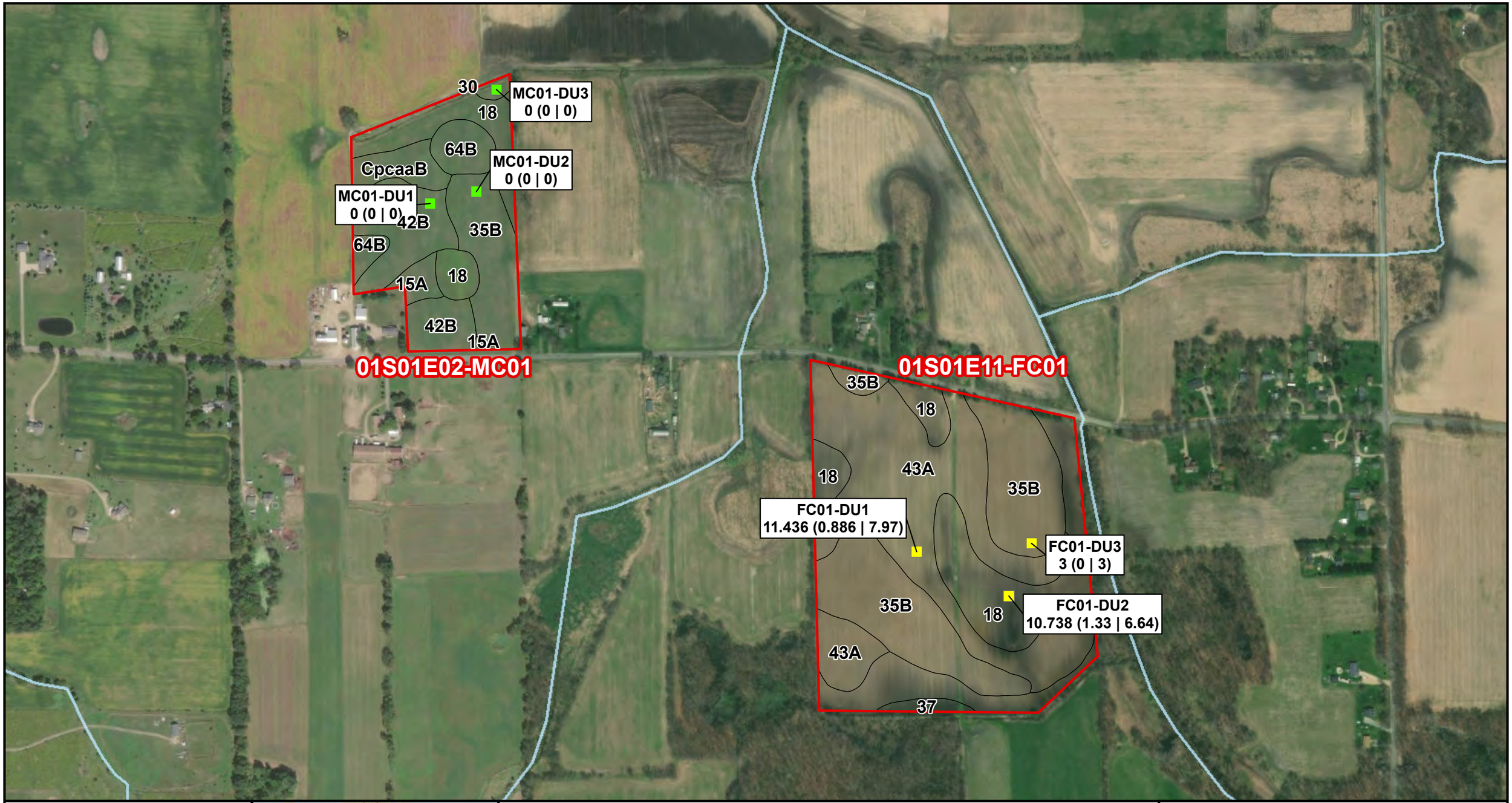

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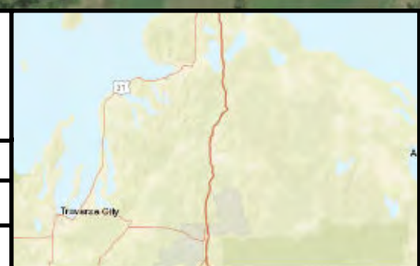

Legend

50' x 50' Soil Sampling Grid

PFOS (ppb)

- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)

*results reported in units of ppb

N

0 420 840 1,680 Feet

FIGURE 3b-1
01S01E11-FC01 & 01S01E02-MC01
SOIL SAMPLING RESULTS

JACKSON, MI

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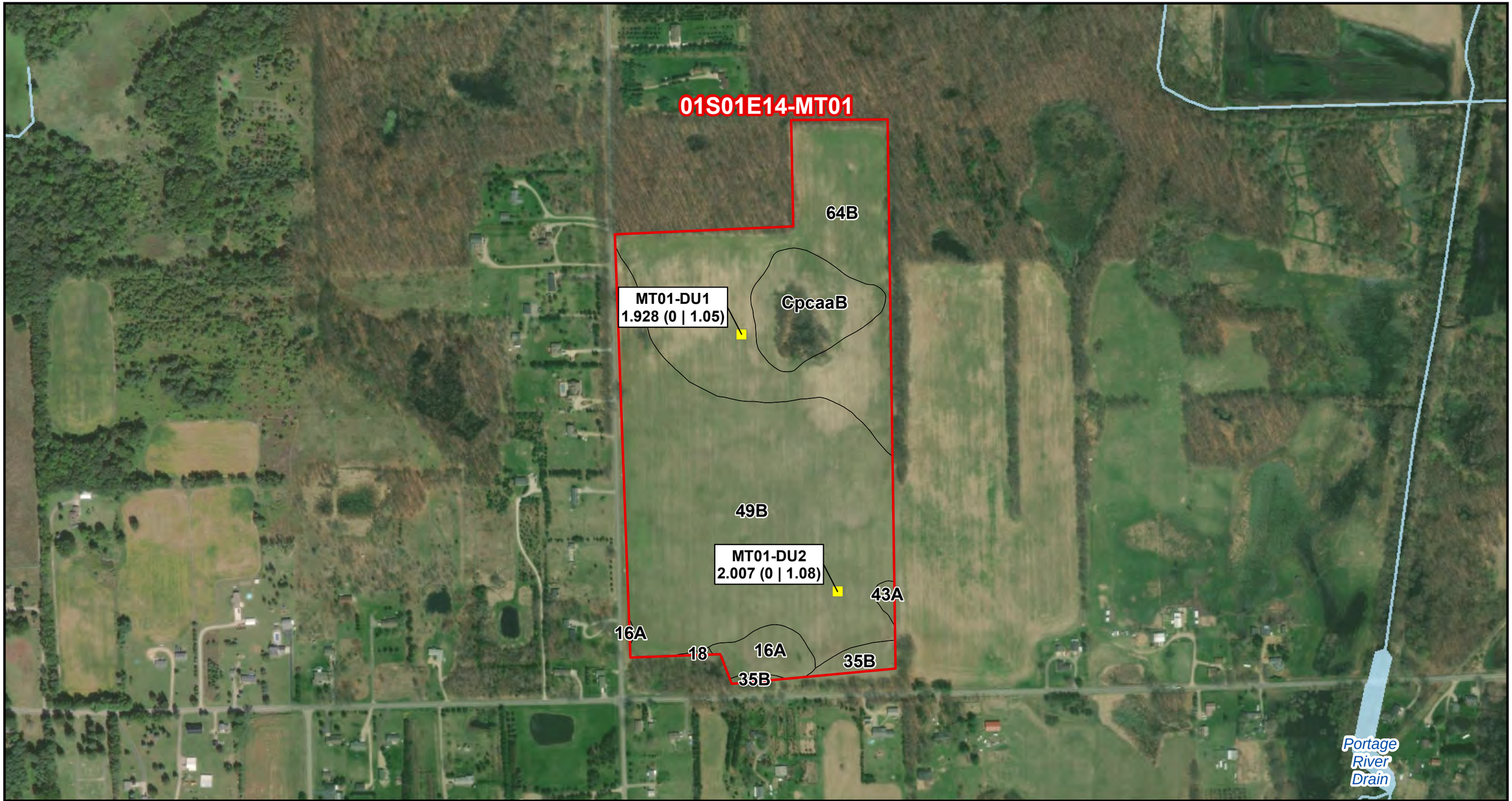

AECOM

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Approved: DB	Date: 12/17/2020
Project #: 60588767	

Legend

50' x 50' Soil Sampling Grid
PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

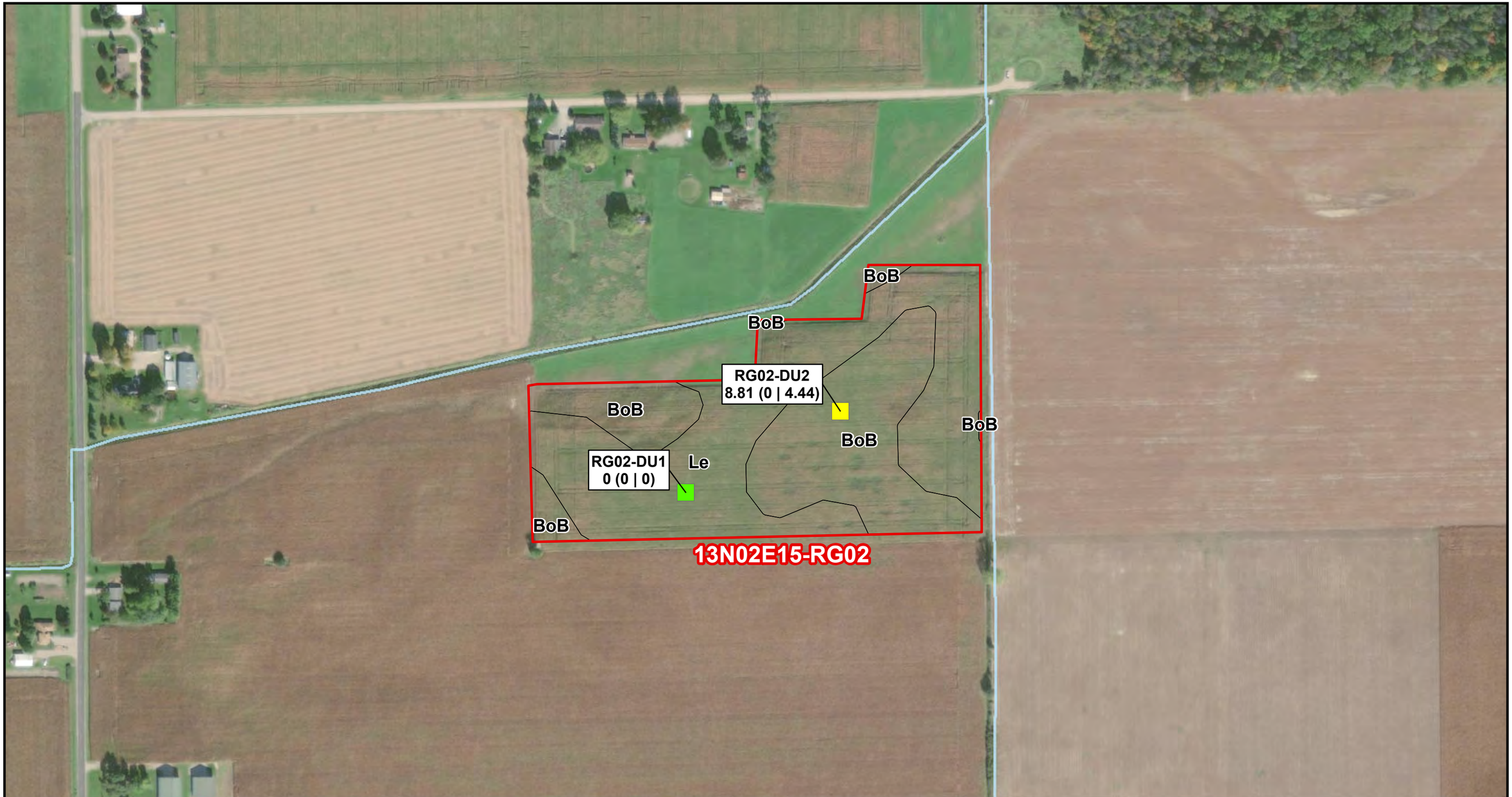
N

0 400 800 1,600 Feet

FIGURE 3b-2
01S01E14-MT01
SOIL SAMPLING RESULTS

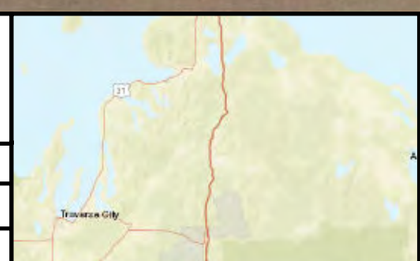
JACKSON, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig3b2_Jackson_01S01E14-MT01_soil_chembox.mxd



AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	



Legend

50' x 50' Soil Sampling Grid
PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

N

0 250 500 1,000 Feet

FIGURE 3c-1
13N02E15-RG02
SOIL SAMPLING RESULTS

MIDLAND, MI

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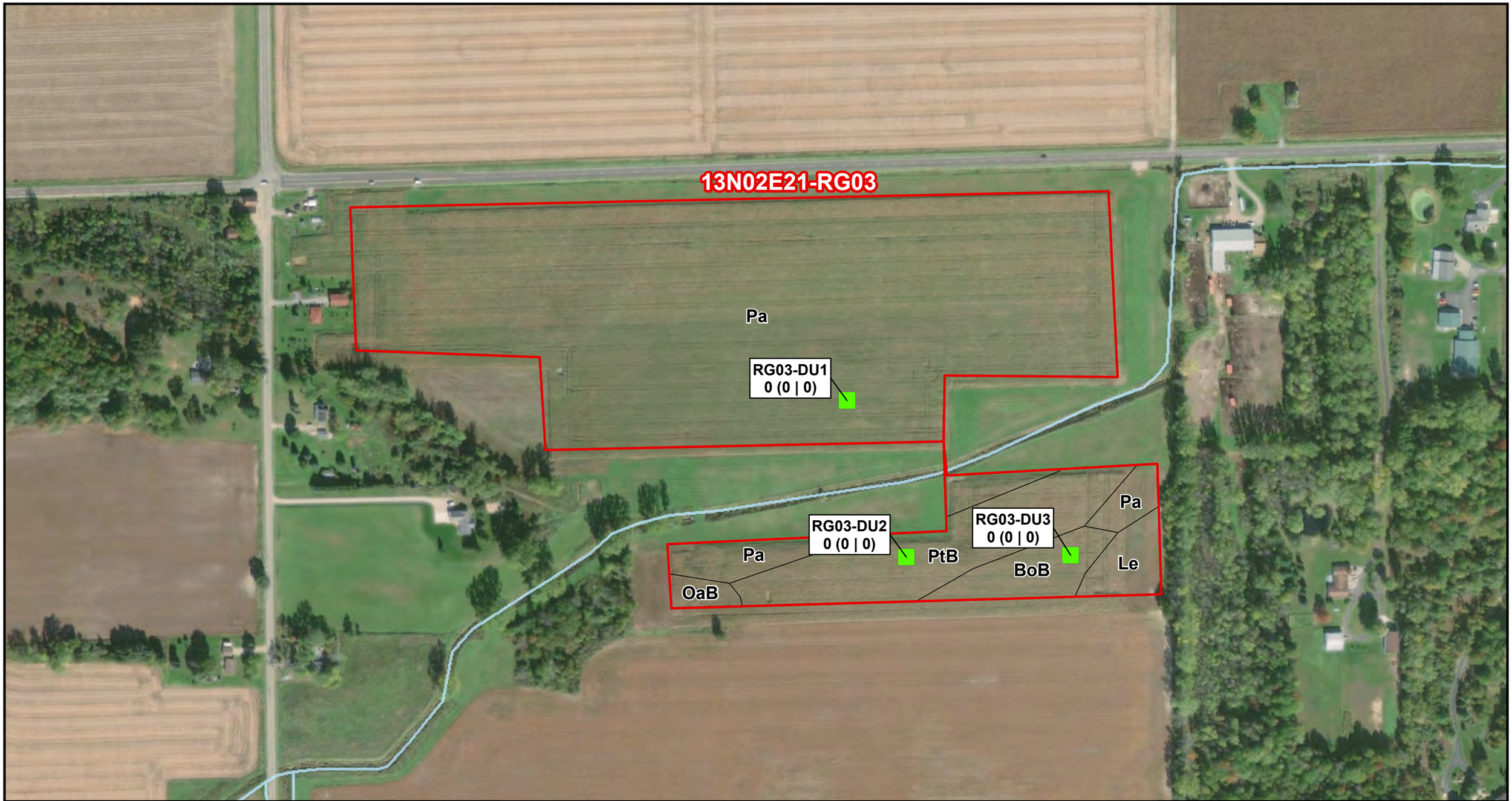

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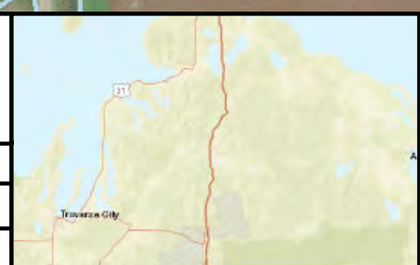
Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	



Legend

50' x 50' Soil Sampling Grid PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

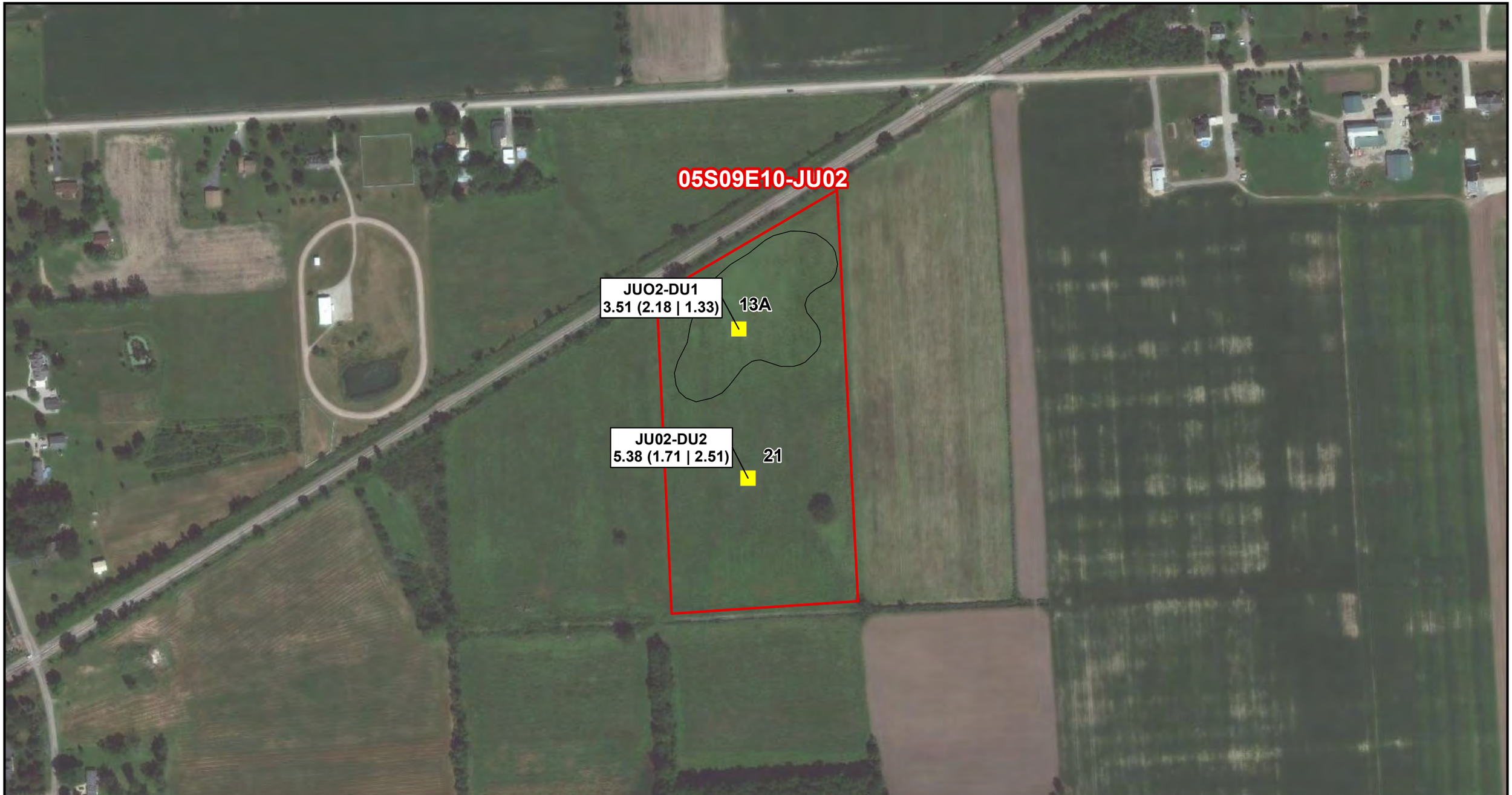
N

0 250 500 1,000 Feet

FIGURE 3c-2
13N02E21-RG03
SOIL SAMPLING RESULTS

MIDLAND, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig3c2_Midland_13N02E21-RG03_soil_chembox.mxd



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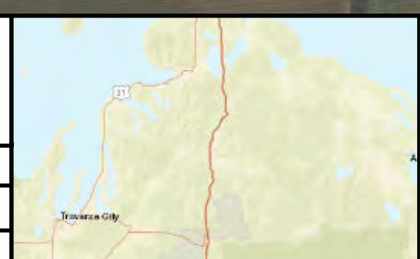
Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	



Legend

50' x 50' Soil Sampling Grid
PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

N

0 275 550 1,100 Feet

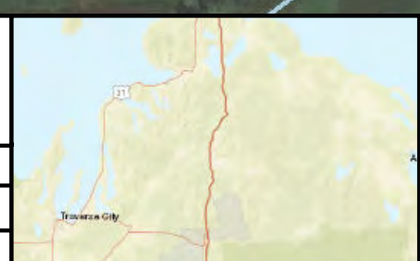
FIGURE 3d-1
05S09E10-JU02
SOIL SAMPLING RESULTS

S HURON VALLEY, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig3d1_SHVUA_05S09E10-JU02_soil_chembox.mxd

AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	



Legend

50' x 50' Soil Sampling Grid
PFOS (ppb)
- Non-Detect
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppb

N

0 250 500 1,000 Feet

FIGURE 3d-2
04S08E24-VG02
SOIL SAMPLING RESULTS

S HURON VALLEY, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig3d2_SHVUA_04S08E24-VG02_soil_chembox.mxd

AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	

Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- >0 - 12
- >12

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppt

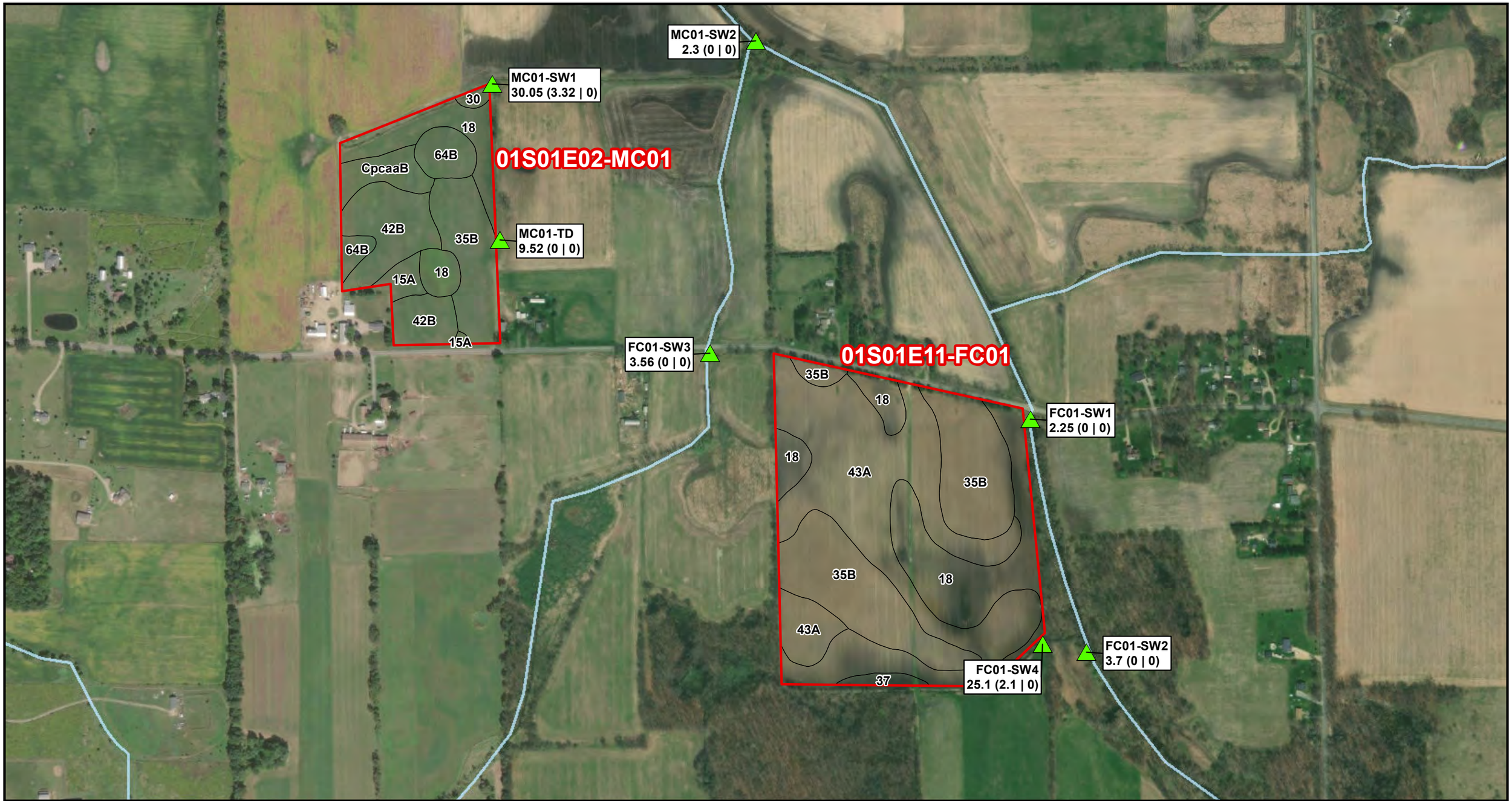
N

0 450 900 1,800 Feet

FIGURE 4a
30N02W07-JW01
SURFACE WATER SAMPLING RESULTS

GAYLORD, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig4a_Gaylord_30N02W07-JW01_SW_Chembox.mxd



AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	

Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- >0 - 12
- >12

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppt

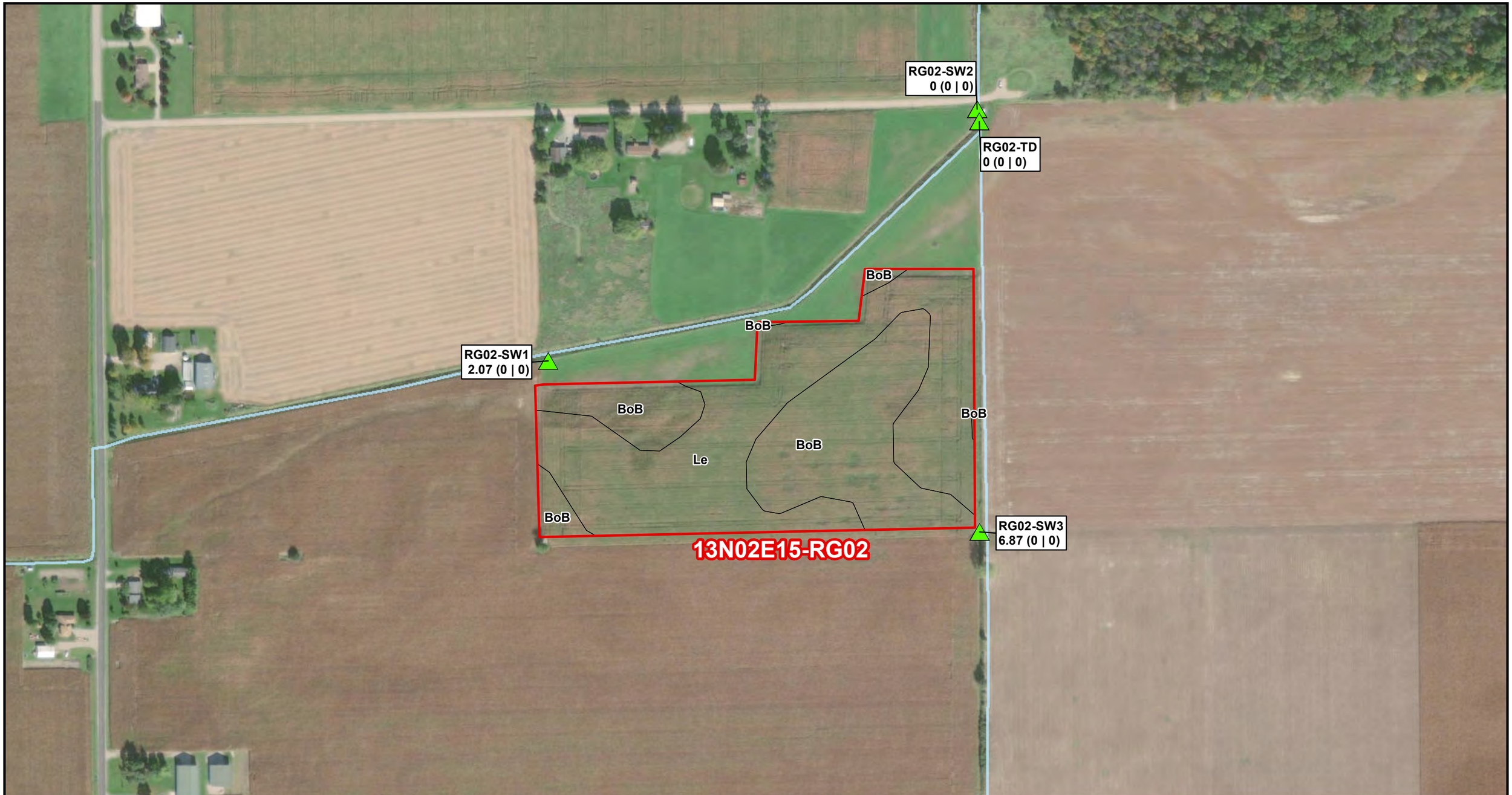
N

0 400 800 1,600 Feet

FIGURE 4b
01S01E11-FC01 & 01S01E02-MC01
SURFACE WATER SAMPLING RESULTS

JACKSON, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig4b_Jackson_01S01E11-FC01_01S01E02-MC01_SW_Chembox.mxd



AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	

Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- >0 - 12
- >12

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppt

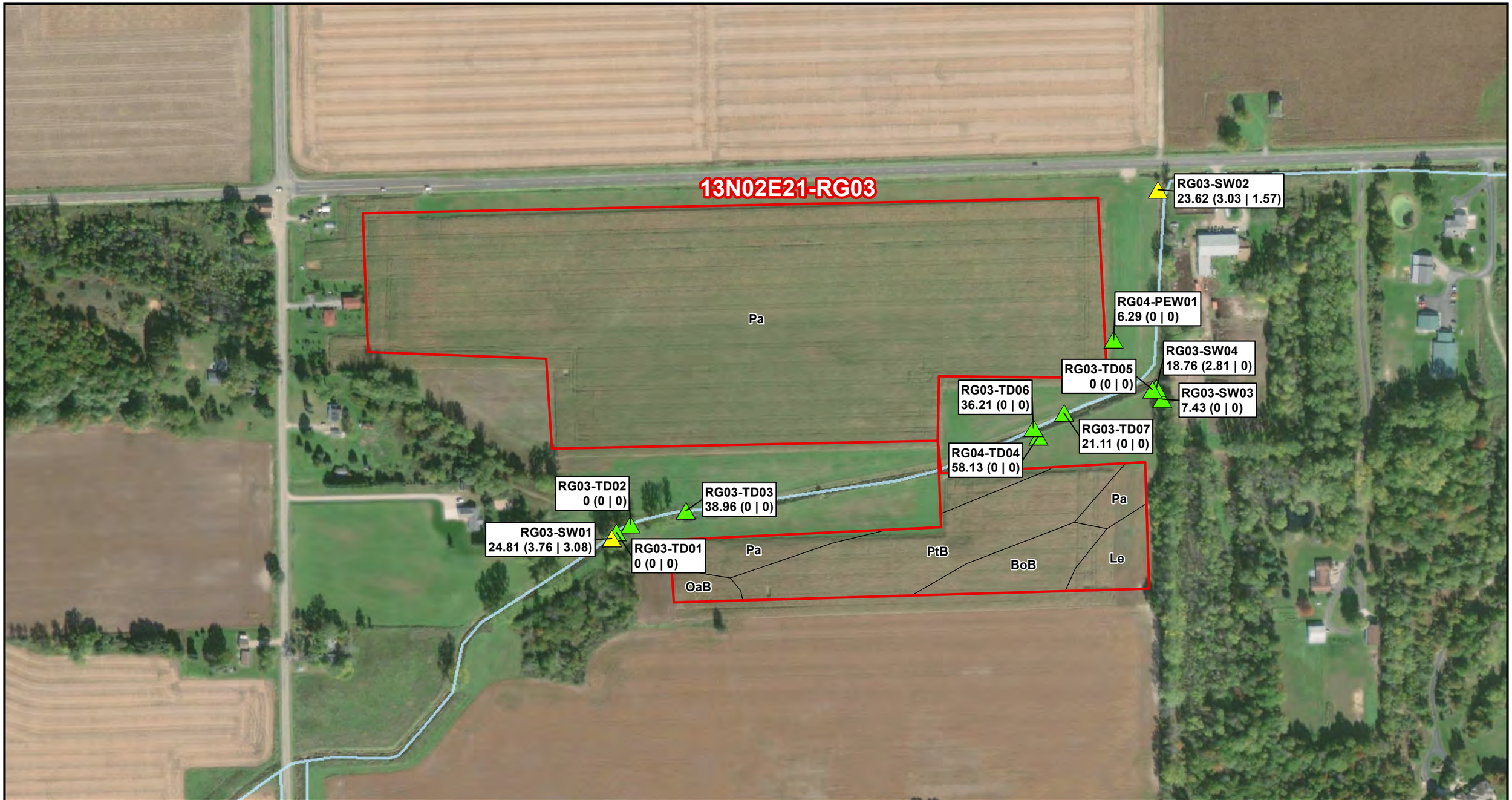
N

0 250 500 1,000 Feet

FIGURE 4c-1
13N02E15-RG02
SURFACE WATER SAMPLING RESULTS

MIDLAND, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig4c1_Midland_13N02E15-RG02_SW_Chembox.mxd



AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	

Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- >0 - 12
- >12

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppt

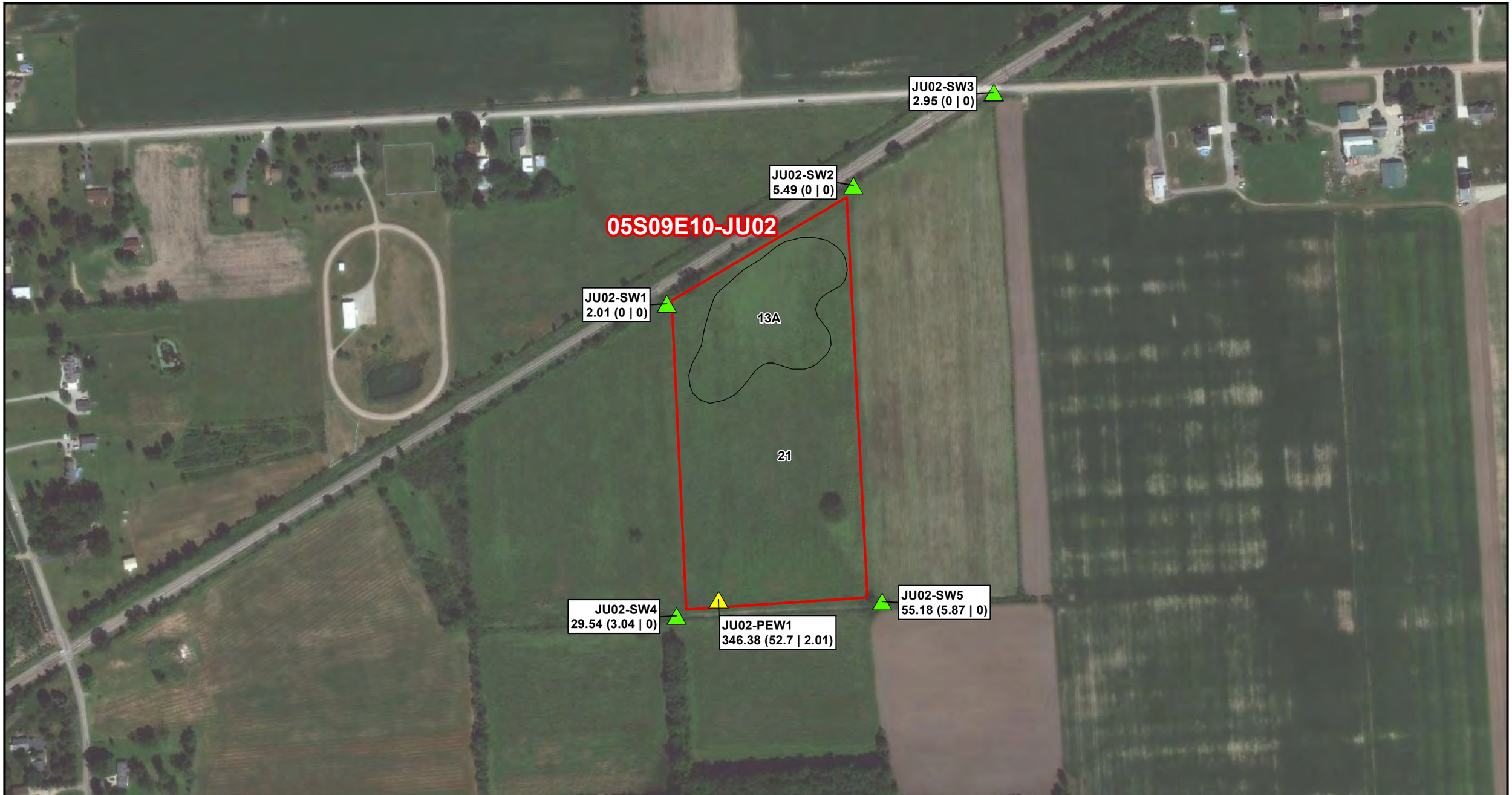
N

0 250 500 1,000 Feet

FIGURE 4c-2
13N02E21-RG03
SURFACE WATER SAMPLING RESULTS

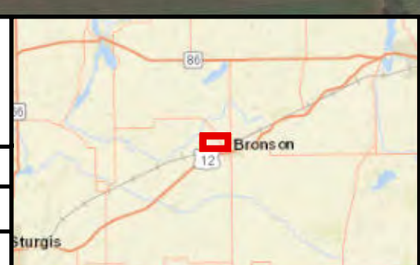
MIDLAND, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig4c2_Midland_13N02E21-RG03_SW_Chembox.mxd



AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	



Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- >0 - 12
- >12

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)
*results reported in units of ppt

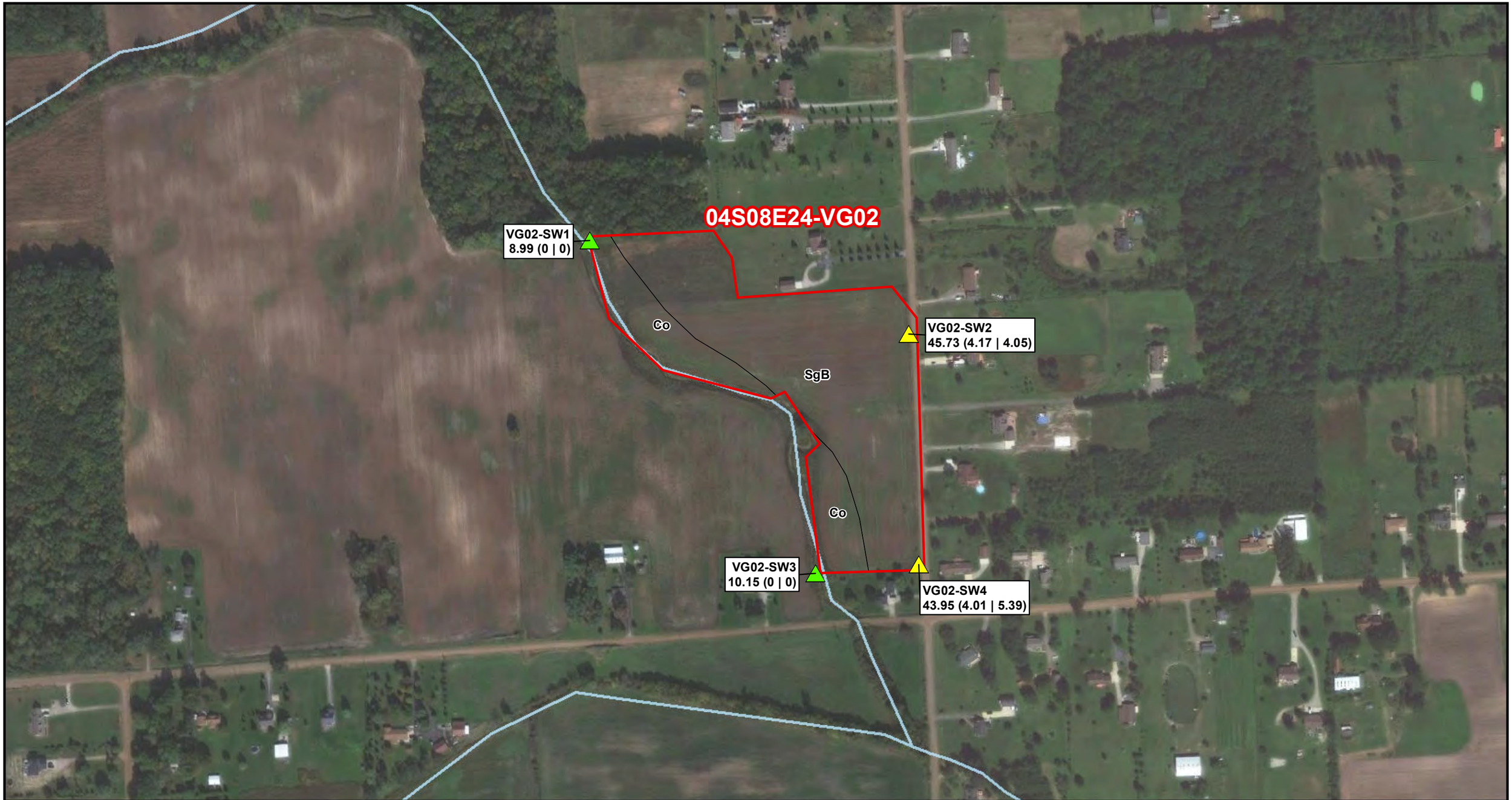
N

0 270 540 1,080 Feet

FIGURE 4d-1
05S09E10-JU02
SURFACE WATER SAMPLING RESULTS

MIDLAND, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig4d1_SHVUA_05S09E10-JU02_SW_Chembox.mxd



AECOM

Drawn: DP	Date: 12/17/2020
Approved: DB	Date: 12/17/2020
Project #: 60588767	

Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- >0 - 12
- >12

- Biosolids Application
- Soil Type

Sample Location
Total PFAS (PFOA | PFOS)

*results reported in units of ppt

N

0 250 500 1,000 Feet

FIGURE 4d-2
04S08E24-VG02
SURFACE WATER SAMPLING RESULTS

MIDLAND, MI

Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Biosolids_MDEQ\MXD\Gaylord_Jackson_Midland_SHVUA\Fig4d2_SHVUA_04S08E24-VG02_SW_Chembox.mxd

Tables

Table 1a-1

Gaylord Parcel ID: 03N02W07-JW01
Biosolids Application Data

Year	Site ID	Dry Ton Land Applied	Acres Used	Acres Approved	Dry Tons /Acre	Dates	Notes
2016	30N02W07-JW01	25.28	16	28	1.58	N/A	--
2015	30N02W07-JW01	18.06	14	28	1.29	N/A	--
2013	30N02W07-JW01	27.36	24	28	1.14	N/A	--
2012	30N02W07-JW01	2.5	25	28	0.1	N/A	--
2012	30N02W07-JW01	26.75	25	28	1.07	N/A	--
2011	30N02W07-JW01	13.53	11	28	1.23	N/A	--
2011	30N02W07-JW01	13.2	8	28	1.65	N/A	--
2010	30N02W07-JW01	28.08	18	28	1.56	N/A	--
2009	30N02W07-JW01	14.88	12	30	1.24	N/A	--
2009	30N02W07-JW01	22.35	15	28	1.49	N/A	--
2008	30N02W07-JW01	76.5	30	30	2.55	N/A	--
2007	30N02W07-JW01	19.2	15	30	1.28	N/A	--
2007	30N02W07-JW01	31.2	15	30	2.08	N/A	--
2006	30N02W07-JW01	57.9	30	30	1.93	N/A	--
2005	30N02W07-JW01	45.6	30	30	1.52	N/A	--
2004	30N02W07-JW01	11.1	30	30	0.37	N/A	--
Total dry tons:		**433**	**Average application rate (dry tons/acre):**		**1.4**		

Table 1a-2

Gaylord Parcel ID: 30N02W21-RW01
Biosolids Application Data

Year	Site ID	Dry Ton Land Applied	Acres Used	Acres Approved	Dry Tons /Acre	Dates	Notes
2015	30N02W21-RW01	13.97	11	55	1.27	N/A	--
2015	30N02W21-RW01	40.68	18	55	2.26	N/A	--
2014	30N02W21-RW01	21	20	55	1.05	N/A	--
2012	30N02W21-RW01	17.4	10	55	1.74	N/A	--
2012	30N02W21-RW01	10.89	9	55	1.21	N/A	--
2011	30N02W21-RW01	30.78	19	55	1.62	N/A	--
2010	30N02W21-RW01	17.36	14	55	1.24	N/A	--
2010	30N02W21-RW01	35.2	20	55	1.76	N/A	--
2009	30N02W21-RW01	30.9	30	55	1.03	N/A	--
2009	30N02W21-RW01 (was RW03)	9.52	7	7	1.36	N/A	--
2008	30N02W21-RW01 (was RW03)	9.59	7	7	1.37	N/A	--
2008	30N02W21-RW01 (was RW02)	10.3	16	16	1.03	N/A	--
2007	30N02W21-RW01 (was RW02)	9.12	16	16	0.57	N/A	--
2006	30N02W21-RW01 (was RW02)	40	16	16	2.5	N/A	--
2005	30N02W21-RW01 (was RW02)	29.28	16	16	1.83	N/A	--
2004	30N02W21-RW01 (was RW02)	8.48	16	16	0.53	N/A	--
2002	30N02W21-RW01	36.9	24	24	2.05	N/A	--
2002	30N02W21-RW01 (was RW02)	15.84	16	16	1.76	N/A	--
2002	30N02W21-RW01 (was RW03)	9.8	7	7	1.4	N/A	--
Total dry tons:		**397**	**Average application rate (dry tons/acre):**		**1.5**		

Table 1b

Jackson Parcel ID: 01S01E02-MC01, 01S01E11-FC01, 01S01E14-MT01
Biosolids Application Data

Year	Site ID	Dry Ton Land Applied	Acres Used	Acres Approved	Dry Tons /Acre	Dates	Notes
2016	01S01E11-FC01	151.8	44	44	3.45	8/5; 8/8-8/11/2016	--
2014	01S01E11-FC01	110	44	94	2.5	10/25; 10/28-10/30; 11/18/2013	--
2011	01S01E11-FC01	136.4	44	94	3.1	N/A	--
2005	01S01E11-FC01	108.68	44	44	2.47	4/12-4/14/2005	--
2005	01S01E11-FC01	32	20	44	1.6	9/30/2005	--
2005	01S01E11-FC01	42.8	20	44	2.14	10/03-10/04/2005	--
2003	01S01E11-FC01	96.04	28	44	3.43	10/24-10/25/2002	--
Total dry tons:		**678**	**Average application rate (dry tons/acre):**		**2.7**		
2017	01S01E02-MC01	648.9	63	63	10.3	11/7-11/10/2016	Applied biosolids that had been dried in a drying bed
Total dry tons:		**648.9**	**Average application rate (dry tons/acre):**		**10.3**		
2018	01S01E14-MT01	265.98	66	66	4.03	4/19-4/20; 4/23-4/26/2018	--
2017	01S01E14-MT01	144.78	38	77	3.81	5/8-5/12/2017	--
2013	01S01E14-MT01	144.95	65	77	2.23	4/4-4/5; 4/8-4/9; 4/15-4/16/2013	--
2010	01S01E14-MT01	193.05	65	77	2.97	5/5-5/7; 5/9; 5/14-5/15; 5/17/2010	--
2007	01S01E14-MT01	179.4	65	65	2.76	9/7/2020	--
Total dry tons:		**928.2**	**Average application rate (dry tons/acre):**		**3.16**		

Table 1c

Midland Parcel ID: 13N02E15-RG02, 13N02E21-RG03

Biosolids Application Data

Year	Site ID	Dry Ton Land Applied	Acres Used	Acres Approved	Dry Tons /Acre	Dates	Notes
2015	13N02E15-RG02	161.37	33	33	4.89	N/A	--
2014	13N02E15-RG02	58.65	17	19	3.45	N/A	--
Total dry tons:		**220.02**	**Average application rate (dry tons/acre):**		**4.17**		
2018	13N02E21-RG03	80.64	32	41	2.52	N/A	--
2016	13N02E21-RG03	81.32	38	41	2.14	N/A	--
2011	13N02E21-RG03	93.21	39	41	2.39	N/A	--
Total dry tons:		**255.17**	**Average application rate (dry tons/acre):**		**2.35**		

Table 1d

SHVUA Parcel ID: 05S09E10-JU02, 04S08E24-VG02

Biosolids Application Data

Year	Site ID	Dry Ton Land Applied	Acres Used	Acres Approved	Dry Tons /Acre	Dates	Notes
2015	05S09E10-JU02	143.14	17	17	8.42	8/4-8/6/15	--
2013	05S09E10-JU02	44.32	8	17	5.54	5/23/2013	--
2013	05S09E10-JU02	50.4	9	17	5.6	6/3/2013	--
2011	05S09E10-JU02	51.9	15	17	3.46	11/16,11/19/10	--
2010	05S09E10-JU02	99.96	17	17	5.88	11/5-11/6/2009	--
Total dry tons:		**389.7**	**Average application rate (dry tons/acre):**		**5.0**		
2014	04S08E24-VG02	75.6	15	15	5.04	12/6/2013	--
2013	04S08E24-VG02	51.87	13	15	3.99	11/19-11/20/12	--
2010	04S08E24-VG02	49.5	11	15	4.5	4/30/2010	--
Total dry tons:		**177.0**	**Average application rate (dry tons/acre):**		**4.5**		

Table 2a

Gaylord Parcel ID: 03N02W07-JW01, 30N02W21-RW01
EGLE Soil PFAS Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA	TOC
SXDU11904171200RL	4/17/2019	JW01-DU1	**2.03**	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	**0.845**	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	**1.18**	< 1.42	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	< 0.949	**9100**
SXDU21904171225RL	4/17/2019	JW01-DU2	**0.812**	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	**0.812**	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 1.44	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	**10000**
SXDU11904171115RL	4/17/2019	RW01-DU1	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 1.48	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	**14000**
SXDU21904171025RL	4/17/2019	RW01-DU2	**1.19**	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	**1.19**	< 1.42	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	**9400**

TOC = Total Organic Carbon
Soil concentrations are reported as ug/Kg or parts per billion (ppb)
TOC concentrations are reported as mg/Kg or parts per million (ppm)
"<" = Values Below Detection Limit (**DL**)
Bolded values indicate detection

Perfluoroalkyl Carboxylic Acids (**PFCAs**)
Perfluoroalkane Sulfonic Acids (**PFSAs**)
Perfluoroalkane Sulfonamides (**FASAs**)
Fluorotelomer Sulfonic Acids (**FTSAs**)
N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)

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
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PFODA = Perfluoro-n-octadecanoic acid
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PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic 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 2b

Jackson Parcel ID: 01S01E02-MC01, 01S01E11-FC01, 01S01E14-MT01

EGLE Soil PFAS Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA	TOC
SXDU11904101300RL	4/10/2019	FC01-DU1	**11.44**	< 0.978	< 0.978	< 0.978	< 0.978	**0.886**	< 0.978	**1.03**	< 0.978	< 0.978	< 0.978	< 0.978	< 0.978	< 0.978	< 0.978	< 0.978	**7.97**	< 1.47	**1.55**	< 0.978	< 0.978	< 0.978	< 0.978	< 0.978	< 0.978	**8100**
SXDU21904101330RL	4/10/2019	FC01-DU2	**10.74**	< 0.985	**0.851**	< 0.985	< 0.985	**1.33**	< 0.985	**0.992**	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	**6.64**	< 1.48	**0.925**	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	< 0.985	**43000**
SXDU31904101355RL	4/10/2019	FC01-DU3	**3.00**	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	**3.00**	< 1.46	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	**11000**
SXDU11904101005RL	4/10/2019	MC01-DU1	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 1.48	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	< 0.987	**9300**
SXDU21904101050RL	4/10/2019	MC01-DU2	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 1.43	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	< 0.955	**8600**
SXDU31904101120RL	4/10/2019	MC01-DU3	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 1.49	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	**49000**
SXDU11904101540RL	4/10/2019	MT01-DU1	**1.93**	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**0.878**	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**1.05**	< 1.44	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**10000**
SXDU21904101505RL	4/10/2019	MT01-DU2	**2.01**	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	**0.927**	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	**1.08**	< 1.48	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	< 0.990	**7600**

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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

Table 2c

Midland Parcel ID: 13N02E15-RG02, 13N02E21-RG03

EGLE Soil PFAS Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA	TOC
SXDU11904161430MK	4/16/2019	RG02-DU1	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 1.40	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	< 0.932	**12000**
SXDU21904161505MK	4/16/2019	RG02-DU2	**8.81**	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**1.11**	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**4.44**	< 1.44	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**1.92**	**1.34**	**14000**
SXDU11904161245MK	4/16/2019	RG03-DU1	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 1.40	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	< 0.935	**18000**
SXDU21904161200MK	4/16/2019	RG03-DU2	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 1.44	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	< 0.959	**8400**
SXDU31904161120MK	4/16/2019	RG03-DU3	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 1.31	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	< 0.876	**13000**

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TOC concentrations are reported as mg/Kg or parts per million (ppm)
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Bolded values indicate detection

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N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)

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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

Table 2d

SHVUA Parcel ID: 04S08E24-VG02, 05S09E10-JU02

EGLE Soil PFAS Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA	TOC
SXDU11904120855RL	4/12/2019	JU02-DU1	**3.51**	< 0.975	< 0.975	< 0.975	< 0.975	**2.18**	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	**1.33**	< 1.46	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 0.975	< 110
SXDU21904120935RL	4/12/2019	JU02-DU2	**5.38**	< 0.963	< 0.963	< 0.963	< 0.963	**1.71**	< 0.963	**1.16**	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	**2.51**	< 1.44	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	< 0.963	**20000**
SXDU11904121200RL	4/12/2019	VG02-DU1	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 1.49	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	< 0.995	**8500**
SXDU21904121120RL	4/12/2019	VG02-DU2	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 1.44	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	< 0.961	**8700**

TOC = Total Organic Carbon
Soil concentrations are reported as ug/Kg or parts per billion (ppb)
TOC concentrations are reported as mg/Kg or parts per million (ppm)
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Bolded values indicate detection

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PFBA = Perfluorobutanoic acid
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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 3a

Gaylord Parcel ID: 03N02W07-JW01, 30N02W21-RW01

EGLE Surface Water PFAS Analytical Results Summary

Surface Water Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA
PEW011904171220MK	4/17/2019	JW01-PEW01	**12.51**	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99	**1.96**	**3.38**	**3.74**	**1.76**	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99	**1.67**	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99	< 1.99

All values are in nanograms per liter (**ng/L**) or parts per trillion (**ppt**)
"**<**" = Values Below Detection Limit (**DL**)
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- Perfluoroalkyl Carboxylic Acids (**PFCAs**)
- Perfluoroalkane Sulfonic Acids (**PFSAs**)
- Perfluoroalkane Sulfonamides (**FASAs**)
- Fluorotelomer Sulfonic Acids (**FTSAs**)
- N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
- N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)

PFBA = Perfluorobutanoic acid
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PFOS = Perfluorooctane sulfonic acid
PFNS = Perfluorononane sulfonic acid
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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 3b

Jackson Parcel ID: 01S01E02-MC01, 01S01E11-FC01, 01S01E14-MT01

EGLE Surface Water PFAS Analytical Results Summary

Surface Water Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA
SW011904101150MK	4/10/2019	FC01-SW01	**2.25**	**2.25**	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02
SW021904101335MK	4/10/2019	FC01-SW02	**3.70**	**2.09**	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	**1.61**	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02	< 2.02
SW031904101145MK	4/10/2019	FC01-SW03	**3.56**	**3.56**	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10	< 2.10
SW041904101325MK	4/10/2019	FC01-SW04	**25.10**	**7.25**	**4.03**	**3.73**	**2.85**	**2.10**	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	**5.14**	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98	< 1.98
SW011904101030MK	4/10/2019	MC01-SW01	**30.1**	**2.43**	2.50	**2.35**	**2.05**	**3.32**	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	**15.6**	< 1.87	**1.80**	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87	< 1.87
SW021904101100MK	4/10/2019	MC01-SW02	**2.30**	**2.30**	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07
TD011904101125MK	4/10/2019	MC01-TD	**9.52**	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	**9.52**	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12

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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 3c

Midland Parcel ID: 13N02E15-RG02, 13N02E21-RG03

EGLE Surface Water PFAS Analytical Results Summary

Surface Water Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA
SW011904161440RL	4/16/2019	RG02-SW01	**2.07**	**2.07**	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22
SW021904161350MK	4/16/2019	RG02-SW02	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20
SW031904161450RL	4/16/2019	RG02-SW03	**6.87**	**6.87**	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31	< 2.31
TD011904161345MK	4/16/2019	RG02-TD	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21	< 2.21
PEW011904161300RL	4/16/2019	RG03-PEW01	**6.29**	**6.29**	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43	< 2.43
SW011904161115RL	4/16/2019	RG03-SW01	**24.81**	**4.45**	**3.16**	**2.61**	**1.58**	**3.76**	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	**6.17**	< 2.23	< 2.23	< 2.23	**3.08**	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23
SW021904161310RL	4/16/2019	RG03-SW02	**23.62**	**5.27**	**2.70**	**2.52**	**1.64**	**3.03**	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	**6.89**	< 2.20	< 2.20	< 2.20	**1.57**	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20
SW031904161230RL	4/16/2019	RG03-SW03	**7.43**	**7.43**	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23
SW041904161235RL	4/16/2019	RG03-SW04	**18.76**	**4.89**	**2.44**	**2.47**	< 2.30	**2.81**	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	**6.15**	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30	< 2.30
TD011904161125RL	4/16/2019	RG03-TD01	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20	< 2.20
TD021904161130RL	4/16/2019	RG03-TD02	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18
TD031904161135RL	4/16/2019	RG03-TD03	**39.0**	**2.06**	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	**36.9**	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23	< 2.23
TD041904161140RL	4/16/2019	RG03-TD04	**58.1**	**5.10**	**3.16**	**2.77**	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	**47.1**	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19	< 2.19
TD051904161145RL	4/16/2019	RG03-TD05	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28	< 2.28
TD061904161250RL	4/16/2019	RG03-TD06	**36.2**	**2.87**	**1.94**	**2.10**	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	**29.3**	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22
TD071904161255RL	4/16/2019	RG03-TD07	**21.1**	**2.21**	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	**18.9**	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22	< 2.22

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 (**PFSAs**)
Perfluoroalkane Sulfonamides (**FASAs**)
Fluorotelomer Sulfonic Acids (**FTSAs**)
N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)

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 = Perfluoropentane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFNS = Perfluorononane sulfonic 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

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 3d

SHVUA Parcel ID: 04S08E24-VG02, 05S09E10-JU02

EGLE Surface Water PFAS Analytical Results Summary

Surface Water Sample ID	Sample Date	Field Site	Total PFAS	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnDA	PFDoDA	PFTrDA	PFTeDA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA	4:2 FTSA	6:2 FTSA	8:2 FTSA	EtFOSAA	MeFOSAA
PEW011904120925MK	4/12/2019	JU02-PEW01	**346.4**	**41.1**	**66.0**	**58.2**	**31.5**	**52.7**	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	**91.7**	< 2.07	**3.17**	< 2.07	**2.01**	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07
SW011904120955MK	4/12/2019	JU02-SW01	**2.01**	**2.01**	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07	< 2.07
SW021904120945MK	4/12/2019	JU02-SW02	**5.49**	**3.41**	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	**2.08**	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08
SW031904120805MK	4/12/2019	JU02-SW03	**2.95**	**2.95**	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12	< 2.12
SW041904120915MK	4/12/2019	JU02-SW04	**29.54**	**7.25**	**5.41**	**4.05**	**1.52**	**3.04**	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	**8.27**	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18	< 2.18
SW051904120905MK	4/12/2019	JU02-SW05	**55.2**	**10.6**	**10.4**	**8.05**	**4.36**	**5.87**	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	**15.9**	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14	< 2.14
SW011904121130MK	4/12/2019	VG02-SW01	**8.99**	**3.46**	**1.94**	**1.81**	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	**1.78**	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08	< 2.08
SW021904121145MK	4/12/2019	VG02-SW02	**45.7**	**6.46**	**8.74**	**10.2**	**1.78**	**4.17**	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	**7.13**	< 2.06	**3.20**	< 2.06	**4.05**	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06
SW031904121215MK	4/12/2019	VG02-SW03	**10.15**	**3.88**	**2.39**	**1.79**	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	**2.09**	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06	< 2.06
SW041904121155MK	4/12/2019	VG02-SW04	**43.95**	**6.19**	**8.46**	**9.10**	< 2.13	**4.01**	< 2.13	< 2.13	< 2.13	< 2.13	< 2.13	< 2.13	**6.66**	< 2.13	**4.14**	< 2.13	**5.39**	< 2.13	< 2.13	< 2.13	< 2.13	< 2.13	< 2.13	< 2.13	< 2.13

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 (**PFSAs**)
Perfluoroalkane Sulfonamides (**FASAs**)
Fluorotelomer Sulfonic Acids (**FTSAs**)
N-Ethyl Perfluoroalkane Sulfonamidoacetic Acids (**EtFASAAs**)
N-Methyl Perfluoroalkane Sulfonamidoacetic Acids (**MeFASAAs**)

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 = Perfluoropentane sulfonic acid
PFHxS = Perfluorohexane sulfonic acid
PFHpS = Perfluoroheptane sulfonic acid
PFOS = Perfluorooctane sulfonic acid
PFNS = Perfluorononane sulfonic 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

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 4a

Gaylord Parcel ID: 03N02W07-JW01, 30N02W21-RW01
PFAS and TOC Soil Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Depth (in bgs)	Total PFAS	Total TOC	Soil Survey	Soil Survey Description
SXDU11904171200RL	4/17/2019	JW01-DU1	6-8	2.03	9100	463F	Leelanau sandy loam, 8 to 50% slopes, Landform: moraines, Parent material: 20 to 50 inches of sandy and loamy material over calcareous sandy glaciofluvial deposits
SXDU21904171225RL	4/17/2019	JW01-DU2	6-8	0.81	10000	141C	Leelanau loamy sand, 6 to 12% slopes, Landform: Moraines, Parent material: 20 to 50 inches of sandy and loamy material over calcareous sandy glaciofluvial deposits
SXDU11904171115RL	4/17/2019	RW01-DU1	6-8	< 0.985	14000	393B	Morgan Lake loamy sand, 0 to 6% slopes, Landform: Lake plains, moraines, outwash plains, till plains, Parent material: 20 to 40 inches of sandy glaciofluvial deposits over
SXDU21904171025RL	4/17/2019	RW01-DU2	6-8	1.19	9400	52B	Blue Lake loamy sand, 0 to 6% slopes, Landform: Moraines, Parent material: Sandy glaciofluvial deposits over greater than 6 inches cumulation of lamellic banding

in bgs = Inches below ground surface
ND = Non Detect
TOC = Total Organic Carbon
PFAS soil concentrations are reported as ug/Kg or ppb
TOC concentrations reported as mg/Kg or ppm

463F = Leelanau sandy loam
141C = Leelanau loamy sand
393B = Morgan Lake loamy sand
52B = Blue Lake loamy sand

Table 4b

Jackson Parcel ID: 01S01E02-MC01, 01S01E11-FC01, 01S01E14-MT01
PFAS and TOC Soil Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Depth (in bgs)	Total PFAS	Total TOC	Soil Survey	Soil Survey Description
SXDU11904101300RL	4/10/2019	FC01-DU1	6-8	11.44	8100	43A	Dixboro very fine sandy loam, 0 to 3% slopes, Landform: Drainageways on outwash deltas, Parent material: Loamy and/or stratified sandy glaciofluvial deposits
SXDU21904101330RL	4/10/2019	FC01-DU2	6-8	10.74	43000	18	Gilford-Colwood complex, Landform: Depressions on glacial drainage channels, Parent material: Sandy and/or loamy glaciofluvial deposits (some stratified)
SXDU31904101355RL	4/10/2019	FC01-DU3	6-8	3.00	11000	35B	Arkport-Okee loamy fine sands, 2 to 6% slopes, Landform: Flats on outwash plains, Parent material: Stratified loamy glaciofluvial deposits, and sandy glaciofluvial deposits over
SXDU11904101005RL	4/10/2019	MC01-DU1	6-8	< 0.987	9300	42B	Riddles sandy loam, 1 to 6% slopes, Landform: Moraines, Parent material: Wisconsin sandy and loamy till derived from limestone and shale
SXDU21904101050RL	4/10/2019	MC01-DU2	6-8	< 0.955	8600	35B	Arkport-Okee loamy fine sands, 2 to 6% slopes, Landform: Flats on outwash plains, Parent material: Stratified loamy glaciofluvial deposits, and sandy glaciofluvial deposits over
SXDU31904101120RL	4/10/2019	MC01-DU3	6-8	< 0.995	49000	30	Edwards muck, 0 to 1% slopes, Landform: Lakebeds (relict) on moraines, on glacial drainage channels and on outwash plains, Parent material: Herbaceous organic
SXDU11904101540RL	4/10/2019	MT01-DU1	6-8	1.93	10000	64B	64B – Marlette-Owosso complex, 2 to 6% slopes, Landform: Flats on till plains, Parent material: Loamy till, loamy glaciofluvial deposits over loamy till
SXDU21904101505RL	4/10/2019	MT01-DU2	6-8	2.01	7600	49B	49B – Hillsdale-Riddles sandy loams, 1 to 6% slopes, Landform: Knolls on ground moraines, Parent material: Loamy till

in bgs = inches below ground surface
ND = Non Detect
TOC = Total Organic Carbon
PFAS soil concentrations are reported as ug/Kg or ppb
TOC concentrations reported as mg/Kg or ppm

43A = Dixboro very fine sand
18 = Gilford-Colwood complex
35B = Arkport-Okee loamy fine sands
42B = Riddles sandy loam
30 = Edwards muck
64B Marlette-Owosso complex
49B = Hillsdale-Riddles sandy loams

Table 4c

Midland Parcel ID: 13N02E15-RG02, 13N02E21-RG03
PFAS and TOC Soil Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Depth (in bgs)	Total PFAS	Total TOC	Soil Survey	Soil Survey Description
SXDU11904161430MK	4/16/2019	RG02-DU1	6-8	< 0.932	12000	Le	Lenawee silty clay loam, 0 to 3% slopes, Landform: Lakebeds (relict), Parent material: Clayey glaciolacustrine deposits
SXDU21904161505MK	4/16/2019	RG02-DU2	6-8	8.81	14000	BoB	Bowers silt loam, 0 to 3% slopes, Landform: Flats on lake plains, Parent material: Stratified loamy glaciolacustrine deposits
SXDU11904161245MK	4/16/2019	RG03-DU1	6-8	< 0.935	18000	Pa	Parkhill loam, 0 to 1% slopes, Landform: Wave-worked till plains, drainageways, moraines, till-floored lake plains, Parent material: Loamy lodgment till
SXDU21904161200MK	4/16/2019	RG03-DU2	6-8	< 0.959	8400	PtB	Pipestone sand, loamy substratum, 0 to 3% slopes, Landform: Flats on lake plains, Parent material: Sandy glaciolacustrine deposits over loamy till
SXDU31904161120MK	4/16/2019	RG03-DU3	6-8	< 0.876	13000	BoB	Bowers silt loam, 0 to 3% slopes, Landform: Flats on lake plains, Parent material: Stratified loamy glaciolacustrine deposits

in bgs = Inches below ground surface
ND = Non Detect
TOC = Total Organic Carbon
PFAS soil concentrations are reported as ug/Kg or ppb
TOC concentrations reported as mg/Kg or ppm

Le = Lenawee silty clay loam
Bob = Bowers silt loam
Pa = Parkhill loam
PtB = Pipestone sand, loamy substratum

Table 4d

SHVUA Parcel ID: 04S08E24-VG02, 05S09E10-JU02
PFAS and TOC Soil Analytical Results Summary

Soil Sample ID	Sample Date	Field Site	Depth (in bgs)	Total PFAS	Total TOC	Soil Survey	Soil Survey Description
SXDU11904120855RL	4/12/2019	JU02-DU1	6-8	3.51	< 110	13A	13A – Blount loam, Erie-Huron Lake Plain, 0 to 2% slopes, Landform: Wave-worked till plains, nearshore zones (relict), Parent material: Moderately fine-textured lodgment till
SXDU21904120935RL	4/12/2019	JU02-DU2	6-8	5.38	20000	21	21 – Lenawee silty clay loam, 0 to 1% slopes, Landform: Lakebeds (relict), Parent material: Clayey glaciolacustrine deposits
SXDU11904121200RL	4/12/2019	VG02-DU1	6-8	< 0.995	8500	Co	Co – Corunna fine sandy loam, Landform: Depressions on till plains, depressions on till-floored lake plains, Parent material: Loamy glaciofluvial deposits
SXDU21904121120RL	4/12/2019	VG02-DU2	6-8	< 0.961	8700	SgB	SgB – Selfridge-Pewamo-Metea complex, 0 to 4% slopes, Landform: Drainageways on till-floored lake plains, drainageways on lake plains, and Knolls on till-floored lake plains, Parent material: Sandy glaciofluvial deposits over loamy till, and loamy till, and sandy glacial drift over loamy till

in bgs = Inches below ground surface
ND = Non Detect
TOC = Total Organic Carbon
PFAS soil concentrations are reported as ug/Kg or ppb
TOC concentrations reported as mg/Kg or ppm

13A = Blount loam, Erie-Huron Lake Plain
21 = Lenawee silty clay loam
Co = Corunna fine sandy loam
SgB = Selfridge-Pewamo-Metea complex

Appendix A

Gaylord Site 30N02W07-JW01 USDA Web Soil Survey – Soil Description

33B – Mancelona loamy sand, 0 to 6% slopes, *Landform:* Outwash plains, stream terraces, kame terraces, *Parent material:* 18 to 40 inches of sandy and/or gravelly material over calcareous sandy and gravelly glaciofluvial deposits

52D – Blue Lake loamy sand, 6 to 18% slopes, *Landform:* Moraines, *Parent material: S*andy glaciofluvial deposits over greater than 6 inches cumulation of lamellic banding

141C – Leelanau loamy sand, 6 to 12% slopes, *Landform:* Moraines, *Parent material:* 20 to 50 inches of sandy and loamy material over calcareous sandy glaciofluvial deposits

463F – Leelanau sandy loam, 8 to 50% slopes, *Landform:* moraines, *Parent material:* 20 to 50 inches of sandy and loamy material over calcareous sandy glaciofluvial deposits

Gaylord Site 30N02W21-RW01 USDA Web Soil Survey – Soil Description

52B – Blue Lake loamy sand, 0 to 6% slopes, *Landform:* Moraines, *Parent material:* Sandy glaciofluvial deposits over greater than 6 inches cumulation of lamellic banding

52D – Blue Lake loamy sand, 6 to 18% slopes, *Landform:* Moraines, *Parent material: S*andy glaciofluvial deposits over greater than 6 inches cumulation of lamellic banding

393B – Morgan Lake loamy sand, 0 to 6% slopes, *Landform:* Lake plains, moraines, outwash plains, till plains, *Parent material:* 20 to 40 inches of sandy glaciofluvial deposits over loamy till

464B – Mossback sandy loam, 0 to 6% slopes, *Landform:* moraines, *Parent material:* 24 to 35 inches of loamy material over calcareous loamy till over sandy material below 60 inches

Jackson Site 01S01E02-FC01 USDA Web Soil Survey – Soil Description

18 – Gilford-Colwood complex, *Landform:* Depressions on glacial drainage channels, *Parent material:* Sandy and/or loamy glaciofluvial deposits (some stratified)

35B – Arkport-Okee loamy fine sands, 2 to 6% slopes, *Landform:* Flats on outwash plains, *Parent material:* Stratified loamy glaciofluvial deposits, and sandy glaciofluvial deposits over loamy sand

37 – Palms muck, 0 to 1% slopes, *Landform:* Swamps on outwash plains, till plains or swamps. Drainageways on moraines, outwash plains, till plains or moraines. Depressions on outwash plains or till plains, *Parent material:* Herbaceous organic material over loamy drift

43A – Dixboro very fine sandy loam, 0 to 3% slopes, *Landform:* Drainageways on outwash deltas, *Parent material:* Loamy and/or stratified sandy glaciofluvial deposits

Jackson Site 01S01E11-MC01 USDA Web Soil Survey – Soil Description

CpcaaB – Capac loam, 0 to 4% slopes, *Landform:* End moraines, ground moraines, *Parent material:* Loamy till

15A – Teasdale fine sandy loam, 0 to 3% slopes, *Landform:* Drainageways on till plains, *Parent material:* loamy till

18 – Gilford-Colwood complex, *Landform:* Depressions on glacial drainage channels, *Parent material:* Sandy and/or loamy glaciofluvial deposits (some stratified)

30 – Edwards muck, 0 to 1% slopes, *Landform:* Lakebeds (relict) on moraines, on glacial drainage channels and on outwash plains, *Parent material:* Herbaceous organic material over marl

35B – Arkport-Okee loamy fine sands, 2 to 6% slopes, *Landform:* Flats on outwash plains, *Parent material:* Stratified loamy glaciofluvial deposits, and sandy glaciofluvial deposits over loamy sand

42B – Riddles sandy loam, 1 to 6% slopes, *Landform:* Moraines, *Parent material:* Wisconsin sandy and loamy till derived from limestone and shale

64B – Marlette-Owosso complex, 2 to 6% slopes, *Landform:* Flats on till plains, *Parent material:* Loamy till, loamy glaciofluvial deposits over loamy till

Jackson Site 01S01E14-MT01 USDA Web Soil Survey – Soil Description

16A – Brady sandy loam, 0 to 3% slopes, *Landform:* Drainageways on outwash plains, *Parent material:* Loamy over sandy glaciofluvial deposits

18 – Gilford-Colwood complex, *Landform:* Depressions on glacial drainage channels, *Parent material:* Sandy and/or loamy glaciofluvial deposits (some stratified)

35B (35C) – Arkport-Okee loamy fine sands, 2 to 6% slopes (6 to 12% slopes), *Landform:* Flats on outwash plains, *Parent material: Stratified loamy glaciofluvial deposits, and sandy glaciofluvial deposits over loamy sand*

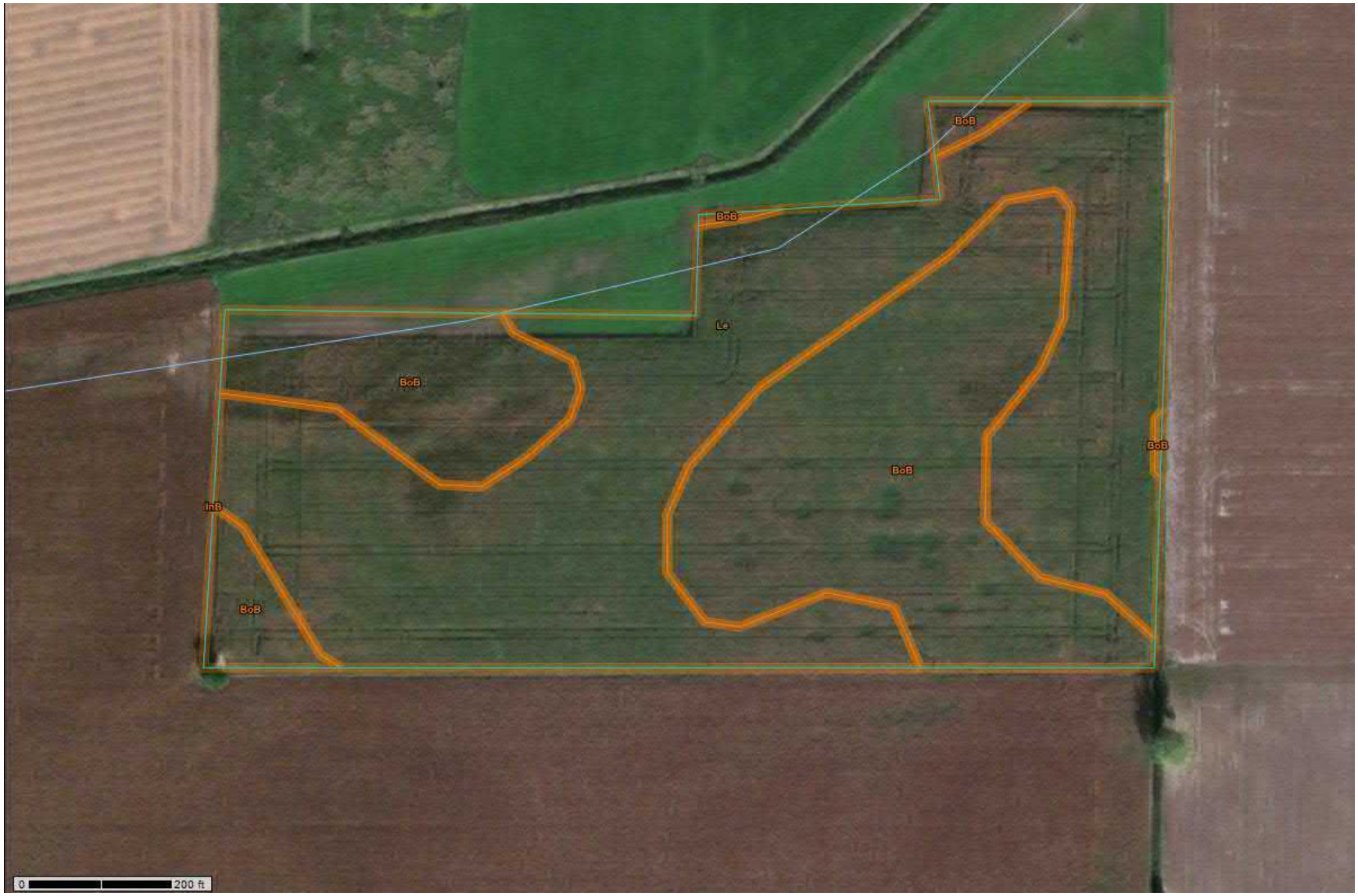
43A – Dixboro very fine sandy loam, 0 to 3% slopes, *Landform:* Drainageways on outwash deltas, *Parent material:* Loamy and/or stratified sandy glaciofluvial deposits

49B – Hillsdale-Riddles sandy loams, 1 to 6% slopes, *Landform:* Knolls on ground moraines, *Parent material:* Loamy till

64B – Marlette-Owosso complex, 2 to 6% slopes, *Landform:* Flats on till plains, *Parent material:* Loamy till, loamy glaciofluvial deposits over loamy till

CpcaaB – Capac loam, 0 to 4% slopes, *Landform:* End moraines, ground moraines, *Parent material:* Loamy till

Midland Site 13N02E15-RG02 USDA Web Soil Survey – Soil Description



BoB – Bowers silt loam, 0 to 3% slopes, *Landform:* Flats on lake plains, *Parent material:* Stratified loamy glaciolacustrine deposits

InB – Ingersll silt loam, 0 to 3% slopes, *Landform:* Knolls on lake plains, flats on lake plains, deltas, *Parent material:* Stratified silty and loamy glaciolacustrine deposits

Le – Lenawee silty clay loam, 0 to 3% slopes, *Landform:* Lakebeds (relict), *Parent material:* Clayey glaciolacustrine deposits

Midland Site 13N02E21-RG03 USDA Web Soil Survey – Soil Description

BoB – Bowers silt loam, 0 to 3% slopes, *Landform:* Flats on lake plains, *Parent material:* Stratified loamy glaciolacustrine deposits

Le – Lenawee silty clay loam, 0 to 3% slopes, *Landform:* Lakebeds (relict), *Parent material:* Clayey glaciolacustrine deposits

OaB – Oakville fine sand, 0 to 6% slopes, *Landform:* Beach ridges on outwash plains, *Parent material:* Sandy glaciolacustrine deposits

Pa – Parkhill loam, 0 to 1% slopes, *Landform:* Wave-worked till plains, drainageways, moraines, till-floored lake plains, *Parent material:* Loamy lodgment till

PtB – Pipestone sand, loamy substratum, 0 to 3% slopes, *Landform:* Flats on lake plains, *Parent material:* Sandy glaciolacustrine deposits over loamy till

South Huron Valley Site 05S09E10-JU02 USDA Web Soil Survey – Soil Description

13A – Blount loam, Erie-Huron Lake Plain, 0 to 2% slopes, *Landform:* Wave-worked till plains, nearshore zones (relict), *Parent material:* Moderately fine-textured lodgment till

21 – Lenawee silty clay loam, 0 to 1% slopes, *Landform:* Lakebeds (relict), *Parent material:* Clayey glaciolacustrine deposits

South Huron Valley Site 04S08E24-VG02 USDA Web Soil Survey – Soil Description

Co – Corunna fine sandy loam, *Landform:* Depressions on till plains, depressions on till-floored lake plains, *Parent material:* Loamy glaciofluvial deposits

SgB – Selfridge-Pewamo-Metea complex, 0 to 4% slopes, *Landform:* Drainageways on till-floored lake plains, drainageways on lake plains, and Knolls on till-floored lake plains, *Parent material:* Sandy glaciofluvial deposits over loamy till, and loamy till, and sandy glacial drift over loamy till

Appendix B

May 09, 2019

Vista Work Order No. 1900815

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 April 19, 2019 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,

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 Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1900815
Case Narrative

Sample Condition on Receipt:

Four soil samples and one aqueous sample 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.

The samples contained particulate and were centrifuged prior to extraction.

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 Method

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
B9D0211-BLK1	B9D0211-BLK1	PFAS Isotope Dilution Method	13C2-PFUnA	H	58.2
B9D0214-BS1	B9D0214-BS1	VAL - PFAS	d3-MeFOSAA	H	46.7
B9D0214-BS1	B9D0214-BS1	VAL - PFAS	13C2-PFUnA	H	59.8

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900815-01	SXDU21904171025RL	17-Apr-19 10:25	19-Apr-19 09:11	HDPE Jar, 6 oz
1900815-02	SXDU11904171115RL	17-Apr-19 11:15	19-Apr-19 09:11	HDPE Jar, 6 oz
1900815-03	SXDU11904171200RL	17-Apr-19 12:00	19-Apr-19 09:11	HDPE Jar, 6 oz
1900815-04	PEW011904171220MK	17-Apr-19 12:20	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900815-05	SXDU21904171225RL	17-Apr-19 12:25	19-Apr-19 09:11	HDPE Jar, 6 oz

ANALYTICAL RESULTS

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0214-BLK1 Column: BEH C18

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		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFTrDA	72629-94-8	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.3	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C3-PFPeA	IS	96.5	60 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C3-PFBS	IS	91.9	60 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-4:2 FTS	IS	102	40 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFHxA	IS	90.0	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C4-PFHpA	IS	89.4	60 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C3-PFHxS	IS	92.7	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-6:2 FTS	IS	87.9	40 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFOA	IS	91.3	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C5-PFNA	IS	85.7	50 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C8-PFOSA	IS	43.3	20 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C8-PFOS	IS	82.4	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFDA	IS	79.7	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0214-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.2	40 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
d3-MeFOSAA	IS	58.4	50 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
d5-EtFOSAA	IS	55.2	50 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFUnA	IS	66.5	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFDoA	IS	70.6	30 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFTeDA	IS	63.3	20 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	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

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0214-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.74	10.0	97.4	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFPeA	2706-90-3	9.78	10.0	97.8	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFBS	375-73-5	9.42	10.0	94.2	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
4:2 FTS	757124-72-4	10.8	10.0	108	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHxA	307-24-4	10.7	10.0	107	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFPeS	2706-91-4	10.5	10.0	105	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHpA	375-85-9	9.23	10.0	92.3	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHxS	355-46-4	9.03	10.0	90.3	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
6:2 FTS	27619-97-2	10.6	10.0	106	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFOA	335-67-1	9.53	10.0	95.3	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHpS	375-92-8	9.51	10.0	95.1	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFNA	375-95-1	9.89	10.0	98.9	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFOSA	754-91-6	10.3	10.0	103	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFOS	1763-23-1	9.18	10.0	91.8	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFDA	335-76-2	9.67	10.0	96.7	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
8:2 FTS	39108-34-4	11.3	10.0	113	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFNS	68259-12-1	8.04	10.0	80.4	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
MeFOSAA	2355-31-9	11.2	10.0	112	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
EtFOSAA	2991-50-6	10.6	10.0	106	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFUnA	2058-94-8	10.1	10.0	101	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFDS	335-77-3	7.29	10.0	72.9	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFDoA	307-55-1	10.3	10.0	103	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFTrDA	72629-94-8	10.1	10.0	101	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFTeDA	376-06-7	10.3	10.0	103	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.8	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C3-PFPeA	IS	94.3	60- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C3-PFBS	IS	101	60- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-4:2 FTS	IS	102	40- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFHxA	IS	87.4	70- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C4-PFHpA	IS	94.8	60- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C3-PFHxS	IS	99.5	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-6:2 FTS	IS	93.4	40- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFOA	IS	93.7	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C5-PFNA	IS	83.5	50- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1

Sample ID: OPR

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0214-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	38.8	20- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C8-PFOS	IS	93.8	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFDA	IS	69.3	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-8:2 FTS	IS	93.3	40- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
d3-MeFOSAA	IS	46.7	50- 150	H	B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
d5-EtFOSAA	IS	53.8	50- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFUnA	IS	59.8	60- 130	H	B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFDoA	IS	49.0	30- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFTeDA	IS	52.0	20- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1

Sample ID: SXDU21904171025RL — VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: GAYL-30N02W21-RW01
Matrix: Soil
Date Collected: 17-Apr-19 10:25

Laboratory Data

Lab Sample: 1900815-01
Date Received: 19-Apr-19 09:11
% Solids: 84.4
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFPeA	2706-90-3	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFBS	375-73-5	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
4:2 FTS	757124-72-4	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFHxA	307-24-4	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFPeS	2706-91-4	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFHpA	375-85-9	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFHxS	355-46-4	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
6:2 FTS	27619-97-2	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFOA	335-67-1	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFHpS	375-92-8	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFNA	375-95-1	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFOSA	754-91-6	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFOS	1763-23-1	1.19	0.801	0.948	1.90	J, Q	B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFDA	335-76-2	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
8:2 FTS	39108-34-4	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFNS	68259-12-1	ND	1.36	1.42	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
MeFOSAA	2355-31-9	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
EtFOSAA	2991-50-6	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFUnA	2058-94-8	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFDS	335-77-3	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFDoA	307-55-1	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFTrDA	72629-94-8	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
PFTeDA	376-06-7	ND	0.801	0.948	1.90		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.3	60 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C3-PFPeA	IS	93.4	60 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C3-PFBS	IS	95.1	60 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-4:2 FTS	IS	126	40 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-PFHxA	IS	86.9	70 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C4-PFHpA	IS	86.9	60 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C3-PFHxS	IS	94.6	60 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-6:2 FTS	IS	108	40 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-PFOA	IS	87.3	60 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C5-PFNA	IS	80.8	50 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C8-PFOSA	IS	36.9	20 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C8-PFOS	IS	86.9	60 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-PFDA	IS	74.8	60 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1

Sample ID: SXDU21904171025RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	17-Apr-19 10:25
Location:	GAYL-30N02W21-RW01		

Laboratory Data

Lab Sample:	1900815-01	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	84.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	96.0	40 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
d3-MeFOSAA	IS	64.3	50 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
d5-EtFOSAA	IS	73.6	50 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-PFUnA	IS	76.3	60 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-PFDoA	IS	76.9	30 - 130		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	1
13C2-PFTeDA	IS	88.0	20 - 150		B9D0214	29-Apr-19	1.25 g	01-May-19 20:44	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: SXDU11904171115RL — VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: GAYL-30N02W21-RW01
Matrix: Soil
Date Collected: 17-Apr-19 11:15

Laboratory Data

Lab Sample: 1900815-02
Date Received: 19-Apr-19 09:11
% Solids: 86.8
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFPeA	2706-90-3	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFBS	375-73-5	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
4:2 FTS	757124-72-4	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFHxA	307-24-4	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFPeS	2706-91-4	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFHpA	375-85-9	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFHxS	355-46-4	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
6:2 FTS	27619-97-2	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFOA	335-67-1	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFHpS	375-92-8	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFNA	375-95-1	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFOSA	754-91-6	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFOS	1763-23-1	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFDA	335-76-2	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
8:2 FTS	39108-34-4	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFNS	68259-12-1	ND	1.41	1.48	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
MeFOSAA	2355-31-9	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
EtFOSAA	2991-50-6	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFUnA	2058-94-8	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFDS	335-77-3	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFDoA	307-55-1	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFTrDA	72629-94-8	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
PFTeDA	376-06-7	ND	0.832	0.985	1.97		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.4	60 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C3-PFPeA	IS	96.4	60 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C3-PFBS	IS	95.6	60 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-4:2 FTS	IS	136	40 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-PFHxA	IS	93.8	70 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C4-PFHpA	IS	92.7	60 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C3-PFHxS	IS	97.3	60 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-6:2 FTS	IS	113	40 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-PFOA	IS	92.4	60 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C5-PFNA	IS	85.9	50 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C8-PFOSA	IS	53.2	20 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C8-PFOS	IS	87.5	60 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-PFDA	IS	85.4	60 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1

Sample ID: SXDU11904171115RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	17-Apr-19 11:15
Location:	GAYL-30N02W21-RW01		

Laboratory Data

Lab Sample:	1900815-02	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	86.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	99.7	40 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
d3-MeFOSAA	IS	67.9	50 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
d5-EtFOSAA	IS	69.1	50 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-PFUnA	IS	79.5	60 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-PFDoA	IS	78.9	30 - 130		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	1
13C2-PFTeDA	IS	56.8	20 - 150		B9D0214	29-Apr-19	1.17 g	01-May-19 20:54	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: SXDU11904171200RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: GAYL-30N02W07-JW01
Matrix: Soil
Date Collected: 17-Apr-19 12:00

Laboratory Data

Lab Sample: 1900815-03
Date Received: 19-Apr-19 09:11
% Solids: 84.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFPeA	2706-90-3	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFBS	375-73-5	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
4:2 FTS	757124-72-4	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFHxA	307-24-4	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFPeS	2706-91-4	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFHpA	375-85-9	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFHxS	355-46-4	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
6:2 FTS	27619-97-2	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFOA	335-67-1	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFHpS	375-92-8	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFNA	375-95-1	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFOSA	754-91-6	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFOS	1763-23-1	1.18	0.802	0.949	1.90	J, Q	B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFDA	335-76-2	0.845	0.802	0.949	1.90	J	B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
8:2 FTS	39108-34-4	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFNS	68259-12-1	ND	1.36	1.42	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
MeFOSAA	2355-31-9	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
EtFOSAA	2991-50-6	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFUnA	2058-94-8	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFDS	335-77-3	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFDoA	307-55-1	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFTrDA	72629-94-8	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
PFTeDA	376-06-7	ND	0.802	0.949	1.90		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.1	60 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C3-PFPeA	IS	91.1	60 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C3-PFBS	IS	89.6	60 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-4:2 FTS	IS	122	40 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-PFHxA	IS	88.0	70 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C4-PFHpA	IS	89.0	60 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C3-PFHxS	IS	88.4	60 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-6:2 FTS	IS	102	40 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-PFOA	IS	87.8	60 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C5-PFNA	IS	79.9	50 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C8-PFOSA	IS	44.4	20 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C8-PFOS	IS	84.7	60 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-PFDA	IS	70.7	60 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1

Sample ID: SXDU11904171200RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	17-Apr-19 12:00
Location:	GAYL-30N02W07-JW01		

Laboratory Data

Lab Sample:	1900815-03	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	84.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	99.1	40 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
d3-MeFOSAA	IS	69.2	50 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
d5-EtFOSAA	IS	72.0	50 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-PFUnA	IS	74.2	60 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-PFDoA	IS	80.6	30 - 130		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	1
13C2-PFTeDA	IS	85.4	20 - 150		B9D0214	29-Apr-19	1.24 g	01-May-19 21:05	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: SXDU21904171225RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: GAYL-30N02W07-JW01
Matrix: Soil
Date Collected: 17-Apr-19 12:25

Laboratory Data

Lab Sample: 1900815-05
Date Received: 19-Apr-19 09:11
% Solids: 86.7
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFPeA	2706-90-3	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFBS	375-73-5	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
4:2 FTS	757124-72-4	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFHxA	307-24-4	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFPeS	2706-91-4	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFHpA	375-85-9	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFHxS	355-46-4	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
6:2 FTS	27619-97-2	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFOA	335-67-1	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFHpS	375-92-8	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFNA	375-95-1	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFOSA	754-91-6	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFOS	1763-23-1	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFDA	335-76-2	0.812	0.812	0.961	1.92	J	B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
8:2 FTS	39108-34-4	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFNS	68259-12-1	ND	1.37	1.44	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
MeFOSAA	2355-31-9	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
EtFOSAA	2991-50-6	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFUnA	2058-94-8	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFDS	335-77-3	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFDoA	307-55-1	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFTrDA	72629-94-8	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
PFTeDA	376-06-7	ND	0.812	0.961	1.92		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.6	60 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C3-PFPeA	IS	94.7	60 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C3-PFBS	IS	101	60 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-4:2 FTS	IS	132	40 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-PFHxA	IS	92.0	70 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C4-PFHpA	IS	93.4	60 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C3-PFHxS	IS	98.8	60 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-6:2 FTS	IS	103	40 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-PFOA	IS	92.9	60 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C5-PFNA	IS	87.5	50 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C8-PFOSA	IS	46.1	20 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C8-PFOS	IS	83.3	60 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-PFDA	IS	86.6	60 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1

Sample ID: SXDU21904171225RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	17-Apr-19 12:25
Location:	GAYL-30N02W07-JW01		

Laboratory Data

Lab Sample:	1900815-05	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	86.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	99.5	40 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
d3-MeFOSAA	IS	78.5	50 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
d5-EtFOSAA	IS	81.9	50 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-PFUnA	IS	88.9	60 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-PFDoA	IS	88.7	30 - 130		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	1
13C2-PFTeDA	IS	97.8	20 - 150		B9D0214	29-Apr-19	1.20 g	01-May-19 21:15	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

Name: Merit Laboratories, Inc. Matrix: Aqueous

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0211-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	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFTrDA	72629-94-8	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.2	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C3-PFPeA	IS	97.2	60 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C3-PFBS	IS	94.5	60 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-4:2 FTS	IS	94.7	20 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-PFHxA	IS	88.7	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C4-PFHpA	IS	89.3	60 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C3-PFHxS	IS	89.0	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-6:2 FTS	IS	93.9	40 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-PFOA	IS	77.1	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C5-PFNA	IS	76.9	50 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C8-PFOSA	IS	43.8	20 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C8-PFOS	IS	80.0	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-PFDA	IS	65.6	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	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: B9D0211-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.4	40 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
d3-MeFOSAA	IS	54.7	50 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
d5-EtFOSAA	IS	67.6	50 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-PFUnA	IS	58.2	60 - 130	H	B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-PFDoA	IS	54.6	30 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	1
13C2-PFTeDA	IS	40.8	20 - 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:19	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
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0211-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	39.3	40.0	98.1	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFPeA	2706-90-3	37.5	40.0	93.8	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFBS	375-73-5	38.3	40.0	95.7	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
4:2 FTS	757124-72-4	40.0	40.0	100	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFHxA	307-24-4	39.6	40.0	98.9	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFPeS	2706-91-4	43.2	40.0	108	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFHpA	375-85-9	39.9	40.0	99.8	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFHxS	355-46-4	30.4	40.0	75.9	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
6:2 FTS	27619-97-2	37.5	40.0	93.7	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFOA	335-67-1	39.7	40.0	99.3	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFHpS	375-92-8	43.5	40.0	109	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFNA	375-95-1	39.6	40.0	99.0	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFOSA	754-91-6	38.3	40.0	95.6	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFOS	1763-23-1	31.3	40.0	78.2	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFDA	335-76-2	39.1	40.0	97.8	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
8:2 FTS	39108-34-4	38.9	40.0	97.3	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFNS	68259-12-1	41.8	40.0	104	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
MeFOSAA	2355-31-9	38.3	40.0	95.8	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
EtFOSAA	2991-50-6	35.8	40.0	89.6	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFUnA	2058-94-8	40.5	40.0	101	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFDS	335-77-3	34.2	40.0	85.6	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFDoA	307-55-1	36.4	40.0	91.0	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFTrDA	72629-94-8	29.0	40.0	72.5	60 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
PFTeDA	376-06-7	37.5	40.0	93.6	70 - 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.7	60- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C3-PFPeA	IS	94.5	60- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C3-PFBS	IS	89.6	60- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-4:2 FTS	IS	91.7	20- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-PFHxA	IS	92.1	70- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C4-PFHpA	IS	88.6	60- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C3-PFHxS	IS	86.2	60- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-6:2 FTS	IS	96.7	40- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-PFOA	IS	75.6	60- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C5-PFNA	IS	72.8	50- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0211-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	56.2	20- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C8-PFOS	IS	73.2	60- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-PFDA	IS	68.1	60- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-8:2 FTS	IS	88.5	40- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
d3-MeFOSAA	IS	67.0	50- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
d5-EtFOSAA	IS	73.3	50- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-PFUnA	IS	70.9	60- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-PFDoA	IS	55.1	30- 130		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1
13C2-PFTeDA	IS	39.7	20- 150		B9D0211	29-Apr-19	0.250 L	02-May-19 04:08	1

Sample ID: PEW011904171220MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: GAYL-30N02W07-JW01
Matrix: Aqueous
Date Collected: 17-Apr-19 12:20

Laboratory Data

Lab Sample: 1900815-04
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFPeA	2706-90-3	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFBS	375-73-5	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
4:2 FTS	757124-72-4	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFHxA	307-24-4	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFPeS	2706-91-4	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFHpA	375-85-9	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFHxS	355-46-4	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
6:2 FTS	27619-97-2	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFOA	335-67-1	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFHpS	375-92-8	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFNA	375-95-1	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFOSA	754-91-6	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFOS	1763-23-1	1.67	1.36	1.99	3.98	J	B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFDA	335-76-2	1.96	1.36	1.99	3.98	J	B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
8:2 FTS	39108-34-4	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFNS	68259-12-1	ND	1.93	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
MeFOSAA	2355-31-9	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
EtFOSAA	2991-50-6	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFUnA	2058-94-8	3.38	1.36	1.99	3.98	J	B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFDS	335-77-3	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFDoA	307-55-1	3.74	1.36	1.99	3.98	J	B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFTrDA	72629-94-8	1.76	1.36	1.99	3.98	J	B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
PFTeDA	376-06-7	ND	1.36	1.99	3.98		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.4	60 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C3-PFPeA	IS	94.0	60 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C3-PFBS	IS	99.6	60 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-4:2 FTS	IS	97.4	20 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-PFHxA	IS	94.9	70 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C4-PFHpA	IS	91.5	60 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C3-PFHxS	IS	98.9	60 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-6:2 FTS	IS	90.5	40 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-PFOA	IS	97.6	60 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C5-PFNA	IS	87.3	50 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C8-PFOSA	IS	61.3	20 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C8-PFOS	IS	82.1	60 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-PFDA	IS	72.1	60 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1

Sample ID: PEW011904171220MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	17-Apr-19 12:20
Location:	GAYL-30N02W07-JW01		

Laboratory Data

Lab Sample:	1900815-04	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	101	40 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
d3-MeFOSAA	IS	80.3	50 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
d5-EtFOSAA	IS	87.0	50 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-PFUnA	IS	83.2	60 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-PFDoA	IS	70.1	30 - 130		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	1
13C2-PFTeDA	IS	81.1	20 - 150		B9D0211	29-Apr-19	0.251 L	02-May-19 06:47	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	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

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

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
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	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
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

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Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900815 Temp: 0.2 °C
Storage ID: WK 2 Storage Secured: Yes ☑ No ☐

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

Project ID: **Statewide WWTP Biosolids PFAS Evaluation** PO#: **60588767.01** Sampler: **Michal Kosciarz + Rachel Lopez** (name)

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
Michal Kosciarz	**4/18/2019**	**1830**	Kim Eurie	04/19/19	0911
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	PFAS Isotope Dilution: List of 21	List of 21 w/isomers	List of 24	List of 24 w/isomers	List of 28	Other: Please List Below	USEPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
SXDU21904171025RL	**4/17/19**	**1025**	**GAYL-30N02W21-RW01**	**1**	**PJ**	**SO**			**X**							
SXDU11904171115RL	**4/17/19**	**1115**	**GAYL-30N02W21-RW01**	**1**	**PJ**	**SO**			**X**							
SXDU11904171200RL	**4/17/19**	**1200**	**GAYL-30N02W07-JW01**	**1**	**PJ**	**SO**			**X**							
PEW011904171220MK	**4/17/19**	**1220**	**GAYL-30N02W07-JW01**	**2**	**P**	**AQ**			**X**							
SXDU21904171225RL	**4/17/19**	**1225**	**GAYL-30N02W07-JW01**	**1**	**PJ**	**SO**			**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:

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:

Vista Analytical Laboratory

Sample Log-In Checklist

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Vista Work Order #: 1900815 TAT std

Samples Arrival:	**Date/Time** 04/19/19 0911	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 04/22/19 1351	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** 2-3, 2-4, 2-5

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.3 **(uncorrected)**	**Probe used: Y / N**	**Thermometer ID:** IR-4
Temp °C: 0.2 **(corrected)**		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		
Shipping Documentation Present?		✓		
Airbill	Trk # 4894 6695 8662	✓		
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:	$Na_2S_2O_3$ Trizma None Other	Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose

Comments:

ID.: LR – SLC *Rev No.: 3* *Rev Date: 05 October 2018* *Page: 1 of 1*

May 02, 2019

Vista Work Order No. 1900729

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 April 11, 2019 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,

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. 1900729
Case Narrative

Sample Condition on Receipt:

Eight aqueous samples and eight 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. The client was notified of the sample ID discrepancy.

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.

The following samples contained particulate and were centrifuged prior to extraction:

Laboratory ID	Sample Name
1900729-05	SW021904101100MK
1900729-07	TD011904101125MK
1900729-09	SW031904101145MK
1900729-11	SW011904101150MK
1900729-12	SW041904101325MK
1900729-13	SW021904101335MK

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

VAL-PFAS Method

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

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900729-01	EB03-1904100925RL	10-Apr-19 09:25	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-02	SXDU11904101005RL	10-Apr-19 10:05	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-03	SW011904101030MK	10-Apr-19 10:30	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-04	SXDU21904101050RL	10-Apr-19 10:50	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-05	SW021904101100MK	10-Apr-19 11:00	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-06	SXDU31904101120RL	10-Apr-19 11:20	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-07	TD011904101125MK	10-Apr-19 11:25	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-08	SXDU11904101300RL	10-Apr-19 13:00	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-09	SW031904101145MK	10-Apr-19 11:45	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-10	SXDU21904101330RL	10-Apr-19 13:30	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-11	SW011904101150MK	10-Apr-19 11:50	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-12	SW041904101325MK	10-Apr-19 13:25	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-13	SW021904101335MK	10-Apr-19 13:35	11-Apr-19 09:35	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900729-14	SXDU31904101355RL	10-Apr-19 13:55	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-15	SXDU21904101505RL	10-Apr-19 15:05	11-Apr-19 09:35	HDPE Jar, 6 oz
1900729-16	SXDU11904101540RL	10-Apr-19 15:40	11-Apr-19 09:35	HDPE Jar, 6 oz

ANALYTICAL RESULTS

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: B9D0141-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	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFTrDA	72629-94-8	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.7	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C3-PFPeA	IS	98.3	60 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C3-PFBS	IS	99.2	60 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-4:2 FTS	IS	95.1	20 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-PFHxA	IS	94.4	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C4-PFHpA	IS	93.8	60 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C3-PFHxS	IS	94.0	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-6:2 FTS	IS	90.2	40 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-PFOA	IS	93.9	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C5-PFNA	IS	78.9	50 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C8-PFOSA	IS	47.1	20 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C8-PFOS	IS	87.0	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-PFDA	IS	70.6	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	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: B9D0141-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	85.4	40 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
d3-MeFOSAA	IS	67.1	50 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
d5-EtFOSAA	IS	63.3	50 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-PFUnA	IS	67.4	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-PFDoA	IS	62.0	30 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	1
13C2-PFTeDA	IS	46.7	20 - 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:31	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
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0141-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	38.6	40.0	96.4	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFPeA	2706-90-3	36.9	40.0	92.4	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFBS	375-73-5	35.2	40.0	88.0	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
4:2 FTS	757124-72-4	37.9	40.0	94.6	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFHxA	307-24-4	39.7	40.0	99.1	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFPeS	2706-91-4	36.2	40.0	90.5	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFHpA	375-85-9	37.1	40.0	92.7	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFHxS	355-46-4	38.3	40.0	95.7	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
6:2 FTS	27619-97-2	40.0	40.0	99.9	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFOA	335-67-1	38.2	40.0	95.5	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFHpS	375-92-8	42.2	40.0	105	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFNA	375-95-1	34.3	40.0	85.8	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFOSA	754-91-6	36.9	40.0	92.3	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFOS	1763-23-1	40.4	40.0	101	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFDA	335-76-2	37.5	40.0	93.7	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
8:2 FTS	39108-34-4	38.4	40.0	96.0	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFNS	68259-12-1	35.5	40.0	88.8	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
MeFOSAA	2355-31-9	37.5	40.0	93.9	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
EtFOSAA	2991-50-6	34.6	40.0	86.5	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFUnA	2058-94-8	41.5	40.0	104	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFDS	335-77-3	34.3	40.0	85.8	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFDoA	307-55-1	37.3	40.0	93.2	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFTrDA	72629-94-8	34.7	40.0	86.7	60 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
PFTeDA	376-06-7	40.5	40.0	101	70 - 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.9	60- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C3-PFPeA	IS	96.8	60- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C3-PFBS	IS	93.6	60- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-4:2 FTS	IS	84.1	20- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-PFHxA	IS	93.3	70- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C4-PFHpA	IS	94.6	60- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C3-PFHxS	IS	82.1	60- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-6:2 FTS	IS	94.6	40- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-PFOA	IS	90.8	60- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C5-PFNA	IS	83.2	50- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0141-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	51.6	20- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C8-PFOS	IS	81.5	60- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-PFDA	IS	72.7	60- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-8:2 FTS	IS	72.2	40- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
d3-MeFOSAA	IS	67.4	50- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
d5-EtFOSAA	IS	67.1	50- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-PFUnA	IS	66.4	60- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-PFDoA	IS	64.2	30- 130		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1
13C2-PFTeDA	IS	45.5	20- 150		B9D0141	22-Apr-19	0.250 L	26-Apr-19 03:21	1

Sample ID: EB03-1904100925RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-PUTTYSCRAPER
Matrix: Aqueous
Date Collected: 10-Apr-19 09:25

Laboratory Data

Lab Sample: 1900729-01
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFPeA	2706-90-3	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFBS	375-73-5	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
4:2 FTS	757124-72-4	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFHxA	307-24-4	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFPeS	2706-91-4	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFHpA	375-85-9	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFHxS	355-46-4	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
6:2 FTS	27619-97-2	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFOA	335-67-1	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFHpS	375-92-8	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFNA	375-95-1	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFOSA	754-91-6	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFOS	1763-23-1	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFDA	335-76-2	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
8:2 FTS	39108-34-4	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFNS	68259-12-1	ND	1.80	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
MeFOSAA	2355-31-9	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
EtFOSAA	2991-50-6	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFUnA	2058-94-8	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFDS	335-77-3	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFDoA	307-55-1	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFTrDA	72629-94-8	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
PFTeDA	376-06-7	ND	1.27	1.86	3.72		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	104	60 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C3-PFPeA	IS	106	60 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C3-PFBS	IS	104	60 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-4:2 FTS	IS	103	20 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-PFHxA	IS	103	70 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C4-PFHpA	IS	102	60 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C3-PFHxS	IS	101	60 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-6:2 FTS	IS	91.2	40 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-PFOA	IS	98.7	60 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C5-PFNA	IS	88.1	50 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C8-PFOSA	IS	57.6	20 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C8-PFOS	IS	91.3	60 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-PFDA	IS	77.0	60 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1

Sample ID: EB03-1904100925RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-PUTTYSCRAPER
Matrix: Aqueous
Date Collected: 10-Apr-19 09:25

Laboratory Data

Lab Sample: 1900729-01
Date Received: 11-Apr-19 09:35
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.3	40 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
d3-MeFOSAA	IS	68.7	50 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
d5-EtFOSAA	IS	65.0	50 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-PFUnA	IS	77.2	60 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-PFDoA	IS	65.7	30 - 130		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	1
13C2-PFTeDA	IS	76.2	20 - 150		B9D0141	22-Apr-19	0.269 L	26-Apr-19 04:56	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: SW011904101030MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Aqueous
Date Collected: 10-Apr-19 10:30

Laboratory Data

Lab Sample: 1900729-03
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.43	1.28	1.87	3.75	J	B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFPeA	2706-90-3	2.50	1.28	1.87	3.75	J	B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFBS	375-73-5	15.6	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
4:2 FTS	757124-72-4	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFHxA	307-24-4	2.35	1.28	1.87	3.75	J	B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFPeS	2706-91-4	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFHpA	375-85-9	2.05	1.28	1.87	3.75	J	B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFHxS	355-46-4	1.80	1.28	1.87	3.75	J	B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
6:2 FTS	27619-97-2	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFOA	335-67-1	3.32	1.28	1.87	3.75	J	B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFHpS	375-92-8	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFNA	375-95-1	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFOSA	754-91-6	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFOS	1763-23-1	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFDA	335-76-2	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
8:2 FTS	39108-34-4	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFNS	68259-12-1	ND	1.81	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
MeFOSAA	2355-31-9	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
EtFOSAA	2991-50-6	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFUnA	2058-94-8	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFDS	335-77-3	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFDoA	307-55-1	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFTrDA	72629-94-8	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
PFTeDA	376-06-7	ND	1.28	1.87	3.75		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.8	60 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C3-PFPeA	IS	106	60 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C3-PFBS	IS	92.8	60 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-4:2 FTS	IS	95.7	20 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-PFHxA	IS	99.9	70 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C4-PFHpA	IS	96.6	60 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C3-PFHxS	IS	96.0	60 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-6:2 FTS	IS	97.1	40 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-PFOA	IS	93.2	60 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C5-PFNA	IS	85.2	50 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C8-PFOSA	IS	61.1	20 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C8-PFOS	IS	97.3	60 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-PFDA	IS	84.2	60 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1

Sample ID: SW011904101030MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 10:30
Location:	JACK-01S01E02-MC01		

Laboratory Data

Lab Sample:	1900729-03	Column:	BEH C18
Date Received:	11-Apr-19 09:35		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	101	40 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
d3-MeFOSAA	IS	79.4	50 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
d5-EtFOSAA	IS	84.6	50 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-PFUnA	IS	78.5	60 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-PFDoA	IS	83.2	30 - 130		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	1
13C2-PFTeDA	IS	84.3	20 - 150		B9D0141	22-Apr-19	0.267 L	26-Apr-19 05:06	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: SW021904101100MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Aqueous
Date Collected: 10-Apr-19 11:00

Laboratory Data

Lab Sample: 1900729-05
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.30	1.42	2.07	4.14	J	B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFPeA	2706-90-3	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFBS	375-73-5	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
4:2 FTS	757124-72-4	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFHxA	307-24-4	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFPeS	2706-91-4	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFHpA	375-85-9	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFHxS	355-46-4	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
6:2 FTS	27619-97-2	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFOA	335-67-1	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFHpS	375-92-8	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFNA	375-95-1	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFOSA	754-91-6	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFOS	1763-23-1	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFDA	335-76-2	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
8:2 FTS	39108-34-4	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFNS	68259-12-1	ND	2.00	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
MeFOSAA	2355-31-9	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
EtFOSAA	2991-50-6	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFUnA	2058-94-8	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFDS	335-77-3	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFDoA	307-55-1	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFTrDA	72629-94-8	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
PFTeDA	376-06-7	ND	1.42	2.07	4.14		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.4	60 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C3-PFPeA	IS	93.5	60 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C3-PFBS	IS	81.7	60 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-4:2 FTS	IS	84.0	20 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-PFHxA	IS	90.8	70 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C4-PFHpA	IS	94.0	60 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C3-PFHxS	IS	82.9	60 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-6:2 FTS	IS	96.0	40 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-PFOA	IS	97.2	60 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C5-PFNA	IS	88.2	50 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C8-PFOSA	IS	64.3	20 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C8-PFOS	IS	91.3	60 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-PFDA	IS	79.5	60 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1

Sample ID: SW021904101100MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 11:00
Location:	JACK-01S01E02-MC01		

Laboratory Data

Lab Sample:	1900729-05	Column:	BEH C18
Date Received:	11-Apr-19 09:35		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.9	40 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
d3-MeFOSAA	IS	79.7	50 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
d5-EtFOSAA	IS	86.3	50 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-PFUnA	IS	84.2	60 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-PFDoA	IS	61.2	30 - 130		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	1
13C2-PFTeDA	IS	73.0	20 - 150		B9D0141	22-Apr-19	0.242 L	26-Apr-19 05:49	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: TD011904101125MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Aqueous
Date Collected: 10-Apr-19 11:25

Laboratory Data

Lab Sample: 1900729-07
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFPeA	2706-90-3	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFBS	375-73-5	9.52	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
4:2 FTS	757124-72-4	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFHxA	307-24-4	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFPeS	2706-91-4	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFHpA	375-85-9	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFHxS	355-46-4	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
6:2 FTS	27619-97-2	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFOA	335-67-1	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFHpS	375-92-8	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFNA	375-95-1	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFOSA	754-91-6	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFOS	1763-23-1	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFDA	335-76-2	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
8:2 FTS	39108-34-4	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFNS	68259-12-1	ND	2.05	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
MeFOSAA	2355-31-9	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
EtFOSAA	2991-50-6	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFUnA	2058-94-8	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFDS	335-77-3	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFDoA	307-55-1	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFTrDA	72629-94-8	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
PFTeDA	376-06-7	ND	1.45	2.12	4.24		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.3	60 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C3-PFPeA	IS	99.4	60 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C3-PFBS	IS	96.8	60 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-4:2 FTS	IS	97.4	20 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-PFHxA	IS	93.4	70 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C4-PFHpA	IS	95.4	60 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C3-PFHxS	IS	89.2	60 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-6:2 FTS	IS	89.2	40 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-PFOA	IS	96.7	60 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C5-PFNA	IS	91.9	50 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C8-PFOSA	IS	36.8	20 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C8-PFOS	IS	87.2	60 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-PFDA	IS	80.7	60 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1

Sample ID: TD011904101125MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Aqueous
Date Collected: 10-Apr-19 11:25

Laboratory Data

Lab Sample: 1900729-07
Date Received: 11-Apr-19 09:35
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	88.8	40 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
d3-MeFOSAA	IS	74.0	50 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
d5-EtFOSAA	IS	74.2	50 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-PFUnA	IS	81.1	60 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-PFDoA	IS	69.0	30 - 130		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	1
13C2-PFTeDA	IS	79.3	20 - 150		B9D0141	22-Apr-19	0.236 L	26-Apr-19 05:59	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: SW031904101145MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Aqueous
Date Collected: 10-Apr-19 11:45

Laboratory Data

Lab Sample: 1900729-09
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.56	1.44	2.10	4.20	J	B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFPeA	2706-90-3	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFBS	375-73-5	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
4:2 FTS	757124-72-4	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFHxA	307-24-4	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFPeS	2706-91-4	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFHpA	375-85-9	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFHxS	355-46-4	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
6:2 FTS	27619-97-2	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFOA	335-67-1	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFHpS	375-92-8	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFNA	375-95-1	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFOSA	754-91-6	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFOS	1763-23-1	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFDA	335-76-2	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
8:2 FTS	39108-34-4	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFNS	68259-12-1	ND	2.03	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
MeFOSAA	2355-31-9	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
EtFOSAA	2991-50-6	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFUnA	2058-94-8	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFDS	335-77-3	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFDoA	307-55-1	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFTrDA	72629-94-8	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
PFTeDA	376-06-7	ND	1.44	2.10	4.20		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.0	60 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C3-PFPeA	IS	95.4	60 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C3-PFBS	IS	101	60 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-4:2 FTS	IS	98.5	20 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-PFHxA	IS	93.9	70 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C4-PFHpA	IS	97.1	60 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C3-PFHxS	IS	96.1	60 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-6:2 FTS	IS	84.4	40 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-PFOA	IS	93.8	60 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C5-PFNA	IS	90.1	50 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C8-PFOSA	IS	52.2	20 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C8-PFOS	IS	86.3	60 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-PFDA	IS	87.6	60 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1

Sample ID: SW031904101145MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 11:45
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-09	Column:	BEH C18
Date Received:	11-Apr-19 09:35		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.9	40 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
d3-MeFOSAA	IS	76.1	50 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
d5-EtFOSAA	IS	73.7	50 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-PFUnA	IS	74.2	60 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-PFDoA	IS	64.4	30 - 130		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	1
13C2-PFTeDA	IS	59.4	20 - 150		B9D0141	22-Apr-19	0.238 L	26-Apr-19 06:10	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: SW011904101150MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Aqueous
Date Collected: 10-Apr-19 11:50

Laboratory Data

Lab Sample: 1900729-11
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.25	1.39	2.02	4.05	J	B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFPeA	2706-90-3	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFBS	375-73-5	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
4:2 FTS	757124-72-4	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFHxA	307-24-4	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFPeS	2706-91-4	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFHpA	375-85-9	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFHxS	355-46-4	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
6:2 FTS	27619-97-2	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFOA	335-67-1	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFHpS	375-92-8	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFNA	375-95-1	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFOSA	754-91-6	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFOS	1763-23-1	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFDA	335-76-2	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
8:2 FTS	39108-34-4	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFNS	68259-12-1	ND	1.96	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
MeFOSAA	2355-31-9	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
EtFOSAA	2991-50-6	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFUnA	2058-94-8	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFDS	335-77-3	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFDoA	307-55-1	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFTrDA	72629-94-8	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
PFTeDA	376-06-7	ND	1.39	2.02	4.05		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.8	60 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C3-PFPeA	IS	95.2	60 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C3-PFBS	IS	92.5	60 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-4:2 FTS	IS	95.6	20 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-PFHxA	IS	93.6	70 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C4-PFHpA	IS	94.5	60 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C3-PFHxS	IS	91.4	60 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-6:2 FTS	IS	88.7	40 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-PFOA	IS	88.4	60 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C5-PFNA	IS	90.1	50 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C8-PFOSA	IS	38.3	20 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C8-PFOS	IS	86.0	60 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-PFDA	IS	73.3	60 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1

Sample ID: SW011904101150MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 11:50
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-11	Column:	BEH C18
Date Received:	11-Apr-19 09:35		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	86.3	40 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
d3-MeFOSAA	IS	76.2	50 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
d5-EtFOSAA	IS	76.5	50 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-PFUnA	IS	71.1	60 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-PFDoA	IS	65.9	30 - 130		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	1
13C2-PFTeDA	IS	65.7	20 - 150		B9D0141	22-Apr-19	0.247 L	26-Apr-19 06:21	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: SW041904101325MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Aqueous
Date Collected: 10-Apr-19 13:25

Laboratory Data

Lab Sample: 1900729-12
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	7.25	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFPeA	2706-90-3	4.03	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFBS	375-73-5	5.14	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
4:2 FTS	757124-72-4	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFHxA	307-24-4	3.73	1.36	1.98	3.97	J	B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFPeS	2706-91-4	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFHpA	375-85-9	2.85	1.36	1.98	3.97	J	B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFHxS	355-46-4	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
6:2 FTS	27619-97-2	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFOA	335-67-1	2.10	1.36	1.98	3.97	J	B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFHpS	375-92-8	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFNA	375-95-1	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFOSA	754-91-6	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFOS	1763-23-1	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFDA	335-76-2	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
8:2 FTS	39108-34-4	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFNS	68259-12-1	ND	1.92	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
MeFOSAA	2355-31-9	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
EtFOSAA	2991-50-6	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFUnA	2058-94-8	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFDS	335-77-3	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFDoA	307-55-1	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFTrDA	72629-94-8	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
PFTeDA	376-06-7	ND	1.36	1.98	3.97		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.3	60 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C3-PFPeA	IS	97.0	60 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C3-PFBS	IS	96.4	60 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-4:2 FTS	IS	101	20 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-PFHxA	IS	95.8	70 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C4-PFHpA	IS	99.2	60 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C3-PFHxS	IS	94.7	60 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-6:2 FTS	IS	103	40 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-PFOA	IS	94.1	60 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C5-PFNA	IS	94.7	50 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C8-PFOSA	IS	39.3	20 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C8-PFOS	IS	93.7	60 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-PFDA	IS	73.9	60 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1

Sample ID: SW041904101325MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 13:25
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-12	Column:	BEH C18
Date Received:	11-Apr-19 09:35		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	95.1	40 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
d3-MeFOSAA	IS	72.8	50 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
d5-EtFOSAA	IS	72.1	50 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-PFUnA	IS	65.2	60 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-PFDoA	IS	54.2	30 - 130		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	1
13C2-PFTeDA	IS	42.1	20 - 150		B9D0141	22-Apr-19	0.252 L	26-Apr-19 06:31	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: SW021904101335MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Aqueous
Date Collected: 10-Apr-19 13:35

Laboratory Data

Lab Sample: 1900729-13
Date Received: 11-Apr-19 09:35
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.09	1.38	2.02	4.03	J	B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFPeA	2706-90-3	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFBS	375-73-5	1.61	1.38	2.02	4.03	J	B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
4:2 FTS	757124-72-4	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFHxA	307-24-4	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFPeS	2706-91-4	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFHpA	375-85-9	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFHxS	355-46-4	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
6:2 FTS	27619-97-2	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFOA	335-67-1	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFHpS	375-92-8	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFNA	375-95-1	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFOSA	754-91-6	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFOS	1763-23-1	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFDA	335-76-2	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
8:2 FTS	39108-34-4	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFNS	68259-12-1	ND	1.95	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
MeFOSAA	2355-31-9	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
EtFOSAA	2991-50-6	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFUnA	2058-94-8	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFDS	335-77-3	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFDoA	307-55-1	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFTrDA	72629-94-8	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
PFTeDA	376-06-7	ND	1.38	2.02	4.03		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.6	60 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C3-PFPeA	IS	97.0	60 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C3-PFBS	IS	93.1	60 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-4:2 FTS	IS	96.3	20 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-PFHxA	IS	93.5	70 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C4-PFHpA	IS	95.9	60 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C3-PFHxS	IS	91.0	60 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-6:2 FTS	IS	94.8	40 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-PFOA	IS	92.4	60 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C5-PFNA	IS	90.4	50 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C8-PFOSA	IS	54.6	20 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C8-PFOS	IS	86.0	60 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-PFDA	IS	81.6	60 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1

Sample ID: SW021904101335MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 13:35
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-13	Column:	BEH C18
Date Received:	11-Apr-19 09:35		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	87.2	40 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
d3-MeFOSAA	IS	80.0	50 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
d5-EtFOSAA	IS	76.0	50 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-PFUnA	IS	70.1	60 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-PFDoA	IS	67.6	30 - 130		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	1
13C2-PFTeDA	IS	62.8	20 - 150		B9D0141	22-Apr-19	0.248 L	26-Apr-19 06:42	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

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0148-BLK1 Column: BEH C18

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		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFTrDA	72629-94-8	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.3	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C3-PFPeA	IS	87.5	60 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C3-PFBS	IS	97.6	60 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-4:2 FTS	IS	107	40 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-PFHxA	IS	89.5	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C4-PFHpA	IS	90.6	60 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C3-PFHxS	IS	97.6	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-6:2 FTS	IS	105	40 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-PFOA	IS	87.7	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C5-PFNA	IS	78.1	50 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C8-PFOSA	IS	42.1	20 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C8-PFOS	IS	87.3	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-PFDA	IS	78.1	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0148-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	93.2	40 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
d3-MeFOSAA	IS	72.2	50 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
d5-EtFOSAA	IS	68.4	50 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-PFUnA	IS	64.2	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-PFDoA	IS	52.0	30 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	1
13C2-PFTeDA	IS	51.3	20 - 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:30	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

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0148-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.9	10.0	109	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFPeA	2706-90-3	10.8	10.0	108	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFBS	375-73-5	10.1	10.0	101	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
4:2 FTS	757124-72-4	10.2	10.0	102	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFHxA	307-24-4	11.1	10.0	111	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFPeS	2706-91-4	11.4	10.0	114	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFHpA	375-85-9	10.2	10.0	102	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFHxS	355-46-4	10.3	10.0	103	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
6:2 FTS	27619-97-2	9.56	10.0	95.6	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFOA	335-67-1	10.6	10.0	106	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFHpS	375-92-8	10.2	10.0	102	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFNA	375-95-1	10.0	10.0	100	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFOSA	754-91-6	10.4	10.0	104	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFOS	1763-23-1	10.1	10.0	101	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFDA	335-76-2	10.1	10.0	101	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
8:2 FTS	39108-34-4	11.2	10.0	112	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFNS	68259-12-1	9.09	10.0	90.9	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
MeFOSAA	2355-31-9	10.2	10.0	102	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
EtFOSAA	2991-50-6	11.3	10.0	113	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFUnA	2058-94-8	10.5	10.0	105	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFDS	335-77-3	8.16	10.0	81.6	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFDoA	307-55-1	11.6	10.0	116	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFTrDA	72629-94-8	11.2	10.0	112	60 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
PFTeDA	376-06-7	9.87	10.0	98.7	70 - 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.8	60- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C3-PFPeA	IS	90.2	60- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C3-PFBS	IS	89.4	60- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-4:2 FTS	IS	96.6	40- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-PFHxA	IS	91.6	70- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C4-PFHpA	IS	92.7	60- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C3-PFHxS	IS	90.2	60- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-6:2 FTS	IS	103	40- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-PFOA	IS	97.3	60- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C5-PFNA	IS	85.5	50- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1

Sample ID: OPR

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0148-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	45.7	20- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C8-PFOS	IS	96.4	60- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-PFDA	IS	79.7	60- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-8:2 FTS	IS	95.4	40- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
d3-MeFOSAA	IS	66.0	50- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
d5-EtFOSAA	IS	66.7	50- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-PFUnA	IS	69.6	60- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-PFDoA	IS	56.3	30- 130		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1
13C2-PFTeDA	IS	58.7	20- 150		B9D0148	25-Apr-19	1.00 g	30-Apr-19 01:19	1

Sample ID: SXDU11904101005RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Soil
Date Collected: 10-Apr-19 10:05

Laboratory Data

Lab Sample: 1900729-02
Date Received: 11-Apr-19 09:35
% Solids: 86.6
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFPeA	2706-90-3	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFBS	375-73-5	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
4:2 FTS	757124-72-4	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFHxA	307-24-4	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFPeS	2706-91-4	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFHpA	375-85-9	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFHxS	355-46-4	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
6:2 FTS	27619-97-2	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFOA	335-67-1	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFHpS	375-92-8	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFNA	375-95-1	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFOSA	754-91-6	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFOS	1763-23-1	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFDA	335-76-2	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
8:2 FTS	39108-34-4	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFNS	68259-12-1	ND	1.41	1.48	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
MeFOSAA	2355-31-9	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
EtFOSAA	2991-50-6	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFUnA	2058-94-8	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFDS	335-77-3	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFDoA	307-55-1	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFTrDA	72629-94-8	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
PFTeDA	376-06-7	ND	0.834	0.987	1.97		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.9	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C3-PFPeA	IS	94.5	60 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C3-PFBS	IS	98.9	60 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-4:2 FTS	IS	137	40 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-PFHxA	IS	92.0	70 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C4-PFHpA	IS	99.4	60 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C3-PFHxS	IS	91.4	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-6:2 FTS	IS	115	40 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-PFOA	IS	86.9	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C5-PFNA	IS	77.4	50 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C8-PFOSA	IS	40.8	20 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C8-PFOS	IS	90.0	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-PFDA	IS	81.2	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1

Sample ID: SXDU11904101005RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 10:05
Location:	JACK-01S01E02-MC01		

Laboratory Data

Lab Sample:	1900729-02	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	86.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	103	40 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
d3-MeFOSAA	IS	93.8	50 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
d5-EtFOSAA	IS	87.8	50 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-PFUnA	IS	82.6	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-PFDoA	IS	64.6	30 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	1
13C2-PFTeDA	IS	64.8	20 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 03:06	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: SXDU21904101050RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Soil
Date Collected: 10-Apr-19 10:50

Laboratory Data

Lab Sample: 1900729-04
Date Received: 11-Apr-19 09:35
% Solids: 86.6
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFPeA	2706-90-3	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFBS	375-73-5	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
4:2 FTS	757124-72-4	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFHxA	307-24-4	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFPeS	2706-91-4	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFHpA	375-85-9	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFHxS	355-46-4	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
6:2 FTS	27619-97-2	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFOA	335-67-1	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFHpS	375-92-8	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFNA	375-95-1	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFOSA	754-91-6	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFOS	1763-23-1	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFDA	335-76-2	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
8:2 FTS	39108-34-4	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFNS	68259-12-1	ND	1.37	1.43	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
MeFOSAA	2355-31-9	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
EtFOSAA	2991-50-6	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFUnA	2058-94-8	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFDS	335-77-3	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFDoA	307-55-1	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFTrDA	72629-94-8	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
PFTeDA	376-06-7	ND	0.807	0.955	1.91		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.3	60 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C3-PFPeA	IS	93.0	60 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C3-PFBS	IS	90.0	60 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-4:2 FTS	IS	125	40 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-PFHxA	IS	91.3	70 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C4-PFHpA	IS	92.5	60 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C3-PFHxS	IS	90.8	60 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-6:2 FTS	IS	123	40 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-PFOA	IS	87.2	60 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C5-PFNA	IS	83.5	50 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C8-PFOSA	IS	44.7	20 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C8-PFOS	IS	92.3	60 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-PFDA	IS	75.8	60 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1

Sample ID: SXDU21904101050RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 10:50
Location:	JACK-01S01E02-MC01		

Laboratory Data

Lab Sample:	1900729-04	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	86.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.3	40 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
d3-MeFOSAA	IS	84.3	50 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
d5-EtFOSAA	IS	88.5	50 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-PFUnA	IS	80.0	60 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-PFDoA	IS	59.5	30 - 130		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	1
13C2-PFTeDA	IS	59.8	20 - 150		B9D0148	25-Apr-19	1.21 g	30-Apr-19 03:16	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: SXDU31904101120RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E02-MC01
Matrix: Soil
Date Collected: 10-Apr-19 11:20

Laboratory Data

Lab Sample: 1900729-06
Date Received: 11-Apr-19 09:35
% Solids: 77.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFPeA	2706-90-3	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFBS	375-73-5	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
4:2 FTS	757124-72-4	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFHxA	307-24-4	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFPeS	2706-91-4	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFHpA	375-85-9	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFHxS	355-46-4	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
6:2 FTS	27619-97-2	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFOA	335-67-1	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFHpS	375-92-8	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFNA	375-95-1	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFOSA	754-91-6	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFOS	1763-23-1	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFDA	335-76-2	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
8:2 FTS	39108-34-4	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFNS	68259-12-1	ND	1.42	1.49	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
MeFOSAA	2355-31-9	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
EtFOSAA	2991-50-6	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFUnA	2058-94-8	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFDS	335-77-3	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFDoA	307-55-1	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFTrDA	72629-94-8	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
PFTeDA	376-06-7	ND	0.841	0.995	1.99		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.3	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C3-PFPeA	IS	82.9	60 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C3-PFBS	IS	93.9	60 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-4:2 FTS	IS	120	40 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-PFHxA	IS	82.0	70 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C4-PFHpA	IS	88.6	60 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C3-PFHxS	IS	89.5	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-6:2 FTS	IS	108	40 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-PFOA	IS	87.8	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C5-PFNA	IS	74.4	50 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C8-PFOSA	IS	46.0	20 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C8-PFOS	IS	83.9	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-PFDA	IS	71.3	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1

Sample ID: SXDU31904101120RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 11:20
Location:	JACK-01S01E02-MC01		

Laboratory Data

Lab Sample:	1900729-06	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	77.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	98.6	40 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
d3-MeFOSAA	IS	87.3	50 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
d5-EtFOSAA	IS	92.3	50 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-PFUnA	IS	77.7	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-PFDoA	IS	60.5	30 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	1
13C2-PFTeDA	IS	60.5	20 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 03:58	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: SXDU11904101300RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Soil
Date Collected: 10-Apr-19 13:00

Laboratory Data

Lab Sample: 1900729-08
Date Received: 11-Apr-19 09:35
% Solids: 82.4
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFPeA	2706-90-3	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFBS	375-73-5	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
4:2 FTS	757124-72-4	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFHxA	307-24-4	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFPeS	2706-91-4	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFHpA	375-85-9	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFHxS	355-46-4	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
6:2 FTS	27619-97-2	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFOA	335-67-1	0.886	0.827	0.978	1.96	J	B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFHpS	375-92-8	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFNA	375-95-1	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFOSA	754-91-6	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFOS	1763-23-1	7.97	0.827	0.978	1.96	Q	B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFDA	335-76-2	1.03	0.827	0.978	1.96	J	B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
8:2 FTS	39108-34-4	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFNS	68259-12-1	ND	1.40	1.47	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
MeFOSAA	2355-31-9	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
EtFOSAA	2991-50-6	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFUnA	2058-94-8	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFDS	335-77-3	1.55	0.827	0.978	1.96	J	B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFDoA	307-55-1	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFTrDA	72629-94-8	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
PFTeDA	376-06-7	ND	0.827	0.978	1.96		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	91.3	60 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C3-PFPeA	IS	86.2	60 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C3-PFBS	IS	92.3	60 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-4:2 FTS	IS	141	40 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-PFHxA	IS	86.4	70 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C4-PFHpA	IS	88.9	60 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C3-PFHxS	IS	96.4	60 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-6:2 FTS	IS	93.5	40 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-PFOA	IS	85.7	60 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C5-PFNA	IS	81.9	50 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C8-PFOSA	IS	54.2	20 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C8-PFOS	IS	81.8	60 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-PFDA	IS	75.0	60 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1

Sample ID: SXDU11904101300RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 13:00
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-08	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	82.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	95.3	40 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
d3-MeFOSAA	IS	88.8	50 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
d5-EtFOSAA	IS	88.9	50 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-PFUnA	IS	76.1	60 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-PFDoA	IS	66.1	30 - 130		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	1
13C2-PFTeDA	IS	82.1	20 - 150		B9D0148	25-Apr-19	1.24 g	30-Apr-19 04:09	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: SXDU21904101330RL — VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Soil
Date Collected: 10-Apr-19 13:30

Laboratory Data

Lab Sample: 1900729-10
Date Received: 11-Apr-19 09:35
% Solids: 78.7
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFPeA	2706-90-3	0.851	0.833	0.985	1.97	J	B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFBS	375-73-5	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
4:2 FTS	757124-72-4	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFHxA	307-24-4	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFPeS	2706-91-4	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFHpA	375-85-9	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFHxS	355-46-4	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
6:2 FTS	27619-97-2	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFOA	335-67-1	1.33	0.833	0.985	1.97	J	B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFHpS	375-92-8	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFNA	375-95-1	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFOSA	754-91-6	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFOS	1763-23-1	6.64	0.833	0.985	1.97	Q	B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFDA	335-76-2	0.992	0.833	0.985	1.97	J	B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
8:2 FTS	39108-34-4	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFNS	68259-12-1	ND	1.41	1.48	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
MeFOSAA	2355-31-9	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
EtFOSAA	2991-50-6	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFUnA	2058-94-8	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFDS	335-77-3	0.925	0.833	0.985	1.97	J, Q	B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFDoA	307-55-1	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFTrDA	72629-94-8	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
PFTeDA	376-06-7	ND	0.833	0.985	1.97		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.0	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C3-PFPeA	IS	84.0	60 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C3-PFBS	IS	91.7	60 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-4:2 FTS	IS	128	40 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-PFHxA	IS	86.0	70 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C4-PFHpA	IS	84.1	60 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C3-PFHxS	IS	88.3	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-6:2 FTS	IS	100	40 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-PFOA	IS	77.6	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C5-PFNA	IS	77.1	50 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C8-PFOSA	IS	56.4	20 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C8-PFOS	IS	74.9	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-PFDA	IS	68.5	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1

Sample ID: SXDU21904101330RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 13:30
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-10	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	78.7		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.5	40 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
d3-MeFOSAA	IS	82.5	50 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
d5-EtFOSAA	IS	85.1	50 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-PFUnA	IS	68.0	60 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-PFDoA	IS	52.6	30 - 130		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	1
13C2-PFTeDA	IS	74.3	20 - 150		B9D0148	25-Apr-19	1.29 g	30-Apr-19 04:20	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: SXDU31904101355RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E11-FC01
Matrix: Soil
Date Collected: 10-Apr-19 13:55

Laboratory Data

Lab Sample: 1900729-14
Date Received: 11-Apr-19 09:35
% Solids: 88.5
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFPeA	2706-90-3	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFBS	375-73-5	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
4:2 FTS	757124-72-4	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFHxA	307-24-4	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFPeS	2706-91-4	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFHpA	375-85-9	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFHxS	355-46-4	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
6:2 FTS	27619-97-2	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFOA	335-67-1	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFHpS	375-92-8	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFNA	375-95-1	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFOSA	754-91-6	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFOS	1763-23-1	3.00	0.824	0.975	1.95	Q	B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFDA	335-76-2	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
8:2 FTS	39108-34-4	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFNS	68259-12-1	ND	1.39	1.46	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
MeFOSAA	2355-31-9	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
EtFOSAA	2991-50-6	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFUnA	2058-94-8	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFDS	335-77-3	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFDoA	307-55-1	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFTrDA	72629-94-8	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
PFTeDA	376-06-7	ND	0.824	0.975	1.95		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.0	60 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C3-PFPeA	IS	92.2	60 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C3-PFBS	IS	93.2	60 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-4:2 FTS	IS	129	40 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-PFHxA	IS	90.5	70 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C4-PFHpA	IS	90.6	60 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C3-PFHxS	IS	92.8	60 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-6:2 FTS	IS	113	40 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-PFOA	IS	83.1	60 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C5-PFNA	IS	78.0	50 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C8-PFOSA	IS	39.6	20 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C8-PFOS	IS	85.9	60 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-PFDA	IS	80.9	60 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1

Sample ID: SXDU31904101355RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 13:55
Location:	JACK-01S01E11-FC01		

Laboratory Data

Lab Sample:	1900729-14	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	88.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.2	40 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
d3-MeFOSAA	IS	62.7	50 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
d5-EtFOSAA	IS	67.4	50 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-PFUnA	IS	71.3	60 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-PFDoA	IS	64.7	30 - 130		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	1
13C2-PFTeDA	IS	41.8	20 - 150		B9D0148	25-Apr-19	1.16 g	30-Apr-19 04:30	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: SXDU21904101505RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E14-MT01
Matrix: Soil
Date Collected: 10-Apr-19 15:05

Laboratory Data

Lab Sample: 1900729-15
Date Received: 11-Apr-19 09:35
% Solids: 86.4
Column: BEH C18

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		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFPeA	2706-90-3	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFBS	375-73-5	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
4:2 FTS	757124-72-4	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFHxA	307-24-4	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFPeS	2706-91-4	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFHpA	375-85-9	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFHxS	355-46-4	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
6:2 FTS	27619-97-2	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFOA	335-67-1	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFHpS	375-92-8	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFNA	375-95-1	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFOSA	754-91-6	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFOS	1763-23-1	1.08	0.836	0.990	1.98	J, Q	B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFDA	335-76-2	0.927	0.836	0.990	1.98	J	B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
8:2 FTS	39108-34-4	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFNS	68259-12-1	ND	1.42	1.48	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
MeFOSAA	2355-31-9	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
EtFOSAA	2991-50-6	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFUnA	2058-94-8	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFDS	335-77-3	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFDoA	307-55-1	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFTrDA	72629-94-8	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
PFTeDA	376-06-7	ND	0.836	0.990	1.98		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.9	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C3-PFPeA	IS	91.7	60 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C3-PFBS	IS	86.9	60 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-4:2 FTS	IS	129	40 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-PFHxA	IS	89.3	70 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C4-PFHpA	IS	94.1	60 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C3-PFHxS	IS	91.2	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-6:2 FTS	IS	112	40 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-PFOA	IS	82.6	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C5-PFNA	IS	86.1	50 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C8-PFOSA	IS	56.3	20 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C8-PFOS	IS	87.0	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-PFDA	IS	76.4	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1

Sample ID: SXDU21904101505RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 15:05
Location:	JACK-01S01E14-MT01		

Laboratory Data

Lab Sample:	1900729-15	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	86.4		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.0	40 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
d3-MeFOSAA	IS	85.7	50 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
d5-EtFOSAA	IS	89.5	50 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-PFUnA	IS	68.3	60 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-PFDoA	IS	69.4	30 - 130		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	1
13C2-PFTeDA	IS	62.9	20 - 150		B9D0148	25-Apr-19	1.17 g	30-Apr-19 04:41	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: SXDU11904101540RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: JACK-01S01E14-MT01
Matrix: Soil
Date Collected: 10-Apr-19 15:40

Laboratory Data

Lab Sample: 1900729-16
Date Received: 11-Apr-19 09:35
% Solids: 84.8
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFPeA	2706-90-3	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFBS	375-73-5	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
4:2 FTS	757124-72-4	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFHxA	307-24-4	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFPeS	2706-91-4	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFHpA	375-85-9	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFHxS	355-46-4	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
6:2 FTS	27619-97-2	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFOA	335-67-1	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFHpS	375-92-8	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFNA	375-95-1	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFOSA	754-91-6	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFOS	1763-23-1	1.05	0.810	0.959	1.92	J, Q	B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFDA	335-76-2	0.878	0.810	0.959	1.92	J	B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
8:2 FTS	39108-34-4	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFNS	68259-12-1	ND	1.37	1.44	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
MeFOSAA	2355-31-9	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
EtFOSAA	2991-50-6	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFUnA	2058-94-8	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFDS	335-77-3	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFDoA	307-55-1	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFTrDA	72629-94-8	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
PFTeDA	376-06-7	ND	0.810	0.959	1.92		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.7	60 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C3-PFPeA	IS	91.4	60 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C3-PFBS	IS	84.7	60 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-4:2 FTS	IS	115	40 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-PFHxA	IS	90.1	70 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C4-PFHpA	IS	91.3	60 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C3-PFHxS	IS	81.7	60 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-6:2 FTS	IS	118	40 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-PFOA	IS	82.9	60 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C5-PFNA	IS	86.4	50 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C8-PFOSA	IS	53.4	20 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C8-PFOS	IS	89.2	60 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-PFDA	IS	85.6	60 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1

Sample ID: SXDU11904101540RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	10-Apr-19 15:40
Location:	JACK-01S01E14-MT01		

Laboratory Data

Lab Sample:	1900729-16	Column:	BEH C18
Date Received:	11-Apr-19 09:35		
% Solids:	84.8		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	108	40 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
d3-MeFOSAA	IS	88.0	50 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
d5-EtFOSAA	IS	89.1	50 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-PFUnA	IS	82.4	60 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-PFDoA	IS	73.6	30 - 130		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	1
13C2-PFTeDA	IS	69.8	20 - 150		B9D0148	25-Apr-19	1.23 g	30-Apr-19 04:51	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	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

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

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
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	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
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

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900729 Temp: 2.3 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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
Michal Kosciarz	4/10/2019	1830	Marissa Sparks	04/11/19	0935
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	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	Comments
				Container(s)			PFAS Isotope Dilution						USEPA Method 537			
EB03-1904100925RL	4/10/19	0925	JACK-PUTTYSCRAPER	2	P	AQ			X							
SXDU11904101005RL	4/10/19	1005	JACK-01S01E02-MC01	1	PJ	SO			X							
SW011904101030MK	4/10/19	1030	JACK-01S01E02-MC01	2	P	AQ			X							
SXDU21904101050RL	4/10/19	1050	JACK-01S01E02-MC01	1	PJ	SO			X							
SW021904101100MK	4/10/19	1100	JACK-01S01E02-MC01	2	P	AQ			X							
SXDU31904101120RL	4/10/19	1120	JACK-01S01E02-MC01	1	PJ	SO			X							
TD011904101125MK	4/10/19	1125	JACK-01S01E02-MC01	2	P	AQ			X							
SXDU11904101300RL	4/10/19	1300	JACK-01S01E11-FC01	1	PJ	SO			X							
SW031904101145MK	4/10/19	1145	JACK-01S01E11-FC01	2	P	AQ			X							
SXDU21904101330RL	4/10/19	1330	JACK-01S01E11-FC01	1	PJ	SO			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:

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:

Page 2 of 2

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900729 Temp: 2.3 °C
Storage ID: WR-2 Storage Secured: Yes ☐ No ☐

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

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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
Michal Kosciarz	4/10/2019	1830	Marissa Sparks	04/11/19	0935
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	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: PFOA/ PFOS	PFAS Isotope Dilution: UCMR3 PFAS List:6	PFAS Isotope Dilution: PFAS List: 14	USEPA Method 537	Comments
SW011904101150MK	4/10/19	1150	JACK-01S01E11-FC01	2	P	AQ			X								
SW041904101325MK	4/10/19	1325	JACK-01S01E11-FC01	2	P	AQ			X								
SW021904101335MK	4/10/19	1335	JACK-01S01E11-FC01	2	P	AQ			X								
SXDU31904101355RL	4/10/19	1355	JACK-01S01E11-FC01	1	PJ	SO			X								
SXDU21904101505RL	4/10/19	1505	JACK-01S01E14-MT01	1	PJ	SO			X								
SXDU11904101540RL	4/10/19	1540	JACK-01S01E14-MT01	1	PJ	SO			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:

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:

Vista Analytical Laboratory

Sample Log-In Checklist

Vista Work Order #: 1900729 Page # 1 of 1

TAT std

Samples Arrival:	Date/Time 04/11/19 0935	Initials: WWS	Location: WR-2 Shelf/Rack: N/a
Logged In:	Date/Time 04/12/19 1422	Initials: KE	Location: WR-2 Shelf/Rack: A4 & A3/E7

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 2.4 (uncorrected)	Probe used: Y / N	Thermometer ID: IR-4
Temp °C: 2.3 (corrected)		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill 2 of 2 Trk # 7865 7749 8547	✓		
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:	$Na_2S_2O_3$ Trizma None Other			Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments:

Chain of Custody Anomaly/Sample Acceptance Form

Vista Analytical Laboratory

Client:	Merit Laboratories, Inc.	Workorder Number:	1900729
Contact:	Maya Murshak	Date Received:	11-Apr-19 09:35
Email:	mayamurshak@meritlabs.com	Documented by/date:	B.Benedict 04/24/2019
Phone:	(517) 827-2744		

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.

- [ ] Sample Collection Date and/or Time not provided
- [ ] Temperature outside Method Requirement (WI-PHT)
  Temperature _____°C Ice Present? Yes No Melted
- [X] Sample ID Not Reconcilable: **see comments**
- [ ] Sample Holding Time Missed
- [ ] Insufficient Sample Size
- [ ] All Sample Container(s) Broken
- [ ] Drinking Water Incorrect Container Type
- [ ] Chain-of-Custody not received, illegible or destroyed
- [ ] Other: _____

Comments/Samples Affected:

COC ID:	collection date time	Label ID:	collection date time on label
SXDU21904**101050RL**	04/10/19 @ 1050	SXDU21904**1050RL**	04.10.19 @1050

Client Authorization

Proceed with Analysis: (YES) NO Signature and Date [signature] 05/02/19

Client Comments/Instructions Client notified via email on 04/16/19.

May 10, 2019

Vista Work Order No. 1900814

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 April 19, 2019 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,

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 Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1900814
Case Narrative

Sample Condition on Receipt:

Sixteen aqueous samples and five 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. Sample "SXDU21904161200MK" was received with a broken cap. An image of the damage is included with the sample receipt documentation.

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.

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

VAL-PFAS Method

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

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
B9D0214-BS1	B9D0214-BS1	VAL - PFAS	d3-MeFOSAA	H	46.7
B9D0214-BS1	B9D0214-BS1	VAL - PFAS	13C2-PFUnA	H	59.8

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900814-01	SW011904161115RL	16-Apr-19 11:15	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-02	SXDU31904161120MK	16-Apr-19 11:20	19-Apr-19 09:11	HDPE Jar, 6 oz
1900814-03	TD011904161125RL	16-Apr-19 11:25	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-04	TD021904161130RL	16-Apr-19 11:30	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-05	TD031904161135RL	16-Apr-19 11:35	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-06	TD041904161140RL	16-Apr-19 11:40	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-07	TD051904161145RL	16-Apr-19 11:45	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-08	SXDU21904161200MK	16-Apr-19 12:00	19-Apr-19 09:11	HDPE Jar, 6 oz
1900814-09	SW031904161230RL	16-Apr-19 12:30	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-10	SW041904161235RL	16-Apr-19 12:35	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-11	SXDU11904161245MK	16-Apr-19 12:45	19-Apr-19 09:11	HDPE Jar, 6 oz
1900814-12	TD061904161250RL	16-Apr-19 12:50	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-13	TD071904161255RL	16-Apr-19 12:55	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-14	PEW011904161300RL	16-Apr-19 13:00	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-15	SW021904161310RL	16-Apr-19 13:10	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-16	TD011904161345MK	16-Apr-19 13:45	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-17	SW021904161350MK	16-Apr-19 13:50	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-18	SXDU11904161430MK	16-Apr-19 14:30	19-Apr-19 09:11	HDPE Jar, 6 oz
1900814-19	SW011904161440RL	16-Apr-19 14:40	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-20	SW031904161450RL	16-Apr-19 14:50	19-Apr-19 09:11	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900814-21	SXDU21904161505MK	16-Apr-19 15:05	19-Apr-19 09:11	HDPE Jar, 6 oz

Vista Project: 1900814

Client Project: Statewide WWTP Biosolids PFAS Evaluation

ANALYTICAL RESULTS

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: B9D0212-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	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFTrDA	72629-94-8	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.0	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C3-PFPeA	IS	96.3	60 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C3-PFBS	IS	103	60 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-4:2 FTS	IS	100	20 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-PFHxA	IS	95.5	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C4-PFHpA	IS	90.8	60 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C3-PFHxS	IS	98.0	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-6:2 FTS	IS	100	40 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-PFOA	IS	98.7	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C5-PFNA	IS	82.0	50 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C8-PFOSA	IS	58.5	20 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C8-PFOS	IS	89.9	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-PFDA	IS	81.3	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	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: B9D0212-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	85.4	40 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
d3-MeFOSAA	IS	78.1	50 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
d5-EtFOSAA	IS	77.7	50 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-PFUnA	IS	78.1	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-PFDoA	IS	67.3	30 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	1
13C2-PFTeDA	IS	46.0	20 - 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:32	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
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0212-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	38.9	40.0	97.4	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFPeA	2706-90-3	39.4	40.0	98.5	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFBS	375-73-5	39.8	40.0	99.6	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
4:2 FTS	757124-72-4	44.3	40.0	111	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFHxA	307-24-4	40.2	40.0	100	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFPeS	2706-91-4	40.5	40.0	101	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFHpA	375-85-9	37.0	40.0	92.5	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFHxS	355-46-4	38.1	40.0	95.2	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
6:2 FTS	27619-97-2	37.3	40.0	93.3	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFOA	335-67-1	39.3	40.0	98.3	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFHpS	375-92-8	42.1	40.0	105	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFNA	375-95-1	36.7	40.0	91.7	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFOSA	754-91-6	39.7	40.0	99.3	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFOS	1763-23-1	35.7	40.0	89.2	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFDA	335-76-2	37.8	40.0	94.5	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
8:2 FTS	39108-34-4	34.8	40.0	86.9	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFNS	68259-12-1	34.7	40.0	86.8	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
MeFOSAA	2355-31-9	32.7	40.0	81.8	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
EtFOSAA	2991-50-6	38.7	40.0	96.7	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFUnA	2058-94-8	41.0	40.0	102	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFDS	335-77-3	32.3	40.0	80.8	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFDoA	307-55-1	36.7	40.0	91.7	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFTrDA	72629-94-8	26.5	40.0	66.1	60 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
PFTeDA	376-06-7	40.2	40.0	100	70 - 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.5	60- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C3-PFPeA	IS	95.9	60- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C3-PFBS	IS	89.9	60- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-4:2 FTS	IS	87.5	20- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-PFHxA	IS	93.7	70- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C4-PFHpA	IS	92.9	60- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C3-PFHxS	IS	88.7	60- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-6:2 FTS	IS	97.1	40- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-PFOA	IS	89.3	60- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C5-PFNA	IS	81.4	50- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0212-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	45.5	20- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C8-PFOS	IS	83.8	60- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-PFDA	IS	69.6	60- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-8:2 FTS	IS	85.7	40- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
d3-MeFOSAA	IS	70.7	50- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
d5-EtFOSAA	IS	64.9	50- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-PFUnA	IS	67.4	60- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-PFDoA	IS	66.4	30- 130		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1
13C2-PFTeDA	IS	34.4	20- 150		B9D0212	29-Apr-19	0.250 L	01-May-19 04:22	1

Sample ID: SW011904161115RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:15

Laboratory Data

Lab Sample: 1900814-01
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.45	1.53	2.23	4.47	J	B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFPeA	2706-90-3	3.16	1.53	2.23	4.47	J	B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFBS	375-73-5	6.17	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
4:2 FTS	757124-72-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFHxA	307-24-4	2.61	1.53	2.23	4.47	J	B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFPeS	2706-91-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFHpA	375-85-9	1.58	1.53	2.23	4.47	J	B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFHxS	355-46-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
6:2 FTS	27619-97-2	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFOA	335-67-1	3.76	1.53	2.23	4.47	J	B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFHpS	375-92-8	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFNA	375-95-1	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFOSA	754-91-6	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFOS	1763-23-1	3.08	1.53	2.23	4.47	J, Q	B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFDA	335-76-2	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
8:2 FTS	39108-34-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFNS	68259-12-1	ND	2.16	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
MeFOSAA	2355-31-9	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
EtFOSAA	2991-50-6	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFUnA	2058-94-8	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFDS	335-77-3	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFDoA	307-55-1	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFTrDA	72629-94-8	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
PFTeDA	376-06-7	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.4	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C3-PFPeA	IS	95.6	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C3-PFBS	IS	91.5	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-4:2 FTS	IS	99.2	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-PFHxA	IS	97.1	70 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C4-PFHpA	IS	94.0	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C3-PFHxS	IS	96.0	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-6:2 FTS	IS	106	40 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-PFOA	IS	92.2	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C5-PFNA	IS	107	50 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C8-PFOSA	IS	48.7	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C8-PFOS	IS	93.5	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-PFDA	IS	85.6	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1

Sample ID: SW011904161115RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 11:15
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-01	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	92.9	40 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
d3-MeFOSAA	IS	78.3	50 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
d5-EtFOSAA	IS	84.5	50 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-PFUnA	IS	72.6	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-PFDoA	IS	72.1	30 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	1
13C2-PFTeDA	IS	64.9	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 04:43	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: TD011904161125RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:25

Laboratory Data

Lab Sample: 1900814-03
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFPeA	2706-90-3	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFBS	375-73-5	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
4:2 FTS	757124-72-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFHxA	307-24-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFPeS	2706-91-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFHpA	375-85-9	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFHxS	355-46-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
6:2 FTS	27619-97-2	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFOA	335-67-1	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFHpS	375-92-8	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFNA	375-95-1	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFOSA	754-91-6	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFOS	1763-23-1	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFDA	335-76-2	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
8:2 FTS	39108-34-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFNS	68259-12-1	ND	2.13	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
MeFOSAA	2355-31-9	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
EtFOSAA	2991-50-6	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFUnA	2058-94-8	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFDS	335-77-3	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFDoA	307-55-1	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFTrDA	72629-94-8	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
PFTeDA	376-06-7	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.3	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C3-PFPeA	IS	98.7	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C3-PFBS	IS	99.2	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-4:2 FTS	IS	104	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-PFHxA	IS	96.2	70 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C4-PFHpA	IS	101	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C3-PFHxS	IS	98.8	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-6:2 FTS	IS	98.8	40 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-PFOA	IS	99.5	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C5-PFNA	IS	96.9	50 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C8-PFOSA	IS	64.7	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C8-PFOS	IS	93.1	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-PFDA	IS	81.5	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1

Sample ID: TD011904161125RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 11:25
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-03	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.8	40 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
d3-MeFOSAA	IS	83.8	50 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
d5-EtFOSAA	IS	87.3	50 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-PFUnA	IS	82.1	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-PFDoA	IS	69.7	30 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	1
13C2-PFTeDA	IS	70.0	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 04:54	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: TD021904161130RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:30

Laboratory Data

Lab Sample: 1900814-04
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFPeA	2706-90-3	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFBS	375-73-5	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
4:2 FTS	757124-72-4	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFHxA	307-24-4	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFPeS	2706-91-4	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFHpA	375-85-9	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFHxS	355-46-4	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
6:2 FTS	27619-97-2	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFOA	335-67-1	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFHpS	375-92-8	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFNA	375-95-1	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFOSA	754-91-6	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFOS	1763-23-1	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFDA	335-76-2	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
8:2 FTS	39108-34-4	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFNS	68259-12-1	ND	2.11	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
MeFOSAA	2355-31-9	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
EtFOSAA	2991-50-6	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFUnA	2058-94-8	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFDS	335-77-3	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFDoA	307-55-1	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFTrDA	72629-94-8	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
PFTeDA	376-06-7	ND	1.50	2.18	4.37		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.0	60 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C3-PFPeA	IS	95.6	60 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C3-PFBS	IS	97.1	60 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-4:2 FTS	IS	96.1	20 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-PFHxA	IS	95.0	70 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C4-PFHpA	IS	93.7	60 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C3-PFHxS	IS	89.2	60 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-6:2 FTS	IS	84.3	40 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-PFOA	IS	90.4	60 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C5-PFNA	IS	90.3	50 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C8-PFOSA	IS	61.9	20 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C8-PFOS	IS	95.2	60 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-PFDA	IS	84.8	60 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1

Sample ID: TD021904161130RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:30

Laboratory Data

Lab Sample: 1900814-04
Date Received: 19-Apr-19 09:11
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	96.4	40 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
d3-MeFOSAA	IS	80.4	50 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
d5-EtFOSAA	IS	82.8	50 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-PFUnA	IS	77.2	60 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-PFDoA	IS	70.1	30 - 130		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	1
13C2-PFTeDA	IS	65.3	20 - 150		B9D0212	29-Apr-19	0.229 L	01-May-19 05:04	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: TD031904161135RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:35

Laboratory Data

Lab Sample: 1900814-05
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.06	1.53	2.23	4.47	J	B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFPeA	2706-90-3	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFBS	375-73-5	36.9	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
4:2 FTS	757124-72-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFHxA	307-24-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFPeS	2706-91-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFHpA	375-85-9	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFHxS	355-46-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
6:2 FTS	27619-97-2	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFOA	335-67-1	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFHpS	375-92-8	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFNA	375-95-1	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFOSA	754-91-6	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFOS	1763-23-1	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFDA	335-76-2	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
8:2 FTS	39108-34-4	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFNS	68259-12-1	ND	2.16	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
MeFOSAA	2355-31-9	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
EtFOSAA	2991-50-6	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFUnA	2058-94-8	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFDS	335-77-3	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFDoA	307-55-1	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFTrDA	72629-94-8	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
PFTeDA	376-06-7	ND	1.53	2.23	4.47		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.7	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C3-PFPeA	IS	98.7	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C3-PFBS	IS	90.6	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-4:2 FTS	IS	91.7	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-PFHxA	IS	97.8	70 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C4-PFHpA	IS	94.8	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C3-PFHxS	IS	95.1	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-6:2 FTS	IS	92.7	40 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-PFOA	IS	90.8	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C5-PFNA	IS	94.6	50 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C8-PFOSA	IS	59.4	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C8-PFOS	IS	96.6	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-PFDA	IS	92.9	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1

Sample ID: TD031904161135RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 11:35
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-05	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.7	40 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
d3-MeFOSAA	IS	83.7	50 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
d5-EtFOSAA	IS	81.3	50 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-PFUnA	IS	77.4	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-PFDoA	IS	66.9	30 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	1
13C2-PFTeDA	IS	81.2	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 05:15	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: TD041904161140RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:40

Laboratory Data

Lab Sample: 1900814-06
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	5.10	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFPeA	2706-90-3	3.16	1.50	2.19	4.39	J	B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFBS	375-73-5	47.1	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
4:2 FTS	757124-72-4	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFHxA	307-24-4	2.77	1.50	2.19	4.39	J	B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFPeS	2706-91-4	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFHpA	375-85-9	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFHxS	355-46-4	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
6:2 FTS	27619-97-2	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFOA	335-67-1	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFHpS	375-92-8	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFNA	375-95-1	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFOSA	754-91-6	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFOS	1763-23-1	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFDA	335-76-2	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
8:2 FTS	39108-34-4	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFNS	68259-12-1	ND	2.12	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
MeFOSAA	2355-31-9	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
EtFOSAA	2991-50-6	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFUnA	2058-94-8	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFDS	335-77-3	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFDoA	307-55-1	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFTrDA	72629-94-8	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
PFTeDA	376-06-7	ND	1.50	2.19	4.39		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.3	60 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C3-PFPeA	IS	96.1	60 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C3-PFBS	IS	97.3	60 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-4:2 FTS	IS	98.8	20 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-PFHxA	IS	93.5	70 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C4-PFHpA	IS	91.3	60 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C3-PFHxS	IS	98.7	60 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-6:2 FTS	IS	90.4	40 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-PFOA	IS	95.3	60 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C5-PFNA	IS	94.4	50 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C8-PFOSA	IS	63.5	20 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C8-PFOS	IS	86.6	60 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-PFDA	IS	85.1	60 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1

Sample ID: TD041904161140RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 11:40
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-06	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	89.6	40 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
d3-MeFOSAA	IS	73.8	50 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
d5-EtFOSAA	IS	72.2	50 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-PFUnA	IS	84.0	60 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-PFDoA	IS	69.6	30 - 130		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	1
13C2-PFTeDA	IS	73.3	20 - 150		B9D0212	29-Apr-19	0.228 L	01-May-19 05:25	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: TD051904161145RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:45

Laboratory Data

Lab Sample: 1900814-07
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFPeA	2706-90-3	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFBS	375-73-5	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
4:2 FTS	757124-72-4	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFHxA	307-24-4	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFPeS	2706-91-4	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFHpA	375-85-9	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFHxS	355-46-4	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
6:2 FTS	27619-97-2	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFOA	335-67-1	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFHpS	375-92-8	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFNA	375-95-1	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFOSA	754-91-6	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFOS	1763-23-1	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFDA	335-76-2	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
8:2 FTS	39108-34-4	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFNS	68259-12-1	ND	2.21	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
MeFOSAA	2355-31-9	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
EtFOSAA	2991-50-6	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFUnA	2058-94-8	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFDS	335-77-3	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFDoA	307-55-1	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFTrDA	72629-94-8	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
PFTeDA	376-06-7	ND	1.57	2.28	4.57		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.2	60 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C3-PFPeA	IS	97.2	60 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C3-PFBS	IS	99.2	60 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-4:2 FTS	IS	99.9	20 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-PFHxA	IS	93.5	70 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C4-PFHpA	IS	96.9	60 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C3-PFHxS	IS	99.4	60 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-6:2 FTS	IS	103	40 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-PFOA	IS	92.2	60 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C5-PFNA	IS	91.1	50 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C8-PFOSA	IS	66.0	20 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C8-PFOS	IS	90.9	60 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-PFDA	IS	90.0	60 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1

Sample ID: TD051904161145RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 11:45

Laboratory Data

Lab Sample: 1900814-07
Date Received: 19-Apr-19 09:11
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	91.5	40 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
d3-MeFOSAA	IS	96.5	50 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
d5-EtFOSAA	IS	94.2	50 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-PFUnA	IS	93.3	60 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-PFDoA	IS	74.7	30 - 130		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	1
13C2-PFTeDA	IS	82.7	20 - 150		B9D0212	29-Apr-19	0.219 L	01-May-19 06:08	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.

Sample ID: SW031904161230RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 12:30

Laboratory Data

Lab Sample: 1900814-09
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	7.43	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFPeA	2706-90-3	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFBS	375-73-5	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
4:2 FTS	757124-72-4	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFHxA	307-24-4	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFPeS	2706-91-4	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFHpA	375-85-9	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFHxS	355-46-4	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
6:2 FTS	27619-97-2	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFOA	335-67-1	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFHpS	375-92-8	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFNA	375-95-1	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFOSA	754-91-6	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFOS	1763-23-1	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFDA	335-76-2	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
8:2 FTS	39108-34-4	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFNS	68259-12-1	ND	2.16	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
MeFOSAA	2355-31-9	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
EtFOSAA	2991-50-6	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFUnA	2058-94-8	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFDS	335-77-3	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFDoA	307-55-1	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFTrDA	72629-94-8	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
PFTeDA	376-06-7	ND	1.53	2.23	4.46		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.0	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C3-PFPeA	IS	92.2	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C3-PFBS	IS	92.6	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-4:2 FTS	IS	93.2	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-PFHxA	IS	91.8	70 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C4-PFHpA	IS	95.4	60 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C3-PFHxS	IS	87.6	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-6:2 FTS	IS	95.3	40 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-PFOA	IS	90.9	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C5-PFNA	IS	89.5	50 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C8-PFOSA	IS	51.8	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C8-PFOS	IS	89.3	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-PFDA	IS	76.6	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1

Sample ID: SW031904161230RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 12:30
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-09	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.4	40 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
d3-MeFOSAA	IS	69.6	50 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
d5-EtFOSAA	IS	76.8	50 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-PFUnA	IS	65.7	60 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-PFDoA	IS	54.0	30 - 130		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	1
13C2-PFTeDA	IS	41.0	20 - 150		B9D0212	29-Apr-19	0.224 L	01-May-19 06:18	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: SW041904161235RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 12:35

Laboratory Data

Lab Sample: 1900814-10
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.89	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFPeA	2706-90-3	2.44	1.58	2.30	4.61	J	B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFBS	375-73-5	6.15	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
4:2 FTS	757124-72-4	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFHxA	307-24-4	2.47	1.58	2.30	4.61	J	B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFPeS	2706-91-4	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFHpA	375-85-9	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFHxS	355-46-4	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
6:2 FTS	27619-97-2	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFOA	335-67-1	2.81	1.58	2.30	4.61	J	B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFHpS	375-92-8	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFNA	375-95-1	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFOSA	754-91-6	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFOS	1763-23-1	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFDA	335-76-2	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
8:2 FTS	39108-34-4	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFNS	68259-12-1	ND	2.23	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
MeFOSAA	2355-31-9	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
EtFOSAA	2991-50-6	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFUnA	2058-94-8	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFDS	335-77-3	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFDoA	307-55-1	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFTrDA	72629-94-8	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
PFTeDA	376-06-7	ND	1.58	2.30	4.61		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.1	60 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C3-PFPeA	IS	94.5	60 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C3-PFBS	IS	92.3	60 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-4:2 FTS	IS	96.3	20 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-PFHxA	IS	96.1	70 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C4-PFHpA	IS	98.1	60 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C3-PFHxS	IS	97.2	60 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-6:2 FTS	IS	94.6	40 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-PFOA	IS	94.2	60 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C5-PFNA	IS	82.2	50 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C8-PFOSA	IS	49.9	20 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C8-PFOS	IS	91.6	60 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-PFDA	IS	90.8	60 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1

Sample ID: SW041904161235RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 12:35
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-10	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	88.7	40 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
d3-MeFOSAA	IS	78.1	50 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
d5-EtFOSAA	IS	76.6	50 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-PFUnA	IS	68.9	60 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-PFDoA	IS	70.3	30 - 130		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	1
13C2-PFTeDA	IS	54.9	20 - 150		B9D0212	29-Apr-19	0.217 L	01-May-19 06:29	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: TD061904161250RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 12:50

Laboratory Data

Lab Sample: 1900814-12
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.87	1.52	2.22	4.45	J	B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFPeA	2706-90-3	1.94	1.52	2.22	4.45	J	B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFBS	375-73-5	29.3	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
4:2 FTS	757124-72-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFHxA	307-24-4	2.10	1.52	2.22	4.45	J	B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFPeS	2706-91-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFHpA	375-85-9	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFHxS	355-46-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
6:2 FTS	27619-97-2	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFOA	335-67-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFHpS	375-92-8	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFNA	375-95-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFOSA	754-91-6	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFOS	1763-23-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFDA	335-76-2	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
8:2 FTS	39108-34-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFNS	68259-12-1	ND	2.15	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
MeFOSAA	2355-31-9	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
EtFOSAA	2991-50-6	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFUnA	2058-94-8	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFDS	335-77-3	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFDoA	307-55-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFTrDA	72629-94-8	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
PFTeDA	376-06-7	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.8	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C3-PFPeA	IS	95.3	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C3-PFBS	IS	94.8	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-4:2 FTS	IS	89.3	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-PFHxA	IS	93.6	70 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C4-PFHpA	IS	92.2	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C3-PFHxS	IS	89.5	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-6:2 FTS	IS	90.7	40 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-PFOA	IS	92.4	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C5-PFNA	IS	86.0	50 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C8-PFOSA	IS	51.6	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C8-PFOS	IS	87.4	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-PFDA	IS	89.2	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1

Sample ID: TD061904161250RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 12:50

Laboratory Data

Lab Sample: 1900814-12
Date Received: 19-Apr-19 09:11
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.3	40 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
d3-MeFOSAA	IS	78.0	50 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
d5-EtFOSAA	IS	84.9	50 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-PFUnA	IS	82.0	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-PFDoA	IS	79.5	30 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	1
13C2-PFTeDA	IS	76.1	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:40	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: TD071904161255RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 12:55

Laboratory Data

Lab Sample: 1900814-13
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.21	1.52	2.22	4.44	J	B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFPeA	2706-90-3	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFBS	375-73-5	18.9	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
4:2 FTS	757124-72-4	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFHxA	307-24-4	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFPeS	2706-91-4	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFHpA	375-85-9	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFHxS	355-46-4	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
6:2 FTS	27619-97-2	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFOA	335-67-1	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFHpS	375-92-8	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFNA	375-95-1	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFOSA	754-91-6	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFOS	1763-23-1	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFDA	335-76-2	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
8:2 FTS	39108-34-4	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFNS	68259-12-1	ND	2.15	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
MeFOSAA	2355-31-9	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
EtFOSAA	2991-50-6	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFUnA	2058-94-8	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFDS	335-77-3	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFDoA	307-55-1	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFTrDA	72629-94-8	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
PFTeDA	376-06-7	ND	1.52	2.22	4.44		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.4	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C3-PFPeA	IS	92.1	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C3-PFBS	IS	98.3	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-4:2 FTS	IS	106	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-PFHxA	IS	89.2	70 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C4-PFHpA	IS	90.1	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C3-PFHxS	IS	95.7	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-6:2 FTS	IS	98.4	40 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-PFOA	IS	98.8	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C5-PFNA	IS	87.6	50 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C8-PFOSA	IS	69.9	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C8-PFOS	IS	85.0	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-PFDA	IS	89.1	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1

Sample ID: TD071904161255RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 12:55
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-13	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	74.1	40 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
d3-MeFOSAA	IS	83.7	50 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
d5-EtFOSAA	IS	85.5	50 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-PFUnA	IS	88.2	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-PFDoA	IS	70.7	30 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	1
13C2-PFTeDA	IS	74.5	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 06:50	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: PEW011904161300RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 13:00

Laboratory Data

Lab Sample: 1900814-14
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	6.29	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFPeA	2706-90-3	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFBS	375-73-5	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
4:2 FTS	757124-72-4	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFHxA	307-24-4	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFPeS	2706-91-4	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFHpA	375-85-9	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFHxS	355-46-4	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
6:2 FTS	27619-97-2	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFOA	335-67-1	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFHpS	375-92-8	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFNA	375-95-1	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFOSA	754-91-6	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFOS	1763-23-1	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFDA	335-76-2	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
8:2 FTS	39108-34-4	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFNS	68259-12-1	ND	2.34	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
MeFOSAA	2355-31-9	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
EtFOSAA	2991-50-6	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFUnA	2058-94-8	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFDS	335-77-3	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFDoA	307-55-1	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFTrDA	72629-94-8	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
PFTeDA	376-06-7	ND	1.66	2.43	4.85		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.7	60 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C3-PFPeA	IS	93.5	60 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C3-PFBS	IS	93.2	60 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-4:2 FTS	IS	84.8	20 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-PFHxA	IS	94.3	70 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C4-PFHpA	IS	96.5	60 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C3-PFHxS	IS	93.3	60 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-6:2 FTS	IS	97.3	40 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-PFOA	IS	89.7	60 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C5-PFNA	IS	90.7	50 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C8-PFOSA	IS	50.7	20 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C8-PFOS	IS	96.5	60 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-PFDA	IS	70.5	60 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1

Sample ID: PEW011904161300RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 13:00
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-14	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	96.2	40 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
d3-MeFOSAA	IS	66.2	50 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
d5-EtFOSAA	IS	76.1	50 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-PFUnA	IS	69.5	60 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-PFDoA	IS	55.7	30 - 130		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	1
13C2-PFTeDA	IS	40.4	20 - 150		B9D0212	29-Apr-19	0.206 L	01-May-19 07:01	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: SW021904161310RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Aqueous
Date Collected: 16-Apr-19 13:10

Laboratory Data

Lab Sample: 1900814-15
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	5.27	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFPeA	2706-90-3	2.70	1.51	2.20	4.41	J	B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFBS	375-73-5	6.89	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
4:2 FTS	757124-72-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFHxA	307-24-4	2.52	1.51	2.20	4.41	J	B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFPeS	2706-91-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFHpA	375-85-9	1.64	1.51	2.20	4.41	J	B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFHxS	355-46-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
6:2 FTS	27619-97-2	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFOA	335-67-1	3.03	1.51	2.20	4.41	J	B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFHpS	375-92-8	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFNA	375-95-1	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFOSA	754-91-6	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFOS	1763-23-1	1.57	1.51	2.20	4.41	J	B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFDA	335-76-2	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
8:2 FTS	39108-34-4	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFNS	68259-12-1	ND	2.13	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
MeFOSAA	2355-31-9	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
EtFOSAA	2991-50-6	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFUnA	2058-94-8	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFDS	335-77-3	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFDoA	307-55-1	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFTrDA	72629-94-8	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
PFTeDA	376-06-7	ND	1.51	2.20	4.41		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.3	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C3-PFPeA	IS	95.6	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C3-PFBS	IS	95.8	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-4:2 FTS	IS	93.5	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-PFHxA	IS	95.8	70 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C4-PFHpA	IS	94.2	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C3-PFHxS	IS	93.8	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-6:2 FTS	IS	96.8	40 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-PFOA	IS	98.6	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C5-PFNA	IS	95.2	50 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C8-PFOSA	IS	39.6	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C8-PFOS	IS	84.5	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-PFDA	IS	87.8	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1

Sample ID: SW021904161310RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 13:10
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-15	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	83.6	40 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
d3-MeFOSAA	IS	84.2	50 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
d5-EtFOSAA	IS	84.1	50 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-PFUnA	IS	84.0	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-PFDoA	IS	67.8	30 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	1
13C2-PFTeDA	IS	62.6	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:11	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: TD011904161345MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E15-RG02
Matrix: Aqueous
Date Collected: 16-Apr-19 13:45

Laboratory Data

Lab Sample: 1900814-16
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFPeA	2706-90-3	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFBS	375-73-5	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
4:2 FTS	757124-72-4	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFHxA	307-24-4	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFPeS	2706-91-4	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFHpA	375-85-9	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFHxS	355-46-4	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
6:2 FTS	27619-97-2	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFOA	335-67-1	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFHpS	375-92-8	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFNA	375-95-1	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFOSA	754-91-6	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFOS	1763-23-1	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFDA	335-76-2	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
8:2 FTS	39108-34-4	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFNS	68259-12-1	ND	2.14	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
MeFOSAA	2355-31-9	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
EtFOSAA	2991-50-6	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFUnA	2058-94-8	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFDS	335-77-3	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFDoA	307-55-1	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFTrDA	72629-94-8	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
PFTeDA	376-06-7	ND	1.52	2.21	4.43		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.0	60 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C3-PFPeA	IS	98.3	60 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C3-PFBS	IS	92.1	60 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-4:2 FTS	IS	91.5	20 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-PFHxA	IS	93.8	70 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C4-PFHpA	IS	98.4	60 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C3-PFHxS	IS	95.9	60 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-6:2 FTS	IS	93.2	40 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-PFOA	IS	93.0	60 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C5-PFNA	IS	91.9	50 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C8-PFOSA	IS	64.9	20 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C8-PFOS	IS	95.1	60 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-PFDA	IS	88.6	60 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1

Sample ID: TD011904161345MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 13:45
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-16	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	88.3	40 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
d3-MeFOSAA	IS	79.6	50 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
d5-EtFOSAA	IS	87.2	50 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-PFUnA	IS	78.5	60 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-PFDoA	IS	66.5	30 - 130		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	1
13C2-PFTeDA	IS	77.8	20 - 150		B9D0212	29-Apr-19	0.226 L	01-May-19 07:22	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: SW021904161350MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E15-RG02
Matrix: Aqueous
Date Collected: 16-Apr-19 13:50

Laboratory Data

Lab Sample: 1900814-17
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFPeA	2706-90-3	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFBS	375-73-5	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
4:2 FTS	757124-72-4	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFHxA	307-24-4	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFPeS	2706-91-4	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFHpA	375-85-9	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFHxS	355-46-4	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
6:2 FTS	27619-97-2	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFOA	335-67-1	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFHpS	375-92-8	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFNA	375-95-1	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFOSA	754-91-6	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFOS	1763-23-1	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFDA	335-76-2	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
8:2 FTS	39108-34-4	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFNS	68259-12-1	ND	2.13	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
MeFOSAA	2355-31-9	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
EtFOSAA	2991-50-6	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFUnA	2058-94-8	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFDS	335-77-3	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFDoA	307-55-1	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFTrDA	72629-94-8	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
PFTeDA	376-06-7	ND	1.51	2.20	4.40		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.6	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C3-PFPeA	IS	96.9	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C3-PFBS	IS	97.2	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-4:2 FTS	IS	96.9	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-PFHxA	IS	94.6	70 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C4-PFHpA	IS	93.0	60 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C3-PFHxS	IS	95.0	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-6:2 FTS	IS	94.7	40 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-PFOA	IS	92.6	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C5-PFNA	IS	84.4	50 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C8-PFOSA	IS	41.7	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C8-PFOS	IS	89.8	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-PFDA	IS	82.0	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1

Sample ID: SW021904161350MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 13:50
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-17	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	89.0	40 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
d3-MeFOSAA	IS	78.2	50 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
d5-EtFOSAA	IS	84.7	50 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-PFUnA	IS	77.9	60 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-PFDoA	IS	73.9	30 - 130		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	1
13C2-PFTeDA	IS	83.0	20 - 150		B9D0212	29-Apr-19	0.227 L	01-May-19 07:33	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: SW011904161440RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E15-RG02
Matrix: Aqueous
Date Collected: 16-Apr-19 14:40

Laboratory Data

Lab Sample: 1900814-19
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.07	1.52	2.22	4.45	J	B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFPeA	2706-90-3	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFBS	375-73-5	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
4:2 FTS	757124-72-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFHxA	307-24-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFPeS	2706-91-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFHpA	375-85-9	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFHxS	355-46-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
6:2 FTS	27619-97-2	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFOA	335-67-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFHpS	375-92-8	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFNA	375-95-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFOSA	754-91-6	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFOS	1763-23-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFDA	335-76-2	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
8:2 FTS	39108-34-4	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFNS	68259-12-1	ND	2.15	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
MeFOSAA	2355-31-9	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
EtFOSAA	2991-50-6	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFUnA	2058-94-8	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFDS	335-77-3	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFDoA	307-55-1	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFTrDA	72629-94-8	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
PFTeDA	376-06-7	ND	1.52	2.22	4.45		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.2	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C3-PFPeA	IS	95.9	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C3-PFBS	IS	94.2	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-4:2 FTS	IS	90.3	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-PFHxA	IS	94.1	70 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C4-PFHpA	IS	96.3	60 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C3-PFHxS	IS	93.0	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-6:2 FTS	IS	103	40 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-PFOA	IS	94.1	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C5-PFNA	IS	89.9	50 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C8-PFOSA	IS	46.6	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C8-PFOS	IS	86.2	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-PFDA	IS	76.7	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1

Sample ID: SW011904161440RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 14:40
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-19	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	83.6	40 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
d3-MeFOSAA	IS	68.5	50 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
d5-EtFOSAA	IS	73.0	50 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-PFUnA	IS	67.2	60 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-PFDoA	IS	66.3	30 - 130		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	1
13C2-PFTeDA	IS	58.3	20 - 150		B9D0212	29-Apr-19	0.225 L	01-May-19 07:43	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: SW031904161450RL

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E15-RG02
Matrix: Aqueous
Date Collected: 16-Apr-19 14:50

Laboratory Data

Lab Sample: 1900814-20
Date Received: 19-Apr-19 09:11
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	6.87	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFPeA	2706-90-3	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFBS	375-73-5	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
4:2 FTS	757124-72-4	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFHxA	307-24-4	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFPeS	2706-91-4	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFHpA	375-85-9	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFHxS	355-46-4	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
6:2 FTS	27619-97-2	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFOA	335-67-1	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFHpS	375-92-8	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFNA	375-95-1	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFOSA	754-91-6	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFOS	1763-23-1	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFDA	335-76-2	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
8:2 FTS	39108-34-4	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFNS	68259-12-1	ND	2.24	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
MeFOSAA	2355-31-9	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
EtFOSAA	2991-50-6	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFUnA	2058-94-8	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFDS	335-77-3	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFDoA	307-55-1	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFTrDA	72629-94-8	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
PFTeDA	376-06-7	ND	1.59	2.31	4.63		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.7	60 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C3-PFPeA	IS	93.8	60 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C3-PFBS	IS	90.7	60 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-4:2 FTS	IS	92.5	20 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-PFHxA	IS	89.3	70 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C4-PFHpA	IS	91.2	60 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C3-PFHxS	IS	93.2	60 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-6:2 FTS	IS	104	40 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-PFOA	IS	91.1	60 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C5-PFNA	IS	81.9	50 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C8-PFOSA	IS	64.3	20 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C8-PFOS	IS	92.7	60 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-PFDA	IS	72.9	60 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1

Sample ID: SW031904161450RL

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 14:50
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-20	Column:	BEH C18
Date Received:	19-Apr-19 09:11		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	86.5	40 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
d3-MeFOSAA	IS	73.8	50 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
d5-EtFOSAA	IS	75.0	50 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-PFUnA	IS	77.8	60 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-PFDoA	IS	63.7	30 - 130		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	1
13C2-PFTeDA	IS	50.6	20 - 150		B9D0212	29-Apr-19	0.216 L	01-May-19 08:26	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

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0214-BLK1 Column: BEH C18

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		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFTrDA	72629-94-8	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.3	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C3-PFPeA	IS	96.5	60 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C3-PFBS	IS	91.9	60 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-4:2 FTS	IS	102	40 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFHxA	IS	90.0	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C4-PFHpA	IS	89.4	60 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C3-PFHxS	IS	92.7	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-6:2 FTS	IS	87.9	40 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFOA	IS	91.3	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C5-PFNA	IS	85.7	50 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C8-PFOSA	IS	43.3	20 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C8-PFOS	IS	82.4	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFDA	IS	79.7	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0214-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.2	40 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
d3-MeFOSAA	IS	58.4	50 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
d5-EtFOSAA	IS	55.2	50 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFUnA	IS	66.5	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFDoA	IS	70.6	30 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	1
13C2-PFTeDA	IS	63.3	20 - 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:58	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

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0214-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.74	10.0	97.4	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFPeA	2706-90-3	9.78	10.0	97.8	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFBS	375-73-5	9.42	10.0	94.2	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
4:2 FTS	757124-72-4	10.8	10.0	108	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHxA	307-24-4	10.7	10.0	107	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFPeS	2706-91-4	10.5	10.0	105	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHpA	375-85-9	9.23	10.0	92.3	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHxS	355-46-4	9.03	10.0	90.3	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
6:2 FTS	27619-97-2	10.6	10.0	106	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFOA	335-67-1	9.53	10.0	95.3	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFHpS	375-92-8	9.51	10.0	95.1	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFNA	375-95-1	9.89	10.0	98.9	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFOSA	754-91-6	10.3	10.0	103	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFOS	1763-23-1	9.18	10.0	91.8	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFDA	335-76-2	9.67	10.0	96.7	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
8:2 FTS	39108-34-4	11.3	10.0	113	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFNS	68259-12-1	8.04	10.0	80.4	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
MeFOSAA	2355-31-9	11.2	10.0	112	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
EtFOSAA	2991-50-6	10.6	10.0	106	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFUnA	2058-94-8	10.1	10.0	101	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFDS	335-77-3	7.29	10.0	72.9	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFDoA	307-55-1	10.3	10.0	103	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFTrDA	72629-94-8	10.1	10.0	101	60 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
PFTeDA	376-06-7	10.3	10.0	103	70 - 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	93.8	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C3-PFPeA	IS	94.3	60- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C3-PFBS	IS	101	60- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-4:2 FTS	IS	102	40- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFHxA	IS	87.4	70- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C4-PFHpA	IS	94.8	60- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C3-PFHxS	IS	99.5	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-6:2 FTS	IS	93.4	40- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFOA	IS	93.7	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C5-PFNA	IS	83.5	50- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1

Sample ID: OPR

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0214-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	38.8	20- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C8-PFOS	IS	93.8	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFDA	IS	69.3	60- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-8:2 FTS	IS	93.3	40- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
d3-MeFOSAA	IS	46.7	50- 150	H	B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
d5-EtFOSAA	IS	53.8	50- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFUnA	IS	59.8	60- 130	H	B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFDoA	IS	49.0	30- 130		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1
13C2-PFTeDA	IS	52.0	20- 150		B9D0214	29-Apr-19	1.00 g	01-May-19 18:47	1

Sample ID: SXDU31904161120MK

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Soil
Date Collected: 16-Apr-19 11:20

Laboratory Data

Lab Sample: 1900814-02
Date Received: 19-Apr-19 09:11
% Solids: 81.5
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFPeA	2706-90-3	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFBS	375-73-5	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
4:2 FTS	757124-72-4	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFHxA	307-24-4	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFPeS	2706-91-4	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFHpA	375-85-9	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFHxS	355-46-4	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
6:2 FTS	27619-97-2	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFOA	335-67-1	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFHpS	375-92-8	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFNA	375-95-1	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFOSA	754-91-6	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFOS	1763-23-1	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFDA	335-76-2	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
8:2 FTS	39108-34-4	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFNS	68259-12-1	ND	1.25	1.31	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
MeFOSAA	2355-31-9	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
EtFOSAA	2991-50-6	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFUnA	2058-94-8	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFDS	335-77-3	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFDoA	307-55-1	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFTrDA	72629-94-8	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
PFTeDA	376-06-7	ND	0.740	0.876	1.75		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	84.7	60 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C3-PFPeA	IS	85.0	60 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C3-PFBS	IS	85.6	60 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-4:2 FTS	IS	118	40 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-PFHxA	IS	82.2	70 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C4-PFHpA	IS	81.0	60 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C3-PFHxS	IS	80.1	60 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-6:2 FTS	IS	90.5	40 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-PFOA	IS	82.3	60 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C5-PFNA	IS	78.4	50 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C8-PFOSA	IS	54.6	20 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C8-PFOS	IS	79.2	60 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-PFDA	IS	76.2	60 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1

Sample ID: SXDU31904161120MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 11:20
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-02	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	81.5		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	87.2	40 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
d3-MeFOSAA	IS	62.6	50 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
d5-EtFOSAA	IS	62.6	50 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-PFUnA	IS	70.3	60 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-PFDoA	IS	76.1	30 - 130		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	1
13C2-PFTeDA	IS	78.7	20 - 150		B9D0214	29-Apr-19	1.40 g	01-May-19 19:19	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: SXDU21904161200MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 12:00
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-08	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	86.2		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFPeA	2706-90-3	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFBS	375-73-5	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
4:2 FTS	757124-72-4	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFHxA	307-24-4	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFPeS	2706-91-4	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFHpA	375-85-9	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFHxS	355-46-4	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
6:2 FTS	27619-97-2	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFOA	335-67-1	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFHpS	375-92-8	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFNA	375-95-1	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFOSA	754-91-6	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFOS	1763-23-1	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFDA	335-76-2	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
8:2 FTS	39108-34-4	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFNS	68259-12-1	ND	1.37	1.44	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
MeFOSAA	2355-31-9	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
EtFOSAA	2991-50-6	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFUnA	2058-94-8	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFDS	335-77-3	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFDoA	307-55-1	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFTrDA	72629-94-8	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
PFTeDA	376-06-7	ND	0.810	0.959	1.92		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.9	60 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C3-PFPeA	IS	91.9	60 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C3-PFBS	IS	94.2	60 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-4:2 FTS	IS	117	40 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-PFHxA	IS	86.1	70 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C4-PFHpA	IS	93.7	60 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C3-PFHxS	IS	92.9	60 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-6:2 FTS	IS	105	40 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-PFOA	IS	88.1	60 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C5-PFNA	IS	86.6	50 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C8-PFOSA	IS	60.1	20 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C8-PFOS	IS	84.5	60 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-PFDA	IS	74.9	60 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1

Sample ID: SXDU21904161200MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 12:00
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-08	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	86.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	112	40 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
d3-MeFOSAA	IS	61.6	50 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
d5-EtFOSAA	IS	65.2	50 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-PFUnA	IS	68.9	60 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-PFDoA	IS	73.2	30 - 130		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	1
13C2-PFTeDA	IS	80.1	20 - 150		B9D0214	29-Apr-19	1.21 g	01-May-19 19:29	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: SXDU11904161245MK

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E21-RG03
Matrix: Soil
Date Collected: 16-Apr-19 12:45

Laboratory Data

Lab Sample: 1900814-11
Date Received: 19-Apr-19 09:11
% Solids: 79.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFPeA	2706-90-3	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFBS	375-73-5	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
4:2 FTS	757124-72-4	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFHxA	307-24-4	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFPeS	2706-91-4	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFHpA	375-85-9	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFHxS	355-46-4	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
6:2 FTS	27619-97-2	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFOA	335-67-1	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFHpS	375-92-8	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFNA	375-95-1	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFOSA	754-91-6	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFOS	1763-23-1	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFDA	335-76-2	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
8:2 FTS	39108-34-4	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFNS	68259-12-1	ND	1.34	1.40	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
MeFOSAA	2355-31-9	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
EtFOSAA	2991-50-6	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFUnA	2058-94-8	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFDS	335-77-3	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFDoA	307-55-1	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFTrDA	72629-94-8	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
PFTeDA	376-06-7	ND	0.790	0.935	1.87		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	87.7	60 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C3-PFPeA	IS	89.1	60 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C3-PFBS	IS	90.6	60 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-4:2 FTS	IS	123	40 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-PFHxA	IS	84.5	70 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C4-PFHpA	IS	87.9	60 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C3-PFHxS	IS	92.8	60 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-6:2 FTS	IS	98.9	40 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-PFOA	IS	84.6	60 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C5-PFNA	IS	80.4	50 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C8-PFOSA	IS	56.4	20 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C8-PFOS	IS	86.8	60 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-PFDA	IS	77.4	60 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1

Sample ID: SXDU11904161245MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 12:45
Location:	MIDL-13N02E21-RG03		

Laboratory Data

Lab Sample:	1900814-11	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	79.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	113	40 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
d3-MeFOSAA	IS	68.4	50 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
d5-EtFOSAA	IS	70.6	50 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-PFUnA	IS	79.0	60 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-PFDoA	IS	76.9	30 - 130		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	1
13C2-PFTeDA	IS	89.1	20 - 150		B9D0214	29-Apr-19	1.34 g	01-May-19 19:40	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: SXDU11904161430MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 14:30
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-18	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	81.9		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFPeA	2706-90-3	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFBS	375-73-5	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
4:2 FTS	757124-72-4	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFHxA	307-24-4	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFPeS	2706-91-4	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFHpA	375-85-9	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFHxS	355-46-4	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
6:2 FTS	27619-97-2	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFOA	335-67-1	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFHpS	375-92-8	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFNA	375-95-1	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFOSA	754-91-6	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFOS	1763-23-1	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFDA	335-76-2	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
8:2 FTS	39108-34-4	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFNS	68259-12-1	ND	1.33	1.40	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
MeFOSAA	2355-31-9	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
EtFOSAA	2991-50-6	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFUnA	2058-94-8	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFDS	335-77-3	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFDoA	307-55-1	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFTrDA	72629-94-8	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
PFTeDA	376-06-7	ND	0.788	0.932	1.86		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	90.2	60 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C3-PFPeA	IS	91.4	60 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C3-PFBS	IS	96.1	60 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-4:2 FTS	IS	123	40 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-PFHxA	IS	83.0	70 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C4-PFHpA	IS	86.3	60 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C3-PFHxS	IS	95.3	60 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-6:2 FTS	IS	84.9	40 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-PFOA	IS	87.3	60 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C5-PFNA	IS	82.0	50 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C8-PFOSA	IS	60.5	20 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C8-PFOS	IS	84.2	60 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-PFDA	IS	73.3	60 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1

Sample ID: SXDU11904161430MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 14:30
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-18	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	81.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	89.8	40 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
d3-MeFOSAA	IS	69.9	50 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
d5-EtFOSAA	IS	73.7	50 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-PFUnA	IS	71.9	60 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-PFDoA	IS	70.6	30 - 130		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	1
13C2-PFTeDA	IS	83.4	20 - 150		B9D0214	29-Apr-19	1.31 g	01-May-19 19:50	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: SXDU21904161505MK

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: MIDL-13N02E15-RG02
Matrix: Soil
Date Collected: 16-Apr-19 15:05

Laboratory Data

Lab Sample: 1900814-21
Date Received: 19-Apr-19 09:11
% Solids: 76.1
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFPeA	2706-90-3	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFBS	375-73-5	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
4:2 FTS	757124-72-4	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFHxA	307-24-4	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFPeS	2706-91-4	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFHpA	375-85-9	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFHxS	355-46-4	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
6:2 FTS	27619-97-2	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFOA	335-67-1	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFHpS	375-92-8	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFNA	375-95-1	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFOSA	754-91-6	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFOS	1763-23-1	4.44	0.811	0.959	1.92	Q	B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFDA	335-76-2	1.11	0.811	0.959	1.92	J	B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
8:2 FTS	39108-34-4	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFNS	68259-12-1	ND	1.37	1.44	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
MeFOSAA	2355-31-9	1.34	0.811	0.959	1.92	J	B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
EtFOSAA	2991-50-6	1.92	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFUnA	2058-94-8	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFDS	335-77-3	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFDoA	307-55-1	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFTrDA	72629-94-8	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
PFTeDA	376-06-7	ND	0.811	0.959	1.92		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.2	60 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C3-PFPeA	IS	91.6	60 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C3-PFBS	IS	96.9	60 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-4:2 FTS	IS	135	40 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-PFHxA	IS	96.8	70 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C4-PFHpA	IS	91.1	60 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C3-PFHxS	IS	101	60 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-6:2 FTS	IS	114	40 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-PFOA	IS	87.6	60 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C5-PFNA	IS	83.7	50 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C8-PFOSA	IS	62.4	20 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C8-PFOS	IS	93.3	60 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-PFDA	IS	77.9	60 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1

Sample ID: SXDU21904161505MK

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	16-Apr-19 15:05
Location:	MIDL-13N02E15-RG02		

Laboratory Data

Lab Sample:	1900814-21	Column:	BEH C18
Date Received:	19-Apr-19 09:11		
% Solids:	76.1		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	99.5	40 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
d3-MeFOSAA	IS	72.1	50 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
d5-EtFOSAA	IS	73.4	50 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-PFUnA	IS	78.0	60 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-PFDoA	IS	79.2	30 - 130		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	1
13C2-PFTeDA	IS	66.6	20 - 150		B9D0214	29-Apr-19	1.37 g	01-May-19 20:33	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	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

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

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
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	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
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

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Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900814 Temp: 0.2 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

Project ID: **Statewide WWTP Biosolids PFAS Evaluation** PO#: **60588767.01** Sampler: **Michal Kosciarz + Rachel Lopez** (name)

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
Michal Kosciarz	**4/18/2019**	**1830**	Kim Eurie	04/19/19	0911
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	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	Comments
							PFAS Isotope Dilution						USEPA Method 537			
SW011904161115RL	4/16/19	1115	MIDL-13N02E21-RG03	2	P	AQ			X							
SXDU31904161120MK	4/16/19	1120	MIDL-13N02E21-RG03	1	PJ	SO			X							
TD011904161125RL	4/16/19	1125	MIDL-13N02E21-RG03	2	P	AQ			X							
TD021904161130RL	4/16/19	1130	MIDL-13N02E21-RG03	2	P	AQ			X							
TD031904161135RL	4/16/19	1135	MIDL-13N02E21-RG03	2	P	AQ			X							
TD041904161140RL	4/16/19	1140	MIDL-13N02E21-RG03	2	P	AQ			X							
TD051904161145RL	4/16/19	1145	MIDL-13N02E21-RG03	2	P	AQ			X							
SXDU21904161200MK	4/16/19	1200	MIDL-13N02E21-RG03	1	PJ	SO			X							
SW031904161230RL	4/16/19	1230	MIDL-13N02E21-RG03	2	P	AQ			X							
SW041904161235RL	4/16/19	1235	MIDL-13N02E21-RG03	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:

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:

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Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900814 Temp: 0.2 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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
Michal Kosciarz	4/18/2019	1830	Kim Eric	04/19/19	0911
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	PFAS Isotope Dilution: List of 21	List of 21 w/Isomers	List of 24	List of 24 w/Isomers	List of 28	Other: Please List Below	USEPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
SXDU11904161245MK	4/16/19	1245	MIDL-13N02E21-RG03	1	PJ	SO			X							
TD061904161250RL	4/16/19	1250	MIDL-13N02E21-RG03	2	P	AQ			X							
TD071904161255RL	4/16/19	1255	MIDL-13N02E21-RG03	2	P	AQ			X							
PEW011904161300RL	4/16/19	1300	~~MIDL-13N02E15-RG03~~	2	P	AQ			X							Location MIDL-13N02E21-RG03
SW021904161310RL	4/16/19	1310	MIDL-13N02E21-RG03	2	P	AQ			X							
TD011904161345MK	4/16/19	1345	MIDL-13N02E15-RG02	2	P	AQ			X							
SW021904161350MK	4/16/19	1350	MIDL-13N02E15-RG02	2	P	AQ			X							
SXDU11904161430MK	4/16/19	1430	MIDL-13N02E15-RG02	1	PJ	SO			X							
SW011904161440RL	4/16/19	1440	MIDL-13N02E15-RG02	2	P	AQ			X							
SW031904161450RL	4/16/19	1450	MIDL-13N02E15-RG02	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:

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:

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900814 Temp: 0.2 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

Project ID: **Statewide WWTP Biosolids PFAS Evaluation** PO#: **60588767.01** Sampler: **Michal Kosciarz + Rachel Lopez** (name)

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
Michal Kosciarz	**4/18/2019**	**1830**	Kim Eric	04/19/19	0911
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	PFAS Isotope Dilution: List of 21	List of 21 w/isomers	List of 24	List of 24 w/isomers	List of 28	Other: Please List Below	USEPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
SXDU21904161505MK	**4/16/19**	**1505**	**MIDL-13N02E15-RG02**	**1**	**PJ**	**SO**			**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:

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:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1900814 TAT Std

Samples Arrival:	Date/Time 04/19/19 0911	Initials: KE	Location: WR-2 Shelf/Rack: N/A
Logged In:	Date/Time 04/22/19 1259	Initials: MWS	Location: WR-2 Shelf/Rack: 2-3, 2-4, 2-5

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.3 (uncorrected)	Probe used: Y / N	Thermometer ID: IR-4
Temp °C: 0.2 (corrected)		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		
Shipping Documentation Present?		✓		
Airbill	Trk # 4894 6695 8662	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓	MWS 04/22/19	
COC Anomaly/Sample Acceptance Form completed?		*✓	~~✓~~	~~✓~~

If Chlorinated or Drinking Water Samples, Acceptable Preservation?					✓
Preservation Documented:	$Na_2S_2O_3$ Trizma None Other		Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose

Comments:

*1900814-08A - sample cap received broken - cracked in top center.

Chain of Custody Anomaly/Sample Acceptance Form

Vista Analytical Laboratory

Client:	Merit Laboratories, Inc.	Workorder Number:	1900814
Contact:	Maya Murshak	Date Received:	19-Apr-19 09:11
Email:	mayamurshak@meritlabs.com	Documented by/date:	MSparks/04-22-19
Phone:	(517) 827-2744		

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.

- [ ] Sample Collection Date and/or Time not provided
- [ ] Temperature outside Method Requirement (WI-PHT)

  Temperature _____°C Ice Present? Yes No Melted
- [ ] Sample ID Not Reconcilable
- [ ] Sample Holding Time Missed
- [ ] Insufficient Sample Size
- [x] **Sample Container Broken: see comments**
- [ ] Drinking Water Incorrect Container Type
- [ ] Chain-of-Custody not received, illegible or destroyed
- [ ] Other: _____

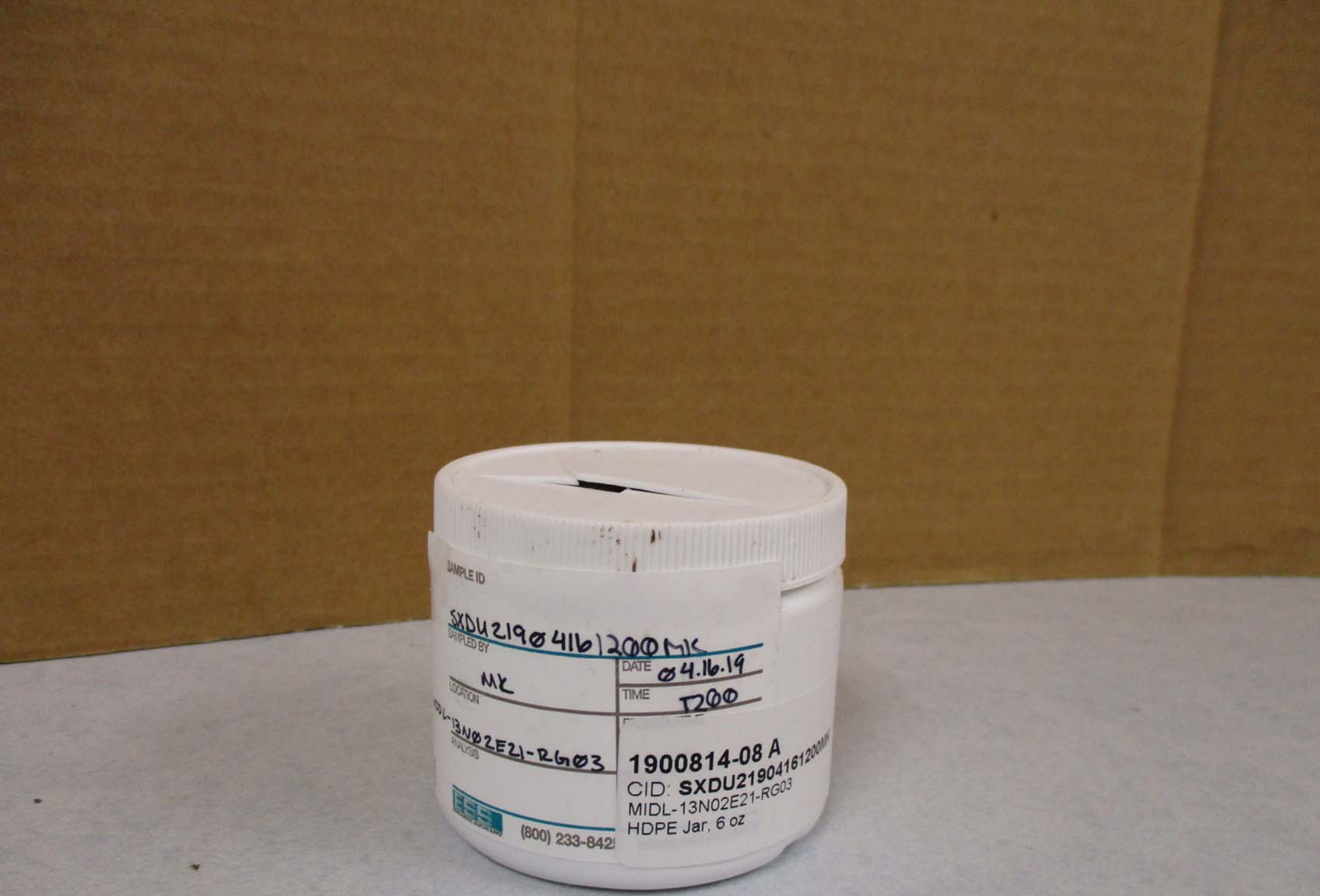
Comments/Samples Affected:

Sample received with broken cap (cracked in top center) for Sample ID "SXDU21904161200MK".

Client Authorization

Proceed with Analysis: YES NO Signature and Date MM 5/10/19

Client Comments/Instructions Client notified 4/23/19


SAMPLE ID
SXDU2190416120ØMK
SAMPLED BY
MK
DATE
Ø4.16.19
LOCATION
TIME
1200
MIDL-13NØ2E21-RGØ3
ANALYSIS
1900814-08 A
CID: SXDU2190416120ØMK
MIDL-13N02E21-RG03
HDPE Jar, 6 oz
(800) 233-842

May 07, 2019

Vista Work Order No. 1900760

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 April 16, 2019 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,

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 Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 ph: 916-673-1520 fx: 916-673-0106 www.vista-analytical.com

Vista Work Order No. 1900760
Case Narrative

Sample Condition on Receipt:

Ten aqueous samples and four 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.

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.

The samples contained particulate and were centrifuged prior to extraction.

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

VAL-PFAS Method

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
1900760-12	SW041904121155MK	PFAS Isotope Dilution Method	13C2-PFUnA	H	51.5
B9D0170-BLK1	B9D0170-BLK1	VAL - PFAS	d3-MeFOSAA	H	48.0
B9D0170-BLK1	B9D0170-BLK1	VAL - PFAS	d5-EtFOSAA	H	45.0
B9D0170-BLK1	B9D0170-BLK1	VAL - PFAS	13C2-PFUnA	H	55.6
B9D0170-BS1	B9D0170-BS1	VAL - PFAS	d5-EtFOSAA	H	48.2
B9D0170-BS1	B9D0170-BS1	VAL - PFAS	13C2-PFUnA	H	58.7

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1900760-01	SW031904120805MK	12-Apr-19 08:05	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-02	SXDU11904120855RL	12-Apr-19 08:55	16-Apr-19 09:58	HDPE Jar, 6 oz
1900760-03	SW051904120905MK	12-Apr-19 09:05	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-04	SW041904120915MK	12-Apr-19 09:15	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-05	PEW011904120925MK	12-Apr-19 09:25	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-06	SXDU21904120935RL	12-Apr-19 09:35	16-Apr-19 09:58	HDPE Jar, 6 oz
1900760-07	SW021904120945MK	12-Apr-19 09:45	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-08	SW011904120955MK	12-Apr-19 09:55	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-09	SXDU21904121120RL	12-Apr-19 11:20	16-Apr-19 09:58	HDPE Jar, 6 oz
1900760-10	SW011904121130MK	12-Apr-19 11:30	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-11	SW021904121145MK	12-Apr-19 11:45	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-12	SW041904121155MK	12-Apr-19 11:55	16-Apr-19 09:58	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1900760-13	SXDU11904121200RL	12-Apr-19 12:00	16-Apr-19 09:58	HDPE Jar, 6 oz
1900760-14	SW031904121215MK	12-Apr-19 12:15	16-Apr-19 09:58	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: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0161-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	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFPeA	2706-90-3	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFBS	375-73-5	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
4:2 FTS	757124-72-4	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFHxA	307-24-4	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFPeS	2706-91-4	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFHpA	375-85-9	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFHxS	355-46-4	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
6:2 FTS	27619-97-2	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFOA	335-67-1	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFHpS	375-92-8	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFNA	375-95-1	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFOSA	754-91-6	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFOS	1763-23-1	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFDA	335-76-2	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
8:2 FTS	39108-34-4	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFNS	68259-12-1	ND	1.94	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
MeFOSAA	2355-31-9	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
EtFOSAA	2991-50-6	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFUnA	2058-94-8	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFDS	335-77-3	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFDoA	307-55-1	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFTrDA	72629-94-8	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
PFTeDA	376-06-7	ND	1.37	2.00	4.00		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.5	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C3-PFPeA	IS	94.4	60 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C3-PFBS	IS	88.7	60 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-4:2 FTS	IS	80.3	20 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-PFHxA	IS	89.0	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C4-PFHpA	IS	86.1	60 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C3-PFHxS	IS	83.3	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-6:2 FTS	IS	80.8	40 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-PFOA	IS	73.5	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C5-PFNA	IS	73.5	50 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C8-PFOSA	IS	37.8	20 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C8-PFOS	IS	80.1	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-PFDA	IS	60.0	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	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: B9D0161-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	70.8	40 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
d3-MeFOSAA	IS	52.5	50 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
d5-EtFOSAA	IS	59.0	50 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-PFUnA	IS	61.7	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-PFDoA	IS	55.0	30 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	1
13C2-PFTeDA	IS	48.9	20 - 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 10:02	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
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0161-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	43.0	40.0	107	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFPeA	2706-90-3	40.4	40.0	101	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFBS	375-73-5	41.5	40.0	104	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
4:2 FTS	757124-72-4	45.9	40.0	115	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFHxA	307-24-4	43.6	40.0	109	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFPeS	2706-91-4	44.9	40.0	112	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFHpA	375-85-9	41.1	40.0	103	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFHxS	355-46-4	40.7	40.0	102	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
6:2 FTS	27619-97-2	41.1	40.0	103	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFOA	335-67-1	42.0	40.0	105	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFHpS	375-92-8	42.9	40.0	107	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFNA	375-95-1	41.4	40.0	103	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFOSA	754-91-6	40.3	40.0	101	70 - 130	Q	B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFOS	1763-23-1	40.1	40.0	100	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFDA	335-76-2	44.2	40.0	110	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
8:2 FTS	39108-34-4	49.8	40.0	124	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFNS	68259-12-1	38.1	40.0	95.3	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
MeFOSAA	2355-31-9	40.5	40.0	101	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
EtFOSAA	2991-50-6	39.1	40.0	97.8	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFUnA	2058-94-8	46.0	40.0	115	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFDS	335-77-3	37.8	40.0	94.4	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFDoA	307-55-1	43.2	40.0	108	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFTrDA	72629-94-8	39.2	40.0	97.9	60 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
PFTeDA	376-06-7	40.5	40.0	101	70 - 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.8	60- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C3-PFPeA	IS	97.5	60- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C3-PFBS	IS	91.6	60- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-4:2 FTS	IS	87.1	20- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-PFHxA	IS	90.4	70- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C4-PFHpA	IS	93.3	60- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C3-PFHxS	IS	90.7	60- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-6:2 FTS	IS	75.4	40- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-PFOA	IS	90.5	60- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C5-PFNA	IS	80.9	50- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1

Sample ID: OPR

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Aqueous

Laboratory Data

Lab Sample: B9D0161-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	46.3	20- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C8-PFOS	IS	81.1	60- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-PFDA	IS	68.6	60- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-8:2 FTS	IS	62.6	40- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
d3-MeFOSAA	IS	59.0	50- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
d5-EtFOSAA	IS	61.1	50- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-PFUnA	IS	65.7	60- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-PFDoA	IS	63.1	30- 130		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1
13C2-PFTeDA	IS	40.9	20- 150		B9D0161	24-Apr-19	0.250 L	28-Apr-19 09:52	1

Sample ID: SW031904120805MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 08:05

Laboratory Data

Lab Sample: 1900760-01
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.95	1.45	2.12	4.24	J	B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFPeA	2706-90-3	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFBS	375-73-5	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
4:2 FTS	757124-72-4	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFHxA	307-24-4	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFPeS	2706-91-4	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFHpA	375-85-9	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFHxS	355-46-4	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
6:2 FTS	27619-97-2	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFOA	335-67-1	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFHpS	375-92-8	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFNA	375-95-1	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFOSA	754-91-6	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFOS	1763-23-1	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFDA	335-76-2	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
8:2 FTS	39108-34-4	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFNS	68259-12-1	ND	2.05	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
MeFOSAA	2355-31-9	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
EtFOSAA	2991-50-6	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFUnA	2058-94-8	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFDS	335-77-3	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFDoA	307-55-1	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFTrDA	72629-94-8	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
PFTeDA	376-06-7	ND	1.45	2.12	4.24		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	102	60 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C3-PFPeA	IS	107	60 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C3-PFBS	IS	105	60 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-4:2 FTS	IS	98.8	20 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-PFHxA	IS	104	70 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C4-PFHpA	IS	103	60 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C3-PFHxS	IS	102	60 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-6:2 FTS	IS	102	40 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-PFOA	IS	99.0	60 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C5-PFNA	IS	88.1	50 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C8-PFOSA	IS	50.7	20 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C8-PFOS	IS	93.8	60 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-PFDA	IS	72.9	60 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1

Sample ID: SW031904120805MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 08:05

Laboratory Data

Lab Sample: 1900760-01
Date Received: 16-Apr-19 09:58
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	85.3	40 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
d3-MeFOSAA	IS	79.8	50 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
d5-EtFOSAA	IS	72.0	50 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-PFUnA	IS	74.3	60 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-PFDoA	IS	55.4	30 - 130		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	1
13C2-PFTeDA	IS	57.3	20 - 150		B9D0161	24-Apr-19	0.236 L	28-Apr-19 10:13	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: SW051904120905MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 09:05

Laboratory Data

Lab Sample: 1900760-03
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.6	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFPeA	2706-90-3	10.4	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFBS	375-73-5	15.9	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
4:2 FTS	757124-72-4	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFHxA	307-24-4	8.05	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFPeS	2706-91-4	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFHpA	375-85-9	4.36	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFHxS	355-46-4	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
6:2 FTS	27619-97-2	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFOA	335-67-1	5.87	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFHpS	375-92-8	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFNA	375-95-1	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFOSA	754-91-6	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFOS	1763-23-1	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFDA	335-76-2	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
8:2 FTS	39108-34-4	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFNS	68259-12-1	ND	2.07	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
MeFOSAA	2355-31-9	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
EtFOSAA	2991-50-6	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFUnA	2058-94-8	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFDS	335-77-3	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFDoA	307-55-1	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFTrDA	72629-94-8	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
PFTeDA	376-06-7	ND	1.47	2.14	4.28		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.9	60 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C3-PFPeA	IS	99.4	60 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C3-PFBS	IS	92.2	60 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-4:2 FTS	IS	86.1	20 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-PFHxA	IS	99.7	70 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C4-PFHpA	IS	92.5	60 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C3-PFHxS	IS	93.1	60 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-6:2 FTS	IS	106	40 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-PFOA	IS	95.0	60 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C5-PFNA	IS	90.1	50 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C8-PFOSA	IS	42.2	20 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C8-PFOS	IS	97.4	60 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-PFDA	IS	90.5	60 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1

Sample ID: SW051904120905MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 09:05
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-03	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	92.7	40 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
d3-MeFOSAA	IS	68.7	50 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
d5-EtFOSAA	IS	72.9	50 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-PFUnA	IS	75.3	60 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-PFDoA	IS	69.1	30 - 130		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	1
13C2-PFTeDA	IS	55.1	20 - 150		B9D0161	24-Apr-19	0.234 L	28-Apr-19 10:24	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: SW041904120915MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 09:15

Laboratory Data

Lab Sample: 1900760-04
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	7.25	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFPeA	2706-90-3	5.41	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFBS	375-73-5	8.27	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
4:2 FTS	757124-72-4	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFHxA	307-24-4	4.05	1.50	2.18	4.37	J	B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFPeS	2706-91-4	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFHpA	375-85-9	1.52	1.50	2.18	4.37	J	B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFHxS	355-46-4	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
6:2 FTS	27619-97-2	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFOA	335-67-1	3.04	1.50	2.18	4.37	J	B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFHpS	375-92-8	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFNA	375-95-1	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFOSA	754-91-6	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFOS	1763-23-1	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFDA	335-76-2	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
8:2 FTS	39108-34-4	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFNS	68259-12-1	ND	2.12	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
MeFOSAA	2355-31-9	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
EtFOSAA	2991-50-6	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFUnA	2058-94-8	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFDS	335-77-3	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFDoA	307-55-1	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFTrDA	72629-94-8	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
PFTeDA	376-06-7	ND	1.50	2.18	4.37		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	97.7	60 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C3-PFPeA	IS	99.3	60 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C3-PFBS	IS	93.7	60 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-4:2 FTS	IS	86.1	20 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-PFHxA	IS	95.8	70 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C4-PFHpA	IS	97.0	60 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C3-PFHxS	IS	89.2	60 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-6:2 FTS	IS	92.3	40 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-PFOA	IS	103	60 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C5-PFNA	IS	85.2	50 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C8-PFOSA	IS	47.1	20 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C8-PFOS	IS	96.3	60 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-PFDA	IS	72.6	60 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1

Sample ID: SW041904120915MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 09:15
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-04	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	103	40 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
d3-MeFOSAA	IS	71.4	50 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
d5-EtFOSAA	IS	82.4	50 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-PFUnA	IS	67.3	60 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-PFDoA	IS	68.5	30 - 130		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	1
13C2-PFTeDA	IS	63.2	20 - 150		B9D0161	24-Apr-19	0.229 L	28-Apr-19 10:34	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: PEW011904120925MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 09:25

Laboratory Data

Lab Sample: 1900760-05
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	41.1	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFPeA	2706-90-3	66.0	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFBS	375-73-5	91.7	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
4:2 FTS	757124-72-4	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFHxA	307-24-4	58.2	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFPeS	2706-91-4	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFHpA	375-85-9	31.5	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFHxS	355-46-4	3.17	1.42	2.07	4.15	J	B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
6:2 FTS	27619-97-2	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFOA	335-67-1	52.7	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFHpS	375-92-8	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFNA	375-95-1	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFOSA	754-91-6	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFOS	1763-23-1	2.01	1.42	2.07	4.15	J	B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFDA	335-76-2	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
8:2 FTS	39108-34-4	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFNS	68259-12-1	ND	2.01	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
MeFOSAA	2355-31-9	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
EtFOSAA	2991-50-6	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFUnA	2058-94-8	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFDS	335-77-3	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFDoA	307-55-1	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFTrDA	72629-94-8	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
PFTeDA	376-06-7	ND	1.42	2.07	4.15		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.4	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C3-PFPeA	IS	98.8	60 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C3-PFBS	IS	94.2	60 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-4:2 FTS	IS	107	20 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-PFHxA	IS	97.2	70 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C4-PFHpA	IS	103	60 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C3-PFHxS	IS	93.9	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-6:2 FTS	IS	101	40 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-PFOA	IS	95.7	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C5-PFNA	IS	92.8	50 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C8-PFOSA	IS	42.6	20 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C8-PFOS	IS	90.0	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-PFDA	IS	66.9	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1

Sample ID: PEW011904120925MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 09:25
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-05	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	96.7	40 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
d3-MeFOSAA	IS	71.7	50 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
d5-EtFOSAA	IS	70.3	50 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-PFUnA	IS	62.7	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-PFDoA	IS	38.4	30 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	1
13C2-PFTeDA	IS	49.6	20 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 10:45	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: SW021904120945MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 09:45

Laboratory Data

Lab Sample: 1900760-07
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.41	1.43	2.08	4.17	J	B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFPeA	2706-90-3	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFBS	375-73-5	2.08	1.43	2.08	4.17	J	B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
4:2 FTS	757124-72-4	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFHxA	307-24-4	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFPeS	2706-91-4	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFHpA	375-85-9	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFHxS	355-46-4	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
6:2 FTS	27619-97-2	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFOA	335-67-1	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFHpS	375-92-8	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFNA	375-95-1	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFOSA	754-91-6	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFOS	1763-23-1	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFDA	335-76-2	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
8:2 FTS	39108-34-4	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFNS	68259-12-1	ND	2.02	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
MeFOSAA	2355-31-9	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
EtFOSAA	2991-50-6	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFUnA	2058-94-8	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFDS	335-77-3	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFDoA	307-55-1	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFTrDA	72629-94-8	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
PFTeDA	376-06-7	ND	1.43	2.08	4.17		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	98.6	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C3-PFPeA	IS	101	60 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C3-PFBS	IS	104	60 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-4:2 FTS	IS	93.5	20 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-PFHxA	IS	97.2	70 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C4-PFHpA	IS	102	60 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C3-PFHxS	IS	101	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-6:2 FTS	IS	93.8	40 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-PFOA	IS	92.2	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C5-PFNA	IS	90.0	50 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C8-PFOSA	IS	52.5	20 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C8-PFOS	IS	102	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-PFDA	IS	88.8	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1

Sample ID: SW021904120945MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 09:45

Laboratory Data

Lab Sample: 1900760-07
Date Received: 16-Apr-19 09:58
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	96.0	40 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
d3-MeFOSAA	IS	80.3	50 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
d5-EtFOSAA	IS	85.5	50 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-PFUnA	IS	87.7	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-PFDoA	IS	93.6	30 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	1
13C2-PFTeDA	IS	73.6	20 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 10:55	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: SW011904120955MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Aqueous
Date Collected: 12-Apr-19 09:55

Laboratory Data

Lab Sample: 1900760-08
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	2.01	1.42	2.07	4.14	J	B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFPeA	2706-90-3	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFBS	375-73-5	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
4:2 FTS	757124-72-4	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFHxA	307-24-4	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFPeS	2706-91-4	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFHpA	375-85-9	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFHxS	355-46-4	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
6:2 FTS	27619-97-2	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFOA	335-67-1	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFHpS	375-92-8	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFNA	375-95-1	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFOSA	754-91-6	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFOS	1763-23-1	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFDA	335-76-2	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
8:2 FTS	39108-34-4	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFNS	68259-12-1	ND	2.00	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
MeFOSAA	2355-31-9	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
EtFOSAA	2991-50-6	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFUnA	2058-94-8	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFDS	335-77-3	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFDoA	307-55-1	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFTrDA	72629-94-8	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
PFTeDA	376-06-7	ND	1.42	2.07	4.14		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	96.5	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C3-PFPeA	IS	97.6	60 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C3-PFBS	IS	89.7	60 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-4:2 FTS	IS	96.6	20 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-PFHxA	IS	94.4	70 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C4-PFHpA	IS	97.1	60 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C3-PFHxS	IS	87.7	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-6:2 FTS	IS	90.2	40 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-PFOA	IS	88.1	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C5-PFNA	IS	87.7	50 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C8-PFOSA	IS	53.4	20 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C8-PFOS	IS	94.7	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-PFDA	IS	70.7	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1

Sample ID: SW011904120955MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 09:55
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-08	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	99.8	40 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
d3-MeFOSAA	IS	67.4	50 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
d5-EtFOSAA	IS	70.7	50 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-PFUnA	IS	70.6	60 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-PFDoA	IS	60.1	30 - 130		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	1
13C2-PFTeDA	IS	42.7	20 - 150		B9D0161	24-Apr-19	0.241 L	28-Apr-19 11:06	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: SW011904121130MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-04S08E24-VG02
Matrix: Aqueous
Date Collected: 12-Apr-19 11:30

Laboratory Data

Lab Sample: 1900760-10
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.46	1.42	2.08	4.16	J	B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFPeA	2706-90-3	1.94	1.42	2.08	4.16	J	B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFBS	375-73-5	1.78	1.42	2.08	4.16	J	B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
4:2 FTS	757124-72-4	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFHxA	307-24-4	1.81	1.42	2.08	4.16	J	B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFPeS	2706-91-4	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFHpA	375-85-9	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFHxS	355-46-4	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
6:2 FTS	27619-97-2	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFOA	335-67-1	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFHpS	375-92-8	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFNA	375-95-1	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFOSA	754-91-6	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFOS	1763-23-1	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFDA	335-76-2	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
8:2 FTS	39108-34-4	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFNS	68259-12-1	ND	2.01	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
MeFOSAA	2355-31-9	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
EtFOSAA	2991-50-6	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFUnA	2058-94-8	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFDS	335-77-3	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFDoA	307-55-1	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFTrDA	72629-94-8	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
PFTeDA	376-06-7	ND	1.42	2.08	4.16		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.2	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C3-PFPeA	IS	98.8	60 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C3-PFBS	IS	94.2	60 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-4:2 FTS	IS	85.4	20 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-PFHxA	IS	94.7	70 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C4-PFHpA	IS	96.7	60 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C3-PFHxS	IS	90.9	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-6:2 FTS	IS	96.3	40 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-PFOA	IS	90.2	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C5-PFNA	IS	92.3	50 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C8-PFOSA	IS	61.1	20 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C8-PFOS	IS	95.3	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-PFDA	IS	78.4	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1

Sample ID: SW011904121130MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 11:30
Location:	HURO-04S08E24-VG02		

Laboratory Data

Lab Sample:	1900760-10	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	86.1	40 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
d3-MeFOSAA	IS	80.7	50 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
d5-EtFOSAA	IS	78.2	50 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-PFUnA	IS	81.5	60 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-PFDoA	IS	65.9	30 - 130		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	1
13C2-PFTeDA	IS	77.6	20 - 150		B9D0161	24-Apr-19	0.240 L	28-Apr-19 11:17	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: SW021904121145MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-04S08E24-VG02
Matrix: Aqueous
Date Collected: 12-Apr-19 11:45

Laboratory Data

Lab Sample: 1900760-11
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	6.46	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFPeA	2706-90-3	8.74	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFBS	375-73-5	7.13	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
4:2 FTS	757124-72-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFHxA	307-24-4	10.2	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFPeS	2706-91-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFHpA	375-85-9	1.78	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFHxS	355-46-4	3.20	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
6:2 FTS	27619-97-2	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFOA	335-67-1	4.17	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFHpS	375-92-8	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFNA	375-95-1	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFOSA	754-91-6	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFOS	1763-23-1	4.05	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFDA	335-76-2	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
8:2 FTS	39108-34-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFNS	68259-12-1	ND	1.99	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
MeFOSAA	2355-31-9	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
EtFOSAA	2991-50-6	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFUnA	2058-94-8	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFDS	335-77-3	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFDoA	307-55-1	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFTrDA	72629-94-8	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
PFTeDA	376-06-7	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	95.2	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C3-PFPeA	IS	92.8	60 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C3-PFBS	IS	95.5	60 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-4:2 FTS	IS	104	20 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-PFHxA	IS	93.3	70 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C4-PFHpA	IS	96.5	60 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C3-PFHxS	IS	97.6	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-6:2 FTS	IS	99.4	40 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-PFOA	IS	87.7	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C5-PFNA	IS	94.9	50 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C8-PFOSA	IS	39.6	20 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C8-PFOS	IS	89.2	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-PFDA	IS	79.5	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1

Sample ID: SW021904121145MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 11:45
Location:	HURO-04S08E24-VG02		

Laboratory Data

Lab Sample:	1900760-11	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	87.4	40 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
d3-MeFOSAA	IS	70.3	50 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
d5-EtFOSAA	IS	72.1	50 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-PFUnA	IS	76.8	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-PFDoA	IS	67.9	30 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	1
13C2-PFTeDA	IS	61.0	20 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:27	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: SW041904121155MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-04S08E24-VG02
Matrix: Aqueous
Date Collected: 12-Apr-19 11:55

Laboratory Data

Lab Sample: 1900760-12
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	6.19	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFPeA	2706-90-3	8.46	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFBS	375-73-5	6.66	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
4:2 FTS	757124-72-4	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFHxA	307-24-4	9.10	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFPeS	2706-91-4	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFHpA	375-85-9	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFHxS	355-46-4	4.14	1.46	2.13	4.26	J	B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
6:2 FTS	27619-97-2	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFOA	335-67-1	4.01	1.46	2.13	4.26	J	B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFHpS	375-92-8	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFNA	375-95-1	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFOSA	754-91-6	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFOS	1763-23-1	5.39	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFDA	335-76-2	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
8:2 FTS	39108-34-4	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFNS	68259-12-1	ND	2.06	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
MeFOSAA	2355-31-9	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
EtFOSAA	2991-50-6	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFUnA	2058-94-8	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFDS	335-77-3	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFDoA	307-55-1	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFTrDA	72629-94-8	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
PFTeDA	376-06-7	ND	1.46	2.13	4.26		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	99.1	60 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C3-PFPeA	IS	92.8	60 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C3-PFBS	IS	96.8	60 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-4:2 FTS	IS	102	20 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-PFHxA	IS	91.9	70 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C4-PFHpA	IS	97.9	60 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C3-PFHxS	IS	89.1	60 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-6:2 FTS	IS	90.6	40 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-PFOA	IS	87.9	60 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C5-PFNA	IS	77.2	50 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C8-PFOSA	IS	38.8	20 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C8-PFOS	IS	68.7	60 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-PFDA	IS	60.5	60 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1

Sample ID: SW041904121155MK

PFAS Isotope Dilution Method

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Aqueous
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 11:55
Location:	HURO-04S08E24-VG02		

Laboratory Data

Lab Sample:	1900760-12	Column:	BEH C18
Date Received:	16-Apr-19 09:58		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	62.5	40 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
d3-MeFOSAA	IS	52.2	50 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
d5-EtFOSAA	IS	62.5	50 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-PFUnA	IS	51.5	60 - 130	H	B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-PFDoA	IS	31.9	30 - 130		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	1
13C2-PFTeDA	IS	41.6	20 - 150		B9D0161	24-Apr-19	0.235 L	28-Apr-19 11:38	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: SW031904121215MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-04S08E24-VG02
Matrix: Aqueous
Date Collected: 12-Apr-19 12:15

Laboratory Data

Lab Sample: 1900760-14
Date Received: 16-Apr-19 09:58
Column: BEH C18

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.88	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFPeA	2706-90-3	2.39	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFBS	375-73-5	2.09	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
4:2 FTS	757124-72-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFHxA	307-24-4	1.79	1.41	2.06	4.12	J	B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFPeS	2706-91-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFHpA	375-85-9	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFHxS	355-46-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
6:2 FTS	27619-97-2	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFOA	335-67-1	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFHpS	375-92-8	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFNA	375-95-1	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFOSA	754-91-6	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFOS	1763-23-1	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFDA	335-76-2	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
8:2 FTS	39108-34-4	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFNS	68259-12-1	ND	1.99	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
MeFOSAA	2355-31-9	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
EtFOSAA	2991-50-6	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFUnA	2058-94-8	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFDS	335-77-3	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFDoA	307-55-1	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFTrDA	72629-94-8	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
PFTeDA	376-06-7	ND	1.41	2.06	4.12		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	88.5	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C3-PFPeA	IS	86.9	60 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C3-PFBS	IS	98.4	60 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-4:2 FTS	IS	98.8	20 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-PFHxA	IS	84.7	70 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C4-PFHpA	IS	90.3	60 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C3-PFHxS	IS	94.7	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-6:2 FTS	IS	90.2	40 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-PFOA	IS	83.9	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C5-PFNA	IS	78.8	50 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C8-PFOSA	IS	54.7	20 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C8-PFOS	IS	92.9	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-PFDA	IS	75.3	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1

Sample ID: SW031904121215MK

PFAS Isotope Dilution Method

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-04S08E24-VG02
Matrix: Aqueous
Date Collected: 12-Apr-19 12:15

Laboratory Data

Lab Sample: 1900760-14
Date Received: 16-Apr-19 09:58
Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	88.8	40 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
d3-MeFOSAA	IS	63.9	50 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
d5-EtFOSAA	IS	74.2	50 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-PFUnA	IS	75.1	60 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-PFDoA	IS	74.3	30 - 130		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	1
13C2-PFTeDA	IS	75.8	20 - 150		B9D0161	24-Apr-19	0.243 L	28-Apr-19 11:48	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: Method Blank

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0170-BLK1 Column: BEH C18

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		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFPeA	2706-90-3	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFBS	375-73-5	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
4:2 FTS	757124-72-4	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFHxA	307-24-4	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFPeS	2706-91-4	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFHpA	375-85-9	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFHxS	355-46-4	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
6:2 FTS	27619-97-2	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFOA	335-67-1	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFHpS	375-92-8	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFNA	375-95-1	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFOSA	754-91-6	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFOS	1763-23-1	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFDA	335-76-2	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
8:2 FTS	39108-34-4	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFNS	68259-12-1	ND	1.43	1.50	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
MeFOSAA	2355-31-9	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
EtFOSAA	2991-50-6	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFUnA	2058-94-8	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFDS	335-77-3	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFDoA	307-55-1	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFTrDA	72629-94-8	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
PFTeDA	376-06-7	ND	0.845	1.00	2.00		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.7	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C3-PFPeA	IS	94.7	60 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C3-PFBS	IS	87.4	60 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-4:2 FTS	IS	94.4	40 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-PFHxA	IS	90.8	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C4-PFHpA	IS	96.6	60 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C3-PFHxS	IS	98.1	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-6:2 FTS	IS	102	40 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-PFOA	IS	82.4	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C5-PFNA	IS	83.6	50 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C8-PFOSA	IS	38.2	20 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C8-PFOS	IS	87.9	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-PFDA	IS	68.5	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1

Sample ID: Method Blank

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc. Matrix: Solid

Project: Statewide WWTP Biosolids PFAS Evaluation

Laboratory Data

Lab Sample: B9D0170-BLK1 Column: BEH C18

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	92.3	40 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
d3-MeFOSAA	IS	48.0	50 - 150	H	B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
d5-EtFOSAA	IS	45.0	50 - 150	H	B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-PFUnA	IS	55.6	60 - 130	H	B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-PFDoA	IS	58.5	30 - 130		B9D0170	01-May-19	1.00 g	04-May-19 18:01	1
13C2-PFTeDA	IS	62.4	20 - 150		B9D0170	01-May-19	1.00 g	04-May-19 18:01	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

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0170-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ng/g)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	9.64	10.0	96.4	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFPeA	2706-90-3	9.22	10.0	92.2	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFBS	375-73-5	9.26	10.0	92.6	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
4:2 FTS	757124-72-4	11.0	10.0	110	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFHxA	307-24-4	10.2	10.0	102	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFPeS	2706-91-4	10.4	10.0	104	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFHpA	375-85-9	9.36	10.0	93.6	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFHxS	355-46-4	9.58	10.0	95.8	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
6:2 FTS	27619-97-2	10.8	10.0	108	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFOA	335-67-1	9.00	10.0	90.0	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFHpS	375-92-8	10.6	10.0	106	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFNA	375-95-1	10.4	10.0	104	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFOSA	754-91-6	10.2	10.0	102	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFOS	1763-23-1	9.49	10.0	94.9	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFDA	335-76-2	10.6	10.0	106	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
8:2 FTS	39108-34-4	11.3	10.0	113	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFNS	68259-12-1	9.35	10.0	93.5	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
MeFOSAA	2355-31-9	10.5	10.0	105	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
EtFOSAA	2991-50-6	10.1	10.0	101	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFUnA	2058-94-8	9.54	10.0	95.4	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFDS	335-77-3	8.77	10.0	87.7	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFDoA	307-55-1	9.51	10.0	95.1	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFTrDA	72629-94-8	11.1	10.0	111	60 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
PFTeDA	376-06-7	10.1	10.0	101	70 - 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	94.0	60- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C3-PFPeA	IS	93.0	60- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C3-PFBS	IS	92.4	60- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-4:2 FTS	IS	86.8	40- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-PFHxA	IS	88.7	70- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C4-PFHpA	IS	96.8	60- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C3-PFHxS	IS	89.3	60- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-6:2 FTS	IS	97.9	40- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-PFOA	IS	87.7	60- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C5-PFNA	IS	76.2	50- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1

Sample ID: OPR

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Matrix: Solid

Laboratory Data

Lab Sample: B9D0170-BS1
Column: BEH C18

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C8-PFOSA	IS	41.2	20- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C8-PFOS	IS	88.4	60- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-PFDA	IS	67.4	60- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-8:2 FTS	IS	87.2	40- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
d3-MeFOSAA	IS	50.5	50- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
d5-EtFOSAA	IS	48.2	50- 150	H	B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-PFUnA	IS	58.7	60- 130	H	B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-PFDoA	IS	64.5	30- 130		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1
13C2-PFTeDA	IS	62.6	20- 150		B9D0170	01-May-19	1.00 g	04-May-19 17:50	1

Sample ID: SXDU11904120855RL

VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-05S09E10-JU02
Matrix: Soil
Date Collected: 12-Apr-19 08:55

Laboratory Data

Lab Sample: 1900760-02
Date Received: 16-Apr-19 09:58
% Solids: 78.9
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFPeA	2706-90-3	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFBS	375-73-5	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
4:2 FTS	757124-72-4	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFHxA	307-24-4	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFPeS	2706-91-4	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFHpA	375-85-9	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFHxS	355-46-4	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
6:2 FTS	27619-97-2	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFOA	335-67-1	2.18	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFHpS	375-92-8	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFNA	375-95-1	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFOSA	754-91-6	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFOS	1763-23-1	1.33	0.824	0.975	1.95	J, Q	B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFDA	335-76-2	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
8:2 FTS	39108-34-4	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFNS	68259-12-1	ND	1.39	1.46	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
MeFOSAA	2355-31-9	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
EtFOSAA	2991-50-6	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFUnA	2058-94-8	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFDS	335-77-3	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFDoA	307-55-1	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFTrDA	72629-94-8	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
PFTeDA	376-06-7	ND	0.824	0.975	1.95		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.5	60 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C3-PFPeA	IS	92.1	60 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C3-PFBS	IS	91.3	60 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-4:2 FTS	IS	102	40 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-PFHxA	IS	90.5	70 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C4-PFHpA	IS	95.5	60 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C3-PFHxS	IS	95.5	60 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-6:2 FTS	IS	118	40 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-PFOA	IS	91.3	60 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C5-PFNA	IS	82.7	50 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C8-PFOSA	IS	53.3	20 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C8-PFOS	IS	107	60 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-PFDA	IS	74.7	60 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1

Sample ID: SXDU11904120855RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 08:55
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-02	Column:	BEH C18
Date Received:	16-Apr-19 09:58		
% Solids:	78.9		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	117	40 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
d3-MeFOSAA	IS	62.3	50 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
d5-EtFOSAA	IS	65.0	50 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-PFUnA	IS	69.8	60 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-PFDoA	IS	75.3	30 - 130		B9D0170	01-May-19	1.30 g	04-May-19 18:32	1
13C2-PFTeDA	IS	75.9	20 - 150		B9D0170	01-May-19	1.30 g	04-May-19 18:32	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: SXDU21904120935RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 09:35
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-06	Column:	BEH C18
Date Received:	16-Apr-19 09:58		
% Solids:	73.6		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFPeA	2706-90-3	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFBS	375-73-5	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
4:2 FTS	757124-72-4	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFHxA	307-24-4	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFPeS	2706-91-4	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFHpA	375-85-9	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFHxS	355-46-4	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
6:2 FTS	27619-97-2	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFOA	335-67-1	1.71	0.814	0.963	1.93	J	B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFHpS	375-92-8	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFNA	375-95-1	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFOSA	754-91-6	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFOS	1763-23-1	2.51	0.814	0.963	1.93	Q	B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFDA	335-76-2	1.16	0.814	0.963	1.93	J	B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
8:2 FTS	39108-34-4	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFNS	68259-12-1	ND	1.38	1.44	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
MeFOSAA	2355-31-9	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
EtFOSAA	2991-50-6	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFUnA	2058-94-8	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFDS	335-77-3	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFDoA	307-55-1	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFTrDA	72629-94-8	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
PFTeDA	376-06-7	ND	0.814	0.963	1.93		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	89.7	60 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C3-PFPeA	IS	94.0	60 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C3-PFBS	IS	99.6	60 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-4:2 FTS	IS	111	40 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-PFHxA	IS	89.1	70 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C4-PFHpA	IS	94.3	60 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C3-PFHxS	IS	97.3	60 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-6:2 FTS	IS	94.7	40 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-PFOA	IS	91.5	60 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C5-PFNA	IS	81.2	50 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C8-PFOSA	IS	49.8	20 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C8-PFOS	IS	82.3	60 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-PFDA	IS	65.7	60 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1

Sample ID: SXDU21904120935RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 09:35
Location:	HURO-05S09E10-JU02		

Laboratory Data

Lab Sample:	1900760-06	Column:	BEH C18
Date Received:	16-Apr-19 09:58		
% Solids:	73.6		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.4	40 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
d3-MeFOSAA	IS	53.5	50 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
d5-EtFOSAA	IS	61.7	50 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-PFUnA	IS	60.4	60 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-PFDoA	IS	66.1	30 - 130		B9D0170	01-May-19	1.41 g	04-May-19 18:43	1
13C2-PFTeDA	IS	68.2	20 - 150		B9D0170	01-May-19	1.41 g	04-May-19 18:43	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: SXDU21904121120RL — VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 11:20
Location:	HURO-04S08E24-VG02		

Laboratory Data

Lab Sample:	1900760-09	Column:	BEH C18
Date Received:	16-Apr-19 09:58		
% Solids:	86.0		

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFPeA	2706-90-3	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFBS	375-73-5	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
4:2 FTS	757124-72-4	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFHxA	307-24-4	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFPeS	2706-91-4	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFHpA	375-85-9	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFHxS	355-46-4	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
6:2 FTS	27619-97-2	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFOA	335-67-1	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFHpS	375-92-8	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFNA	375-95-1	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFOSA	754-91-6	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFOS	1763-23-1	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFDA	335-76-2	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
8:2 FTS	39108-34-4	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFNS	68259-12-1	ND	1.37	1.44	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
MeFOSAA	2355-31-9	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
EtFOSAA	2991-50-6	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFUnA	2058-94-8	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFDS	335-77-3	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFDoA	307-55-1	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFTrDA	72629-94-8	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
PFTeDA	376-06-7	ND	0.812	0.961	1.92		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	86.7	60 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C3-PFPeA	IS	90.2	60 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C3-PFBS	IS	91.3	60 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-4:2 FTS	IS	107	40 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-PFHxA	IS	86.7	70 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C4-PFHpA	IS	95.1	60 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C3-PFHxS	IS	88.8	60 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-6:2 FTS	IS	107	40 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-PFOA	IS	85.8	60 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C5-PFNA	IS	71.3	50 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C8-PFOSA	IS	45.6	20 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C8-PFOS	IS	89.5	60 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-PFDA	IS	64.3	60 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1

Sample ID: SXDU21904121120RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 11:20
Location:	HURO-04S08E24-VG02		

Laboratory Data

Lab Sample:	1900760-09	Column:	BEH C18
Date Received:	16-Apr-19 09:58		
% Solids:	86.0		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	90.0	40 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
d3-MeFOSAA	IS	53.2	50 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
d5-EtFOSAA	IS	59.0	50 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-PFUnA	IS	61.7	60 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-PFDoA	IS	67.9	30 - 130		B9D0170	01-May-19	1.21 g	04-May-19 19:25	1
13C2-PFTeDA	IS	61.4	20 - 150		B9D0170	01-May-19	1.21 g	04-May-19 19:25	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: SXDU11904121200RL — VAL - PFAS

Client Data

Name: Merit Laboratories, Inc.
Project: Statewide WWTP Biosolids PFAS Evaluation
Location: HURO-04S08E24-VG02
Matrix: Soil
Date Collected: 12-Apr-19 12:00

Laboratory Data

Lab Sample: 1900760-13
Date Received: 16-Apr-19 09:58
% Solids: 85.2
Column: BEH C18

Analyte	CAS Number	Conc. (ng/g)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFPeA	2706-90-3	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFBS	375-73-5	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
4:2 FTS	757124-72-4	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFHxA	307-24-4	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFPeS	2706-91-4	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFHpA	375-85-9	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFHxS	355-46-4	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
6:2 FTS	27619-97-2	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFOA	335-67-1	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFHpS	375-92-8	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFNA	375-95-1	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFOSA	754-91-6	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFOS	1763-23-1	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFDA	335-76-2	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
8:2 FTS	39108-34-4	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFNS	68259-12-1	ND	1.42	1.49	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
MeFOSAA	2355-31-9	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
EtFOSAA	2991-50-6	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFUnA	2058-94-8	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFDS	335-77-3	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFDoA	307-55-1	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFTrDA	72629-94-8	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
PFTeDA	376-06-7	ND	0.840	0.995	1.99		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	92.6	60 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C3-PFPeA	IS	91.4	60 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C3-PFBS	IS	88.3	60 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-4:2 FTS	IS	95.1	40 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-PFHxA	IS	87.6	70 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C4-PFHpA	IS	91.7	60 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C3-PFHxS	IS	85.2	60 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-6:2 FTS	IS	109	40 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-PFOA	IS	84.7	60 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C5-PFNA	IS	78.0	50 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C8-PFOSA	IS	48.5	20 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C8-PFOS	IS	98.3	60 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-PFDA	IS	71.8	60 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1

Sample ID: SXDU11904121200RL

VAL - PFAS

Client Data

Name:	Merit Laboratories, Inc.	Matrix:	Soil
Project:	Statewide WWTP Biosolids PFAS Evaluation	Date Collected:	12-Apr-19 12:00
Location:	HURO-04S08E24-VG02		

Laboratory Data

Lab Sample:	1900760-13	Column:	BEH C18
Date Received:	16-Apr-19 09:58		
% Solids:	85.2		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-8:2 FTS	IS	94.0	40 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
d3-MeFOSAA	IS	61.2	50 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
d5-EtFOSAA	IS	67.5	50 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-PFUnA	IS	69.0	60 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-PFDoA	IS	74.4	30 - 130		B9D0170	01-May-19	1.18 g	04-May-19 19:36	1
13C2-PFTeDA	IS	64.9	20 - 150		B9D0170	01-May-19	1.18 g	04-May-19 19:36	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	The ion transition ratio is outside of the acceptance criteria.
TEQ	Toxic Equivalency
U	Not Detected (specific projects only)
*	See Cover Letter

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

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	19-013-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
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	1521520
New Hampshire Environmental Accreditation Program	207718
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-010
Pennsylvania Department of Environmental Protection	015
Texas Commission on Environmental Quality	T104704189-19-10
Virginia Department of General Services	9618
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

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900760 Temp: 0.3 °C
Storage ID: WR-8 Storage Secured: Yes ☑ No ☐

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

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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
Michal Kosciarz			RECEIVED VIA EMAIL	04/16/19	0958
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	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 PFOA/ PFOS	UCMR3 PFAS List 6	PFAS List 14	USEPA Method 537	Comments
SW031904120805MK	4/12/19	0805	HURO-05S09E10-JU02	2	P	AQ			X								
SXDU11904120855RL	4/12/19	0855	HURO-05S09E10-JU02	1	PJ	SO			X								
SW051904120905MK	4/12/19	0905	HURO-05S09E10-JU02	2	P	AQ			X								
SW041904120915MK	4/12/19	0915	HURO-05S09E10-JU02	2	P	AQ			X								
PEW011904120925MK	4/12/19	0925	HURO-05S09E10-JU02	2	P	AQ			X								
SXDU21904120935RL	4/12/19	0935	HURO-05S09E10-JU02	1	PJ	SO			X								
SW021904120945MK	4/12/19	0945	HURO-05S09E10-JU02	2	P	AQ			X								
SW011904120955MK	4/12/19	0955	HURO-05S09E10-JU02	2	P	AQ			X								
SXDU21904121120RL	4/12/19	1120	HURO-04S08E24-VG02	1	PJ	SO			X								
SW011904121130MK	4/12/19	1130	HURO-04S08E24-VG02	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:

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:

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900760 Temp: 0.3 °C
Storage ID: WR-8 Storage Secured: Yes ☑ No ☐

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
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
Michal Kosciarz			RECEIVED VIA EMAIL	04/16/19	0958
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	PFAS Isotope Dilution: List of 21	List of 21 w/Isomers	List of 24	List of 24 w/Isomers	List of 28	Other: Please List Below	USEPA Method 537: PFOA/ PFOS	UCMR3 PFAS List 6	PFAS List 14	Comments
SW021904121145MK	4/12/19	1145	HURO-04S08E24-VG02	2	P	AQ			X							
SW041904121155MK	4/12/19	1155	HURO-04S08E24-VG02	2	P	AQ			X							
SXDU11904121200RL	4/12/19	1200	HURO-04S08E24-VG02	1	PJ	SO			X							
SW031904121215MK	4/12/19	1215	HURO-04S08E24-VG02	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:

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:

Page 4 of 5

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900760 Temp: 0.3 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
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
Michal Kosciarz	4/15/19	1700	Kim Eric	04/16/19	0958
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	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	Comments
				Container(s)			PFAS Isotope Dilution						USEPA Method 537			
SW031904120805MK	4/12/19	0805	HURO-05S09E10-JU02	2	P	AQ			X							
SXDU11904120855RL	4/12/19	0855	HURO-05S09E10-JU02	1	PJ	SO			X							
SW051904120905MK	4/12/19	0905	HURO-05S09E10-JU02	2	P	AQ			X							
SW041904120915MK	4/12/19	0915	HURO-05S09E10-JU02	2	P	AQ			X							
PEW011904120925MK	4/12/19	0925	HURO-05S09E10-JU02	2	P	AQ			X							
SXDU21904120935RL	4/12/19	0935	HURO-05S09E10-JU02	1	PJ	SO			X							
SW021904120945MK	4/12/19	0945	HURO-05S09E10-JU02	2	P	AQ			X							
SW011904120955MK	4/12/19	0955	HURO-05S09E10-JU02	2	P	AQ			X							
SXDU21904121120RL	4/12/19	1120	HURO-04S08E24-VG02	1	PJ	SO			X							
SW011904121130MK	4/12/19	1130	HURO-04S08E24-VG02	1	PJ	SO			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:

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:

Page 5 of 7

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1900760 Temp: 0.3 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: Statewide WWTP Biosolids PFAS Evaluation PO#: 60588767.01 Sampler: Michal Kosciarz + Rachel Lopez (name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
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
Michal Kosciarz	4/15/19	1700	Kim Eric	04/16/19	0958
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Jennifer Miller

Method of Shipment:

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	PFAS Isotope Dilution: List of 21	List of 21 w/Isomers	List of 24	List of 24 w/Isomers	List of 28	Other: Please List Below	USEPA Method 537: PFOA/ PFOS	UCMR3 PFAS List: 6	PFAS List: 14	Comments
SW021904121145MK	4/12/19	1145	HURO-04S08E24-VG02	2	P	AQ			X							
SW041904121155MK	4/12/19	1155	HURO-04S08E24-VG02	2	P	AQ			X							
SXDU11904121200RL	4/12/19	1200	HURO-04S08E24-VG02	1	PJ	SO			X							
SW031904121215MK	4/12/19	1215	HURO-04S08E24-VG02	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:

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:

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1900760 TAT std

Samples Arrival:	Date/Time 04/16/19 0958	Initials: KE	Location: WR-2 Shelf/Rack: NA
Logged In:	Date/Time 04/16/19 1121	Initials: KE	Location: WR-2 Shelf/Rack: A4 / A3 & E7

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 0.4 (uncorrected)	Probe used: Y / N	Thermometer ID: TR-4
Temp °C: 0.3 (corrected)		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill — Trk # 4894 6695 8560	✓		
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:	$Na_2S_2O_3$ Trizma None Other			Yes	No	NA
Shipping Container	Vista	Client	Retain	Return	Dispose	

Comments:

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-179559-1
Client Project/Site: Statewide WWTP Biosolids

For:
Michigan Dept of Environmental Quality
Water Resources Division
Constitution Hall, 3rd Fl SW
525 W. Allegan Street
Lansing, Michigan 48909

Attn: Stephanie Kammer

Authorized for release by:
4/30/2019 4:04:20 PM

Kris Brooks, Project Manager II
(330)966-9790
kris.brooks@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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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)

Job ID: 460-179559-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: Michigan Dept of Environmental Quality

Project: Statewide WWTP Biosolids

Report Number: 460-179559-1

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.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins 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 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 Eurofins TestAmerica and its client.

RECEIPT
The samples were received on 4/11/2019 9:13 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1º C.

TOTAL ORGANIC CARBON
Samples SXDU11904081125RL (460-179559-1), SXDU21904081210RL (460-179559-2), SXDU31904081300RL (460-179559-3), SXDU41904081450RL (460-179559-4), SXDU11904081700RL (460-179559-5), SXDU21904081755RL (460-179559-6), SXDU11904081825RL (460-179559-7), SXDU21904081910RL (460-179559-8), SXDU11904091050MK (460-179559-9), SXDU21904091155MK (460-179559-10), SXDU21904091300MK (460-179559-11), SXDU11904091350MK (460-179559-12), SXDU11904101005RL (460-179559-13), SXDU21904101050RL (460-179559-14), SXDU31904101120RL (460-179559-15), SXDU11904101300RL (460-179559-16), SXDU21904101330RL (460-179559-17), SXDU31904101355RL (460-179559-18), SXDU21904101505RL (460-179559-19) and SXDU11904101540RL (460-179559-20) were analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 04/18/2019 and 04/23/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples SXDU11904081125RL (460-179559-1), SXDU21904081210RL (460-179559-2), SXDU31904081300RL (460-179559-3),

Job ID: 460-179559-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

SXDU41904081450RL (460-179559-4), SXDU11904081700RL (460-179559-5), SXDU21904081755RL (460-179559-6), SXDU11904081825RL (460-179559-7), SXDU21904081910RL (460-179559-8), SXDU11904091050MK (460-179559-9), SXDU21904091155MK (460-179559-10), SXDU21904091300MK (460-179559-11), SXDU11904091350MK (460-179559-12), SXDU11904101005RL (460-179559-13), SXDU21904101050RL (460-179559-14), SXDU31904101120RL (460-179559-15), SXDU11904101300RL (460-179559-16), SXDU21904101330RL (460-179559-17), SXDU31904101355RL (460-179559-18), SXDU21904101505RL (460-179559-19) and SXDU11904101540RL (460-179559-20) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 04/27/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU11904081125RL — Lab Sample ID: 460-179559-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	13000		120	80	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904081210RL — Lab Sample ID: 460-179559-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	29000		130	87	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU31904081300RL — Lab Sample ID: 460-179559-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	19000		120	85	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU41904081450RL — Lab Sample ID: 460-179559-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	13000		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904081700RL — Lab Sample ID: 460-179559-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	6500		120	80	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904081755RL — Lab Sample ID: 460-179559-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	6800		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904081825RL — Lab Sample ID: 460-179559-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	13000		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904081910RL — Lab Sample ID: 460-179559-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8100		110	79	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904091050MK — Lab Sample ID: 460-179559-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	18000		120	84	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904091155MK — Lab Sample ID: 460-179559-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	18000		120	83	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904091300MK — Lab Sample ID: 460-179559-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	17000		120	82	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904091350MK — Lab Sample ID: 460-179559-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	100000		140	95	mg/Kg	1	☼	Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU11904101005RL — Lab Sample ID: 460-179559-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	9300		120	79	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904101050RL — Lab Sample ID: 460-179559-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8600		120	79	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU31904101120RL — Lab Sample ID: 460-179559-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	49000		130	89	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904101300RL — Lab Sample ID: 460-179559-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8100		120	84	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904101330RL — Lab Sample ID: 460-179559-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	43000		130	88	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU31904101355RL — Lab Sample ID: 460-179559-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	11000		110	78	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904101505RL — Lab Sample ID: 460-179559-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	7600		120	79	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904101540RL — Lab Sample ID: 460-179559-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	10000		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU11904081125RL — Lab Sample ID: 460-179559-1

Date Collected: 04/08/19 11:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.7		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	85.3		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904081125RL — Lab Sample ID: 460-179559-1

Date Collected: 04/08/19 11:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 85.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	13000		120	80	mg/Kg	☼		04/18/19 14:13	1

Client Sample ID: SXDU21904081210RL — Lab Sample ID: 460-179559-2

Date Collected: 04/08/19 12:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	21.1		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	78.9		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904081210RL — Lab Sample ID: 460-179559-2

Date Collected: 04/08/19 12:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 78.9**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	29000		130	87	mg/Kg	☼		04/18/19 15:27	1

Client Sample ID: SXDU31904081300RL — Lab Sample ID: 460-179559-3

Date Collected: 04/08/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.3		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	80.7		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU31904081300RL — Lab Sample ID: 460-179559-3

Date Collected: 04/08/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 80.7**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	19000		120	85	mg/Kg	☼		04/18/19 15:36	1

Client Sample ID: SXDU41904081450RL — Lab Sample ID: 460-179559-4

Date Collected: 04/08/19 14:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.2		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU41904081450RL — Lab Sample ID: 460-179559-4

Date Collected: 04/08/19 14:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.8		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU41904081450RL — Lab Sample ID: 460-179559-4

Date Collected: 04/08/19 14:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 84.8**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	13000		120	81	mg/Kg	☼		04/18/19 15:44	1

Client Sample ID: SXDU11904081700RL — Lab Sample ID: 460-179559-5

Date Collected: 04/08/19 17:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.6		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	85.4		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904081700RL — Lab Sample ID: 460-179559-5

Date Collected: 04/08/19 17:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 85.4**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	6500		120	80	mg/Kg	☼		04/18/19 15:51	1

Client Sample ID: SXDU21904081755RL — Lab Sample ID: 460-179559-6

Date Collected: 04/08/19 17:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.5		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	84.5		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904081755RL — Lab Sample ID: 460-179559-6

Date Collected: 04/08/19 17:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 84.5**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	6800		120	81	mg/Kg	☼		04/18/19 16:14	1

Client Sample ID: SXDU11904081825RL — Lab Sample ID: 460-179559-7

Date Collected: 04/08/19 18:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.7		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	84.3		1.0	1.0	%			04/27/19 05:15	1

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU11904081825RL — Lab Sample ID: 460-179559-7

Date Collected: 04/08/19 18:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 84.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	13000		120	81	mg/Kg	☼		04/18/19 16:22	1

Client Sample ID: SXDU21904081910RL — Lab Sample ID: 460-179559-8

Date Collected: 04/08/19 19:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.0		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	87.0		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904081910RL — Lab Sample ID: 460-179559-8

Date Collected: 04/08/19 19:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 87.0**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8100		110	79	mg/Kg	☼		04/18/19 16:30	1

Client Sample ID: SXDU11904091050MK — Lab Sample ID: 460-179559-9

Date Collected: 04/09/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.9		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	81.1		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904091050MK — Lab Sample ID: 460-179559-9

Date Collected: 04/09/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 81.1**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	18000		120	84	mg/Kg	☼		04/18/19 16:37	1

Client Sample ID: SXDU21904091155MK — Lab Sample ID: 460-179559-10

Date Collected: 04/09/19 11:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.7		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	82.3		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904091155MK — Lab Sample ID: 460-179559-10

Date Collected: 04/09/19 11:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 82.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	18000		120	83	mg/Kg	☼		04/18/19 16:45	1

Client Sample ID: SXDU21904091300MK — Lab Sample ID: 460-179559-11

Date Collected: 04/09/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.3		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	83.7		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904091300MK — Lab Sample ID: 460-179559-11

Date Collected: 04/09/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 83.7**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	17000		120	82	mg/Kg	☼		04/18/19 16:52	1

Client Sample ID: SXDU11904091350MK — Lab Sample ID: 460-179559-12

Date Collected: 04/09/19 13:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	27.6		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	72.4		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904091350MK — Lab Sample ID: 460-179559-12

Date Collected: 04/09/19 13:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 72.4**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	100000		140	95	mg/Kg	☼		04/18/19 17:00	1

Client Sample ID: SXDU11904101005RL — Lab Sample ID: 460-179559-13

Date Collected: 04/10/19 10:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.3		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	86.7		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904101005RL — Lab Sample ID: 460-179559-13

Date Collected: 04/10/19 10:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 86.7**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	9300		120	79	mg/Kg	☼		04/23/19 13:09	1

Client Sample ID: SXDU21904101050RL — Lab Sample ID: 460-179559-14

Date Collected: 04/10/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.7		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904101050RL — Lab Sample ID: 460-179559-14

Date Collected: 04/10/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.3		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904101050RL — Lab Sample ID: 460-179559-14

Date Collected: 04/10/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 86.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8600		120	79	mg/Kg	☼		04/23/19 13:42	1

Client Sample ID: SXDU31904101120RL — Lab Sample ID: 460-179559-15

Date Collected: 04/10/19 11:20 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	23.2		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	76.8		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU31904101120RL — Lab Sample ID: 460-179559-15

Date Collected: 04/10/19 11:20 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 76.8**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	49000		130	89	mg/Kg	☼		04/23/19 13:50	1

Client Sample ID: SXDU11904101300RL — Lab Sample ID: 460-179559-16

Date Collected: 04/10/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.3		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	81.7		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904101300RL — Lab Sample ID: 460-179559-16

Date Collected: 04/10/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 81.7**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8100		120	84	mg/Kg	☼		04/23/19 13:57	1

Client Sample ID: SXDU21904101330RL — Lab Sample ID: 460-179559-17

Date Collected: 04/10/19 13:30 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	22.1		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	77.9		1.0	1.0	%			04/27/19 05:15	1

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU21904101330RL — Lab Sample ID: 460-179559-17

Date Collected: 04/10/19 13:30 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 77.9**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	43000		130	88	mg/Kg	☼		04/23/19 14:05	1

Client Sample ID: SXDU31904101355RL — Lab Sample ID: 460-179559-18

Date Collected: 04/10/19 13:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12.3		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	87.7		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU31904101355RL — Lab Sample ID: 460-179559-18

Date Collected: 04/10/19 13:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 87.7**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	11000		110	78	mg/Kg	☼		04/23/19 14:29	1

Client Sample ID: SXDU21904101505RL — Lab Sample ID: 460-179559-19

Date Collected: 04/10/19 15:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.7		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	86.3		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU21904101505RL — Lab Sample ID: 460-179559-19

Date Collected: 04/10/19 15:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 86.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	7600		120	79	mg/Kg	☼		04/23/19 14:36	1

Client Sample ID: SXDU11904101540RL — Lab Sample ID: 460-179559-20

Date Collected: 04/10/19 15:40 — **Matrix: Solid**
Date Received: 04/11/19 09:13

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.0		1.0	1.0	%			04/27/19 05:15	1
Percent Solids	85.0		1.0	1.0	%			04/27/19 05:15	1

Client Sample ID: SXDU11904101540RL — Lab Sample ID: 460-179559-20

Date Collected: 04/10/19 15:40 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 85.0**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	10000		120	81	mg/Kg	☼		04/23/19 14:44	1

QC Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 460-603657/3 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 603657

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		100	69	mg/Kg			04/18/19 13:51	1

Lab Sample ID: LCSSRM 460-603657/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 603657

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
TOC Result 1			13800	14200		mg/Kg		102.8	34.9 - 192.8		

Lab Sample ID: MB 460-604732/3 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 604732

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		100	69	mg/Kg			04/23/19 12:50	1

Lab Sample ID: LCSSRM 460-604732/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 604732

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
TOC Result 1			13800	14200		mg/Kg		102.9	34.9 - 192.8		

Method: Moisture - Percent Moisture

Lab Sample ID: 460-179559-16 DU — **Client Sample ID: SXDU11904101300RL**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 605732

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	18.3			17.8		%				2	20
Percent Solids	81.7			82.2		%				0.5	20

QC Association Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

General Chemistry

Analysis Batch: 603657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-179559-1	SXDU11904081125RL	Total/NA	Solid	Lloyd Kahn	
460-179559-2	SXDU21904081210RL	Total/NA	Solid	Lloyd Kahn	
460-179559-3	SXDU31904081300RL	Total/NA	Solid	Lloyd Kahn	
460-179559-4	SXDU41904081450RL	Total/NA	Solid	Lloyd Kahn	
460-179559-5	SXDU11904081700RL	Total/NA	Solid	Lloyd Kahn	
460-179559-6	SXDU21904081755RL	Total/NA	Solid	Lloyd Kahn	
460-179559-7	SXDU11904081825RL	Total/NA	Solid	Lloyd Kahn	
460-179559-8	SXDU21904081910RL	Total/NA	Solid	Lloyd Kahn	
460-179559-9	SXDU11904091050MK	Total/NA	Solid	Lloyd Kahn	
460-179559-10	SXDU21904091155MK	Total/NA	Solid	Lloyd Kahn	
460-179559-11	SXDU21904091300MK	Total/NA	Solid	Lloyd Kahn	
460-179559-12	SXDU11904091350MK	Total/NA	Solid	Lloyd Kahn	
MB 460-603657/3	Method Blank	Total/NA	Solid	Lloyd Kahn	
LCSSRM 460-603657/4	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	

Analysis Batch: 604732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-179559-13	SXDU11904101005RL	Total/NA	Solid	Lloyd Kahn	
460-179559-14	SXDU21904101050RL	Total/NA	Solid	Lloyd Kahn	
460-179559-15	SXDU31904101120RL	Total/NA	Solid	Lloyd Kahn	
460-179559-16	SXDU11904101300RL	Total/NA	Solid	Lloyd Kahn	
460-179559-17	SXDU21904101330RL	Total/NA	Solid	Lloyd Kahn	
460-179559-18	SXDU31904101355RL	Total/NA	Solid	Lloyd Kahn	
460-179559-19	SXDU21904101505RL	Total/NA	Solid	Lloyd Kahn	
460-179559-20	SXDU11904101540RL	Total/NA	Solid	Lloyd Kahn	
MB 460-604732/3	Method Blank	Total/NA	Solid	Lloyd Kahn	
LCSSRM 460-604732/4	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	

Analysis Batch: 605732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-179559-1	SXDU11904081125RL	Total/NA	Solid	Moisture	
460-179559-2	SXDU21904081210RL	Total/NA	Solid	Moisture	
460-179559-3	SXDU31904081300RL	Total/NA	Solid	Moisture	
460-179559-4	SXDU41904081450RL	Total/NA	Solid	Moisture	
460-179559-5	SXDU11904081700RL	Total/NA	Solid	Moisture	
460-179559-6	SXDU21904081755RL	Total/NA	Solid	Moisture	
460-179559-7	SXDU11904081825RL	Total/NA	Solid	Moisture	
460-179559-8	SXDU21904081910RL	Total/NA	Solid	Moisture	
460-179559-9	SXDU11904091050MK	Total/NA	Solid	Moisture	
460-179559-10	SXDU21904091155MK	Total/NA	Solid	Moisture	
460-179559-11	SXDU21904091300MK	Total/NA	Solid	Moisture	
460-179559-12	SXDU11904091350MK	Total/NA	Solid	Moisture	
460-179559-13	SXDU11904101005RL	Total/NA	Solid	Moisture	
460-179559-14	SXDU21904101050RL	Total/NA	Solid	Moisture	
460-179559-15	SXDU31904101120RL	Total/NA	Solid	Moisture	
460-179559-16	SXDU11904101300RL	Total/NA	Solid	Moisture	
460-179559-17	SXDU21904101330RL	Total/NA	Solid	Moisture	
460-179559-18	SXDU31904101355RL	Total/NA	Solid	Moisture	
460-179559-19	SXDU21904101505RL	Total/NA	Solid	Moisture	
460-179559-20	SXDU11904101540RL	Total/NA	Solid	Moisture	
460-179559-16 DU	SXDU11904101300RL	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU11904081125RL — Lab Sample ID: 460-179559-1

Date Collected: 04/08/19 11:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904081125RL — Lab Sample ID: 460-179559-1

Date Collected: 04/08/19 11:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 85.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 14:13	AJP	TAL EDI

Client Sample ID: SXDU21904081210RL — Lab Sample ID: 460-179559-2

Date Collected: 04/08/19 12:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904081210RL — Lab Sample ID: 460-179559-2

Date Collected: 04/08/19 12:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 78.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 15:27	AJP	TAL EDI

Client Sample ID: SXDU31904081300RL — Lab Sample ID: 460-179559-3

Date Collected: 04/08/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU31904081300RL — Lab Sample ID: 460-179559-3

Date Collected: 04/08/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 80.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 15:36	AJP	TAL EDI

Client Sample ID: SXDU41904081450RL — Lab Sample ID: 460-179559-4

Date Collected: 04/08/19 14:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU41904081450RL — Lab Sample ID: 460-179559-4

Date Collected: 04/08/19 14:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 84.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 15:44	AJP	TAL EDI

Client Sample ID: SXDU11904081700RL — Lab Sample ID: 460-179559-5

Date Collected: 04/08/19 17:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904081700RL — Lab Sample ID: 460-179559-5

Date Collected: 04/08/19 17:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 85.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 15:51	AJP	TAL EDI

Client Sample ID: SXDU21904081755RL — Lab Sample ID: 460-179559-6

Date Collected: 04/08/19 17:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904081755RL — Lab Sample ID: 460-179559-6

Date Collected: 04/08/19 17:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 84.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 16:14	AJP	TAL EDI

Client Sample ID: SXDU11904081825RL — Lab Sample ID: 460-179559-7

Date Collected: 04/08/19 18:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904081825RL — Lab Sample ID: 460-179559-7

Date Collected: 04/08/19 18:25 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 84.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 16:22	AJP	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU21904081910RL — Lab Sample ID: 460-179559-8

Date Collected: 04/08/19 19:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904081910RL — Lab Sample ID: 460-179559-8

Date Collected: 04/08/19 19:10 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 87.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 16:30	AJP	TAL EDI

Client Sample ID: SXDU11904091050MK — Lab Sample ID: 460-179559-9

Date Collected: 04/09/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904091050MK — Lab Sample ID: 460-179559-9

Date Collected: 04/09/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 81.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 16:37	AJP	TAL EDI

Client Sample ID: SXDU21904091155MK — Lab Sample ID: 460-179559-10

Date Collected: 04/09/19 11:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904091155MK — Lab Sample ID: 460-179559-10

Date Collected: 04/09/19 11:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 82.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 16:45	AJP	TAL EDI

Client Sample ID: SXDU21904091300MK — Lab Sample ID: 460-179559-11

Date Collected: 04/09/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU21904091300MK — Lab Sample ID: 460-179559-11

Date Collected: 04/09/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 83.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 16:52	AJP	TAL EDI

Client Sample ID: SXDU11904091350MK — Lab Sample ID: 460-179559-12

Date Collected: 04/09/19 13:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904091350MK — Lab Sample ID: 460-179559-12

Date Collected: 04/09/19 13:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 72.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	603657	04/18/19 17:00	AJP	TAL EDI

Client Sample ID: SXDU11904101005RL — Lab Sample ID: 460-179559-13

Date Collected: 04/10/19 10:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904101005RL — Lab Sample ID: 460-179559-13

Date Collected: 04/10/19 10:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 86.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 13:09	AJP	TAL EDI

Client Sample ID: SXDU21904101050RL — Lab Sample ID: 460-179559-14

Date Collected: 04/10/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904101050RL — Lab Sample ID: 460-179559-14

Date Collected: 04/10/19 10:50 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 86.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 13:42	AJP	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU31904101120RL — Lab Sample ID: 460-179559-15

Date Collected: 04/10/19 11:20 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU31904101120RL — Lab Sample ID: 460-179559-15

Date Collected: 04/10/19 11:20 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 76.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 13:50	AJP	TAL EDI

Client Sample ID: SXDU11904101300RL — Lab Sample ID: 460-179559-16

Date Collected: 04/10/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904101300RL — Lab Sample ID: 460-179559-16

Date Collected: 04/10/19 13:00 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 81.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 13:57	AJP	TAL EDI

Client Sample ID: SXDU21904101330RL — Lab Sample ID: 460-179559-17

Date Collected: 04/10/19 13:30 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904101330RL — Lab Sample ID: 460-179559-17

Date Collected: 04/10/19 13:30 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 77.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 14:05	AJP	TAL EDI

Client Sample ID: SXDU31904101355RL — Lab Sample ID: 460-179559-18

Date Collected: 04/10/19 13:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Client Sample ID: SXDU31904101355RL — Lab Sample ID: 460-179559-18

Date Collected: 04/10/19 13:55 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 87.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 14:29	AJP	TAL EDI

Client Sample ID: SXDU21904101505RL — Lab Sample ID: 460-179559-19

Date Collected: 04/10/19 15:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU21904101505RL — Lab Sample ID: 460-179559-19

Date Collected: 04/10/19 15:05 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 86.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 14:36	AJP	TAL EDI

Client Sample ID: SXDU11904101540RL — Lab Sample ID: 460-179559-20

Date Collected: 04/10/19 15:40 — **Matrix: Solid**
Date Received: 04/11/19 09:13

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	605732	04/27/19 05:15	APV	TAL EDI

Client Sample ID: SXDU11904101540RL — Lab Sample ID: 460-179559-20

Date Collected: 04/10/19 15:40 — **Matrix: Solid**
Date Received: 04/11/19 09:13 — **Percent Solids: 85.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	604732	04/23/19 14:44	AJP	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Laboratory: Eurofins 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	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-19
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-20
Pennsylvania	NELAP	3	68-00522	02-28-20
Rhode Island	State Program	1	LAO00132	12-30-19
USDA	Federal		NJCA-003-08	05-03-21

Laboratory: Eurofins 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	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

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 = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179559-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-179559-1	SXDU11904081125RL	Solid	04/08/19 11:25	04/11/19 09:13
460-179559-2	SXDU21904081210RL	Solid	04/08/19 12:10	04/11/19 09:13
460-179559-3	SXDU31904081300RL	Solid	04/08/19 13:00	04/11/19 09:13
460-179559-4	SXDU41904081450RL	Solid	04/08/19 14:50	04/11/19 09:13
460-179559-5	SXDU11904081700RL	Solid	04/08/19 17:00	04/11/19 09:13
460-179559-6	SXDU21904081755RL	Solid	04/08/19 17:55	04/11/19 09:13
460-179559-7	SXDU11904081825RL	Solid	04/08/19 18:25	04/11/19 09:13
460-179559-8	SXDU21904081910RL	Solid	04/08/19 19:10	04/11/19 09:13
460-179559-9	SXDU11904091050MK	Solid	04/09/19 10:50	04/11/19 09:13
460-179559-10	SXDU21904091155MK	Solid	04/09/19 11:55	04/11/19 09:13
460-179559-11	SXDU21904091300MK	Solid	04/09/19 13:00	04/11/19 09:13
460-179559-12	SXDU11904091350MK	Solid	04/09/19 13:50	04/11/19 09:13
460-179559-13	SXDU11904101005RL	Solid	04/10/19 10:05	04/11/19 09:13
460-179559-14	SXDU21904101050RL	Solid	04/10/19 10:50	04/11/19 09:13
460-179559-15	SXDU31904101120RL	Solid	04/10/19 11:20	04/11/19 09:13
460-179559-16	SXDU11904101300RL	Solid	04/10/19 13:00	04/11/19 09:13
460-179559-17	SXDU21904101330RL	Solid	04/10/19 13:30	04/11/19 09:13
460-179559-18	SXDU31904101355RL	Solid	04/10/19 13:55	04/11/19 09:13
460-179559-19	SXDU21904101505RL	Solid	04/10/19 15:05	04/11/19 09:13
460-179559-20	SXDU11904101540RL	Solid	04/10/19 15:40	04/11/19 09:13

TestAmerica Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Dorin Bogdan	Site Contact:	Date:	COC No:
AECOM	Tel/Fax: (616) 516-5995	Lab Contact:	Carrier:	_____ of _____ COCs
3950 Sparks Dr SE	**Analysis Turnaround Time**			Sampler:
Grand Rapids, MI 49546	☑ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(616) 516-5995 PHONE	TAT if different from Below ____21_____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: Statewide WWTP Biosolids PFAS Evaluation	☐ 1 week			
Site: -	☐ 2 days			Job / SDG No.: 179559
P O # 60588767.01	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
SXDU11904081125RL	4/8/2019	1125	C	SO	1			TOC Analysis 1
SXDU21904081210RL	4/8/19	1210	C	SO	1			2
SXDU31904081300RL	4/8/19	1300	C	SO	1			3
SXDU41904081450RL	4/8/19	1450	C	SO	1			4
SXDU11904081700RL	4/8/19	1700	C	SO	1			5
SXDU21904081755RL	4/8/19	1755	C	SO	1			6
SXDU11904081825RL	4/8/19	1825	C	SO	1			7
SXDU21904081910RL	4/8/19	1910	C	SO	1			8
SXDU11904091050MK	4/9/19	1050	C	SO	1			9
SXDU21904091155MK	4/9/19	1155	C	SO	1			10
SXDU21904091300MK	4/9/19	1300	C	SO	1			11
SXDU11904091350MK	4/9/19	1350	C	SO	1			12

460-179559 Chain of Custody

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

1.1°C IR#9

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: NO CS | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michel Kascie	AECOM	4/10/19 1830	Angela Pinilla via FEDEX	TAEDISON	04/11/19 09:13
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Dorin Bogdan	Site Contact:	Date:	COC No:
AECOM	Tel/Fax: (616) 516-5995	Lab Contact:	Carrier:	_____ of _____ COCs
3950 Sparks Dr SE	Analysis Turnaround Time			Sampler:
Grand Rapids, MI 49546	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(616) 516-5995 PHONE	TAT if different from Below ____21_____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: Statewide WWTP Biosolids PFAS Evaluation	☐ 1 week			
Site: -	☐ 2 days			Job / SDG No.: 179559
P O # 60588767.01	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
SXDU11904101005RL	4/10/2019	1005	C	SO	1			TOC Analysis 13
SXDU21904101050RL	4/10/19	1050	C	SO	1			14
SXDU31904101120RL	4/10/19	1120	C	SO	1			15
SXDU11904101300RL	4/10/19	1300	C	SO	1			16
SXDU21904101330RL	4/10/19	1330	C	SO	1			17
SXDU31904101355RL	4/10/19	1355	C	SO	1			18
SXDU21904101505RL	4/10/19	1505	C	SO	1			19
SXDU11904101540RL	4/10/19	1540	C	SO	1			20

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

1.1°C IR#9

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: NO CS | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michael Kasc	AECOM	4/10/19 1830	Angela Pinilla via FEDEX	TAEDison	04/11/19 09:13
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

Job Number: 179559

TestAmerica Edison
Receipt Temperature and pH Log

Page ____ of _____

Number of Coolers: 1 IR Gun #: 2

Cooler Temperatures

Cooler #1	4/11/19	°C	Cooler #4		°C	Cooler #7		°C	Cooler #10		°C
Cooler #2		°C	Cooler #5		°C	Cooler #8		°C	Cooler #11		°C
Cooler #3		°C	Cooler #6		°C	Cooler #9		°C	Cooler #12		°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: ACCP Date: 04/11/19

EDS-WI-038, Rev 4, 06/09/2014

Login Sample Receipt Checklist

Client: Michigan Dept of Environmental Quality

Job Number: 460-179559-1

Login Number: 179559
List Number: 1
Creator: Rivera, Kenneth

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Edison
777 New Durham Road
Edison, NJ 08817
Tel: (732)549-3900

Laboratory Job ID: 460-179735-1
Client Project/Site: Statewide WWTP Biosolids

For:
Michigan Dept of Environmental Quality
Water Resources Division
Constitution Hall, 3rd Fl SW
525 W. Allegan Street
Lansing, Michigan 48909

Attn: Stephanie Kammer

Authorized for release by:
5/1/2019 5:29:17 PM

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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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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)

Job ID: 460-179735-1

Laboratory: Eurofins TestAmerica, Edison

Narrative

CASE NARRATIVE

Client: Michigan Dept of Environmental Quality

Project: Statewide WWTP Biosolids

Report Number: 460-179735-1

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.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins 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 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 Eurofins TestAmerica and its client.

RECEIPT
The samples were received on 4/16/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2º C.

TOTAL ORGANIC CARBON
Samples SXDU21904110945MK (460-179735-1), SXDU11904111040MK (460-179735-2), SXDU21904111125MK (460-179735-3), SXDU21904111130MK-DUP (460-179735-4), SXDU11904111220MK (460-179735-5), SXDU31904111405MK (460-179735-6), SXDU21904111450MK (460-179735-7), SXDU21904111455MK-DUP (460-179735-8), SXDU11904111530MK (460-179735-9), SXDU21904111615MK (460-179735-10), SXDU11904111655MK (460-179735-11), SXDU11904120855RL (460-179735-12), SXDU21904120935RL (460-179735-13), SXDU21904121120RL (460-179735-14) and SXDU11904121200RL (460-179735-15) were analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 04/24/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples SXDU21904110945MK (460-179735-1), SXDU11904111040MK (460-179735-2), SXDU21904111125MK (460-179735-3), SXDU21904111130MK-DUP (460-179735-4), SXDU11904111220MK (460-179735-5), SXDU31904111405MK (460-179735-6), SXDU21904111450MK (460-179735-7), SXDU21904111455MK-DUP (460-179735-8), SXDU11904111530MK (460-179735-9),

Job ID: 460-179735-1 (Continued)

Laboratory: Eurofins TestAmerica, Edison (Continued)

SXDU21904111615MK (460-179735-10), SXDU11904111655MK (460-179735-11), SXDU11904120855RL (460-179735-12), SXDU21904120935RL (460-179735-13), SXDU21904121120RL (460-179735-14) and SXDU11904121200RL (460-179735-15) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 04/30/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904110945MK — Lab Sample ID: 460-179735-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	17000		130	92	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904111040MK — Lab Sample ID: 460-179735-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	11000		120	85	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904111125MK — Lab Sample ID: 460-179735-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	11000		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904111130MK-DUP — Lab Sample ID: 460-179735-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	11000		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904111220MK — Lab Sample ID: 460-179735-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	5000		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU31904111405MK — Lab Sample ID: 460-179735-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	10000		110	74	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904111450MK — Lab Sample ID: 460-179735-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	11000		120	83	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904111455MK-DUP — Lab Sample ID: 460-179735-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	12000		120	82	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904111530MK — Lab Sample ID: 460-179735-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	7800		120	82	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904111615MK — Lab Sample ID: 460-179735-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	10000		120	80	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904111655MK — Lab Sample ID: 460-179735-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	7800		120	84	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904120855RL — Lab Sample ID: 460-179735-12

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Edison

Detection Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904120935RL — Lab Sample ID: 460-179735-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	20000		130	91	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904121120RL — Lab Sample ID: 460-179735-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8700		120	80	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904121200RL — Lab Sample ID: 460-179735-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8500		120	81	mg/Kg	1	☼	Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904110945MK — Lab Sample ID: 460-179735-1

Date Collected: 04/11/19 09:45 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	25.6		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	74.4		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904110945MK — Lab Sample ID: 460-179735-1

Date Collected: 04/11/19 09:45 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 74.4**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	17000		130	92	mg/Kg	☼		04/24/19 14:35	1

Client Sample ID: SXDU11904111040MK — Lab Sample ID: 460-179735-2

Date Collected: 04/11/19 10:40 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.6		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	80.4		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU11904111040MK — Lab Sample ID: 460-179735-2

Date Collected: 04/11/19 10:40 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 80.4**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	11000		120	85	mg/Kg	☼		04/24/19 14:42	1

Client Sample ID: SXDU21904111125MK — Lab Sample ID: 460-179735-3

Date Collected: 04/11/19 11:25 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.1		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	84.9		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904111125MK — Lab Sample ID: 460-179735-3

Date Collected: 04/11/19 11:25 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.9**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	11000		120	81	mg/Kg	☼		04/24/19 14:50	1

Client Sample ID: SXDU21904111130MK-DUP — Lab Sample ID: 460-179735-4

Date Collected: 04/11/19 11:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.5		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904111130MK-DUP — Lab Sample ID: 460-179735-4

Date Collected: 04/11/19 11:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	84.5		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904111130MK-DUP — Lab Sample ID: 460-179735-4

Date Collected: 04/11/19 11:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.5**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	11000		120	81	mg/Kg	☼		04/24/19 14:58	1

Client Sample ID: SXDU11904111220MK — Lab Sample ID: 460-179735-5

Date Collected: 04/11/19 12:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.2		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	84.8		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU11904111220MK — Lab Sample ID: 460-179735-5

Date Collected: 04/11/19 12:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.8**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	5000		120	81	mg/Kg	☼		04/24/19 15:05	1

Client Sample ID: SXDU31904111405MK — Lab Sample ID: 460-179735-6

Date Collected: 04/11/19 14:05 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.0		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	93.0		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU31904111405MK — Lab Sample ID: 460-179735-6

Date Collected: 04/11/19 14:05 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 93.0**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	10000		110	74	mg/Kg	☼		04/24/19 15:13	1

Client Sample ID: SXDU21904111450MK — Lab Sample ID: 460-179735-7

Date Collected: 04/11/19 14:50 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.2		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	82.8		1.0	1.0	%			04/30/19 08:39	1

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904111450MK — Lab Sample ID: 460-179735-7

Date Collected: 04/11/19 14:50 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 82.8**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	11000		120	83	mg/Kg	☼		04/24/19 15:40	1

Client Sample ID: SXDU21904111455MK-DUP — Lab Sample ID: 460-179735-8

Date Collected: 04/11/19 14:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.8		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	83.2		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904111455MK-DUP — Lab Sample ID: 460-179735-8

Date Collected: 04/11/19 14:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 83.2**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	12000		120	82	mg/Kg	☼		04/24/19 15:47	1

Client Sample ID: SXDU11904111530MK — Lab Sample ID: 460-179735-9

Date Collected: 04/11/19 15:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	16.9		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	83.1		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU11904111530MK — Lab Sample ID: 460-179735-9

Date Collected: 04/11/19 15:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 83.1**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	7800		120	82	mg/Kg	☼		04/24/19 15:55	1

Client Sample ID: SXDU21904111615MK — Lab Sample ID: 460-179735-10

Date Collected: 04/11/19 16:15 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.8		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	85.2		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904111615MK — Lab Sample ID: 460-179735-10

Date Collected: 04/11/19 16:15 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 85.2**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	10000		120	80	mg/Kg	☼		04/24/19 16:03	1

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU11904111655MK — Lab Sample ID: 460-179735-11

Date Collected: 04/11/19 16:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.0		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	82.0		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU11904111655MK — Lab Sample ID: 460-179735-11

Date Collected: 04/11/19 16:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 82.0**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	7800		120	84	mg/Kg	☼		04/24/19 16:10	1

Client Sample ID: SXDU11904120855RL — Lab Sample ID: 460-179735-12

Date Collected: 04/12/19 08:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	12.4		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	87.6		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU11904120855RL — Lab Sample ID: 460-179735-12

Date Collected: 04/12/19 08:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 87.6**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		110	78	mg/Kg	☼		04/24/19 16:37	1

Client Sample ID: SXDU21904120935RL — Lab Sample ID: 460-179735-13

Date Collected: 04/12/19 09:35 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	25.1		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	74.9		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904120935RL — Lab Sample ID: 460-179735-13

Date Collected: 04/12/19 09:35 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 74.9**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	20000		130	91	mg/Kg	☼		04/24/19 17:27	1

Client Sample ID: SXDU21904121120RL — Lab Sample ID: 460-179735-14

Date Collected: 04/12/19 11:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.9		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904121120RL — Lab Sample ID: 460-179735-14

Date Collected: 04/12/19 11:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	86.1		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU21904121120RL — Lab Sample ID: 460-179735-14

Date Collected: 04/12/19 11:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 86.1**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8700		120	80	mg/Kg	☼		04/24/19 17:35	1

Client Sample ID: SXDU11904121200RL — Lab Sample ID: 460-179735-15

Date Collected: 04/12/19 12:00 — **Matrix: Solid**
Date Received: 04/16/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.7		1.0	1.0	%			04/30/19 08:39	1
Percent Solids	84.3		1.0	1.0	%			04/30/19 08:39	1

Client Sample ID: SXDU11904121200RL — Lab Sample ID: 460-179735-15

Date Collected: 04/12/19 12:00 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.2**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8500		120	81	mg/Kg	☼		04/24/19 17:42	1

QC Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 460-605047/29 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 605047

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		100	69	mg/Kg			04/24/19 16:18	1

Lab Sample ID: MB 460-605047/3 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 605047

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	ND		100	69	mg/Kg			04/24/19 11:59	1

Lab Sample ID: LCSSRM 460-605047/30 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 605047

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
TOC Result 1			13800	14000		mg/Kg		101.7	34.9 - 192.8		

Lab Sample ID: LCSSRM 460-605047/4 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 605047

Analyte			Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits		
TOC Result 1			13800	13300		mg/Kg		96.5	34.9 - 192.8		

Method: Moisture - Percent Moisture

Lab Sample ID: 460-179735-1 DU — **Client Sample ID: SXDU21904110945MK**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 606313

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	25.6			24.5		%				5	20
Percent Solids	74.4			75.5		%				2	20

QC Association Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

General Chemistry

Analysis Batch: 605047

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-179735-1	SXDU21904110945MK	Total/NA	Solid	Lloyd Kahn	
460-179735-2	SXDU11904111040MK	Total/NA	Solid	Lloyd Kahn	
460-179735-3	SXDU21904111125MK	Total/NA	Solid	Lloyd Kahn	
460-179735-4	SXDU21904111130MK-DUP	Total/NA	Solid	Lloyd Kahn	
460-179735-5	SXDU11904111220MK	Total/NA	Solid	Lloyd Kahn	
460-179735-6	SXDU31904111405MK	Total/NA	Solid	Lloyd Kahn	
460-179735-7	SXDU21904111450MK	Total/NA	Solid	Lloyd Kahn	
460-179735-8	SXDU21904111455MK-DUP	Total/NA	Solid	Lloyd Kahn	
460-179735-9	SXDU11904111530MK	Total/NA	Solid	Lloyd Kahn	
460-179735-10	SXDU21904111615MK	Total/NA	Solid	Lloyd Kahn	
460-179735-11	SXDU11904111655MK	Total/NA	Solid	Lloyd Kahn	
460-179735-12	SXDU11904120855RL	Total/NA	Solid	Lloyd Kahn	
460-179735-13	SXDU21904120935RL	Total/NA	Solid	Lloyd Kahn	
460-179735-14	SXDU21904121120RL	Total/NA	Solid	Lloyd Kahn	
460-179735-15	SXDU11904121200RL	Total/NA	Solid	Lloyd Kahn	
MB 460-605047/29	Method Blank	Total/NA	Solid	Lloyd Kahn	
MB 460-605047/3	Method Blank	Total/NA	Solid	Lloyd Kahn	
LCSSRM 460-605047/30	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	
LCSSRM 460-605047/4	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	

Analysis Batch: 606313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-179735-1	SXDU21904110945MK	Total/NA	Solid	Moisture	
460-179735-2	SXDU11904111040MK	Total/NA	Solid	Moisture	
460-179735-3	SXDU21904111125MK	Total/NA	Solid	Moisture	
460-179735-4	SXDU21904111130MK-DUP	Total/NA	Solid	Moisture	
460-179735-5	SXDU11904111220MK	Total/NA	Solid	Moisture	
460-179735-6	SXDU31904111405MK	Total/NA	Solid	Moisture	
460-179735-7	SXDU21904111450MK	Total/NA	Solid	Moisture	
460-179735-8	SXDU21904111455MK-DUP	Total/NA	Solid	Moisture	
460-179735-9	SXDU11904111530MK	Total/NA	Solid	Moisture	
460-179735-10	SXDU21904111615MK	Total/NA	Solid	Moisture	
460-179735-11	SXDU11904111655MK	Total/NA	Solid	Moisture	
460-179735-12	SXDU11904120855RL	Total/NA	Solid	Moisture	
460-179735-13	SXDU21904120935RL	Total/NA	Solid	Moisture	
460-179735-14	SXDU21904121120RL	Total/NA	Solid	Moisture	
460-179735-15	SXDU11904121200RL	Total/NA	Solid	Moisture	
460-179735-1 DU	SXDU21904110945MK	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904110945MK — Lab Sample ID: 460-179735-1

Date Collected: 04/11/19 09:45 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904110945MK — Lab Sample ID: 460-179735-1

Date Collected: 04/11/19 09:45 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 74.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 14:35	AJP	TAL EDI

Client Sample ID: SXDU11904111040MK — Lab Sample ID: 460-179735-2

Date Collected: 04/11/19 10:40 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU11904111040MK — Lab Sample ID: 460-179735-2

Date Collected: 04/11/19 10:40 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 80.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 14:42	AJP	TAL EDI

Client Sample ID: SXDU21904111125MK — Lab Sample ID: 460-179735-3

Date Collected: 04/11/19 11:25 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904111125MK — Lab Sample ID: 460-179735-3

Date Collected: 04/11/19 11:25 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 14:50	AJP	TAL EDI

Client Sample ID: SXDU21904111130MK-DUP — Lab Sample ID: 460-179735-4

Date Collected: 04/11/19 11:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904111130MK-DUP — Lab Sample ID: 460-179735-4

Date Collected: 04/11/19 11:30 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 14:58	AJP	TAL EDI

Client Sample ID: SXDU11904111220MK — Lab Sample ID: 460-179735-5

Date Collected: 04/11/19 12:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU11904111220MK — Lab Sample ID: 460-179735-5

Date Collected: 04/11/19 12:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 84.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 15:05	AJP	TAL EDI

Client Sample ID: SXDU31904111405MK — Lab Sample ID: 460-179735-6

Date Collected: 04/11/19 14:05 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU31904111405MK — Lab Sample ID: 460-179735-6

Date Collected: 04/11/19 14:05 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 93.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 15:13	AJP	TAL EDI

Client Sample ID: SXDU21904111450MK — Lab Sample ID: 460-179735-7

Date Collected: 04/11/19 14:50 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904111450MK — Lab Sample ID: 460-179735-7

Date Collected: 04/11/19 14:50 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 82.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 15:40	AJP	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU21904111455MK-DUP
Lab Sample ID: 460-179735-8
Date Collected: 04/11/19 14:55
Matrix: Solid
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904111455MK-DUP
Lab Sample ID: 460-179735-8
Date Collected: 04/11/19 14:55
Matrix: Solid
Date Received: 04/16/19 09:30
Percent Solids: 83.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 15:47	AJP	TAL EDI

Client Sample ID: SXDU11904111530MK
Lab Sample ID: 460-179735-9
Date Collected: 04/11/19 15:30
Matrix: Solid
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU11904111530MK
Lab Sample ID: 460-179735-9
Date Collected: 04/11/19 15:30
Matrix: Solid
Date Received: 04/16/19 09:30
Percent Solids: 83.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 15:55	AJP	TAL EDI

Client Sample ID: SXDU21904111615MK
Lab Sample ID: 460-179735-10
Date Collected: 04/11/19 16:15
Matrix: Solid
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904111615MK
Lab Sample ID: 460-179735-10
Date Collected: 04/11/19 16:15
Matrix: Solid
Date Received: 04/16/19 09:30
Percent Solids: 85.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 16:03	AJP	TAL EDI

Client Sample ID: SXDU11904111655MK
Lab Sample ID: 460-179735-11
Date Collected: 04/11/19 16:55
Matrix: Solid
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU11904111655MK — Lab Sample ID: 460-179735-11

Date Collected: 04/11/19 16:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 82.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 16:10	AJP	TAL EDI

Client Sample ID: SXDU11904120855RL — Lab Sample ID: 460-179735-12

Date Collected: 04/12/19 08:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU11904120855RL — Lab Sample ID: 460-179735-12

Date Collected: 04/12/19 08:55 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 87.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 16:37	AJP	TAL EDI

Client Sample ID: SXDU21904120935RL — Lab Sample ID: 460-179735-13

Date Collected: 04/12/19 09:35 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904120935RL — Lab Sample ID: 460-179735-13

Date Collected: 04/12/19 09:35 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 74.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 17:27	AJP	TAL EDI

Client Sample ID: SXDU21904121120RL — Lab Sample ID: 460-179735-14

Date Collected: 04/12/19 11:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU21904121120RL — Lab Sample ID: 460-179735-14

Date Collected: 04/12/19 11:20 — **Matrix: Solid**
Date Received: 04/16/19 09:30 — **Percent Solids: 86.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 17:35	AJP	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Client Sample ID: SXDU11904121200RL

Lab Sample ID: 460-179735-15
Date Collected: 04/12/19 12:00
Matrix: Solid
Date Received: 04/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	606313	04/30/19 08:39	MMC	TAL EDI

Client Sample ID: SXDU11904121200RL

Lab Sample ID: 460-179735-15
Date Collected: 04/12/19 12:00
Matrix: Solid
Date Received: 04/16/19 09:30
Percent Solids: 84.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	605047	04/24/19 17:42	AJP	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Laboratory: Eurofins 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	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-19
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-20
Pennsylvania	NELAP	3	68-00522	02-28-20
Rhode Island	State Program	1	LAO00132	12-30-19
USDA	Federal		NJCA-003-08	05-03-21

Laboratory: Eurofins 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	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

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 = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-179735-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-179735-1	SXDU21904110945MK	Solid	04/11/19 09:45	04/16/19 09:30
460-179735-2	SXDU11904111040MK	Solid	04/11/19 10:40	04/16/19 09:30
460-179735-3	SXDU21904111125MK	Solid	04/11/19 11:25	04/16/19 09:30
460-179735-4	SXDU21904111130MK-DUP	Solid	04/11/19 11:30	04/16/19 09:30
460-179735-5	SXDU11904111220MK	Solid	04/11/19 12:20	04/16/19 09:30
460-179735-6	SXDU31904111405MK	Solid	04/11/19 14:05	04/16/19 09:30
460-179735-7	SXDU21904111450MK	Solid	04/11/19 14:50	04/16/19 09:30
460-179735-8	SXDU21904111455MK-DUP	Solid	04/11/19 14:55	04/16/19 09:30
460-179735-9	SXDU11904111530MK	Solid	04/11/19 15:30	04/16/19 09:30
460-179735-10	SXDU21904111615MK	Solid	04/11/19 16:15	04/16/19 09:30
460-179735-11	SXDU11904111655MK	Solid	04/11/19 16:55	04/16/19 09:30
460-179735-12	SXDU11904120855RL	Solid	04/12/19 08:55	04/16/19 09:30
460-179735-13	SXDU21904120935RL	Solid	04/12/19 09:35	04/16/19 09:30
460-179735-14	SXDU21904121120RL	Solid	04/12/19 11:20	04/16/19 09:30
460-179735-15	SXDU11904121200RL	Solid	04/12/19 12:00	04/16/19 09:30

Page 1 of 2

TestAmerica Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Dorin Bogdan	Site Contact:	Date:	COC No:
AECOM	Tel/Fax: (616) 516-5995	Lab Contact:	Carrier:	_____ of _____ COCs
3950 Sparks Dr SE	Analysis Turnaround Time			Sampler:
Grand Rapids, MI 49546	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(616) 516-5995 PHONE	TAT if different from Below ____21_____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: Statewide WWTP Biosolids PFAS Evaluation	☐ 1 week			
Site: -	☐ 2 days			Job / SDG No.:
P O # 60588767.01	☐ 1 day			

179735

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:	
SXDU21904110945MK	4/11/2019	945	C	SO	1			TOC Analysis	1
SXDU11904111040MK	4/11/19	1040	C	SO	1			TOC Analysis	2
SXDU21904111125MK	4/11/19	1125	C	SO	1			TOC Analysis	3
SXDU21904111130MK-DUP	4/11/19	1130	C	SO	1			TOC Analysis	4
SXDU11904111220MK	4/11/19	1220	C	SO	1			TOC Analysis	5
SXDU31904111405MK	4/11/19	1405	C	SO	1			TOC Analysis	6
SXDU21904111450MK	4/11/19	1450	C	SO	1			TOC Analysis	7
SXDU21904111455MK-DUP	4/11/19	1455	C	SO	1			TOC Analysis	8
SXDU11904111530MK	4/11/19	1530	C	SO	1			TOC Analysis	9
SXDU21904111615MK	4/11/19	1615	C	SO	1			TOC Analysis	10
SXDU21904111655MK	4/11/19	1655	C	SO	1			TOC Analysis	11
SXDU11904120855RL	4/12/19	0855	C	SO	1			TOC Analysis	12

460-179735 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

1.2°C IR#9

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: PRESENT | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michal Koscica	AECOM	04/15 1700	Angela Pinilla via FEDEX	TA Edison	04/16/19 09:30
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

Page 2 of 2

TestAmerica Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Dorin Bogdan	Site Contact:	Date:	COC No:
AECOM	Tel/Fax: (616) 516-5995	Lab Contact:	Carrier:	_____ of _____ COCs
3950 Sparks Dr SE	Analysis Turnaround Time			Sampler:
Grand Rapids, MI 49546	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(616) 516-5995 PHONE	TAT if different from Below ____21_____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: Statewide WWTP Biosolids PFAS Evaluation	☐ 1 week			
Site: -	☐ 2 days			Job / SDG No.:
P O # 60588767.01	☐ 1 day			

179735

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
SXDU21904120935RL	4/12/19	0935	C	SO	1			TOC Analysis 13
SXDU21904121120RL	4/12/2019	1120	C	SO	1			TOC Analysis 14
SXDU11904121200RL	4/12/19	1200	C	SO	1			15

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

1.2°C IR#9

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.: PRESENT		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____		
Relinquished by: Michal Kosc	Company: AECOM	Date/Time: 04/15 1700	Received by: Angela Trilla via FEDEX	Company: TA Edison	Date/Time: 04/16/19 09:30
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 179735

Number of Coolers: 1 IR Gun #: 9

Cooler Temperatures

	Raw	Corrected		Raw	Corrected		Raw	Corrected
Cooler #1:	1.8 °C	1.8 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

** Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: ACCP Date: 04/16/19

EDS-WI-038, Rev 4, 06/09/2014

Login Sample Receipt Checklist

Client: Michigan Dept of Environmental Quality

Job Number: 460-179735-1

Login Number: 179735
List Number: 1
Creator: Villanueva, Angelica P

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Job Number: 460-180141-1

Job Description: Statewide WWTP Biosolids

Contract Number: File No: 761/12120.SAR Contract: Y16186

For:
Michigan Dept. of EGLE
Water Resources Division
Constitution Hall, 3rd Fl SW
525 W. Allegan Street
Lansing, MI 48909

Attention: Stephanie Kammer

Patrick O'Meara

Approved for release.
Patrick J O'Meara
Manager of Project Management
5/7/2019 3:24 PM

Designee for
Kris M Brooks, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(330)966-9790
kris.brooks@testamericainc.com
05/07/2019

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the 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. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager who has signed this report.

Eurofins TestAmerica, Edison
777 New Durham Road, Edison, NJ 08817
Tel (732) 549-3900 Fax (732) 549-3679

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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: Michigan Dept of Environmental Quality

Project: Statewide WWTP Biosolids

Report Number: 460-180141-1

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.

Eurofins TestAmerica, Edison attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins 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 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 Eurofins TestAmerica and its client.

RECEIPT
The samples were received on 4/19/2019 9:04 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.1º C.

TOTAL ORGANIC CARBON
Samples SXDU31904161120MK (460-180141-1), SXDU21904161200MK (460-180141-2), SXDU11904161245MK (460-180141-3), SXDU11904161430MK (460-180141-4), SXDU21904161505MK (460-180141-5), SXDU21904171025RL (460-180141-6), SXDU11904171115RL (460-180141-7), SXDU11904171200RL (460-180141-8) and SXDU21904171225RL (460-180141-9) were analyzed for total organic carbon in accordance with Lloyd Kahn Method. The samples were analyzed on 04/30/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS
Samples SXDU31904161120MK (460-180141-1), SXDU21904161200MK (460-180141-2), SXDU11904161245MK (460-180141-3), SXDU11904161430MK (460-180141-4), SXDU21904161505MK (460-180141-5), SXDU21904171025RL (460-180141-6), SXDU11904171115RL (460-180141-7), SXDU11904171200RL (460-180141-8) and SXDU21904171225RL (460-180141-9) were analyzed for percent solids in accordance with ASTM Method D2216-80. The samples were analyzed on 05/02/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Client Sample ID: SXDU31904161120MK — Lab Sample ID: 460-180141-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	13000		130	86	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904161200MK — Lab Sample ID: 460-180141-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	8400		120	80	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904161245MK — Lab Sample ID: 460-180141-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	18000		120	84	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904161430MK — Lab Sample ID: 460-180141-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	12000		120	84	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904161505MK — Lab Sample ID: 460-180141-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	14000		130	87	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904171025RL — Lab Sample ID: 460-180141-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	9400		120	82	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904171115RL — Lab Sample ID: 460-180141-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	14000		120	79	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU11904171200RL — Lab Sample ID: 460-180141-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	9100		120	80	mg/Kg	1	☼	Lloyd Kahn	Total/NA

Client Sample ID: SXDU21904171225RL — Lab Sample ID: 460-180141-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
TOC Result 1	10000		130	90	mg/Kg	1	☼	Lloyd Kahn	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SXDU31904161120MK — Lab Sample ID: 460-180141-1

Date Collected: 04/16/19 11:20 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 79.4**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	13000		130	86	mg/Kg	☼		04/30/19 13:21	1

Client Sample ID: SXDU21904161200MK — Lab Sample ID: 460-180141-2

Date Collected: 04/16/19 12:00 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 85.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	8400		120	80	mg/Kg	☼		04/30/19 13:52	1

Client Sample ID: SXDU11904161245MK — Lab Sample ID: 460-180141-3

Date Collected: 04/16/19 12:45 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 82.0**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	18000		120	84	mg/Kg	☼		04/30/19 13:59	1

Client Sample ID: SXDU11904161430MK — Lab Sample ID: 460-180141-4

Date Collected: 04/16/19 14:30 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 81.5**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	12000		120	84	mg/Kg	☼		04/30/19 14:07	1

Client Sample ID: SXDU21904161505MK — Lab Sample ID: 460-180141-5

Date Collected: 04/16/19 15:05 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 78.8**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	14000		130	87	mg/Kg	☼		04/30/19 14:15	1

Client Sample ID: SXDU21904171025RL — Lab Sample ID: 460-180141-6

Date Collected: 04/17/19 10:25 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 83.6**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	9400		120	82	mg/Kg	☼		04/30/19 14:39	1

Client Sample ID: SXDU11904171115RL — Lab Sample ID: 460-180141-7

Date Collected: 04/17/19 11:15 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 86.3**

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	14000		120	79	mg/Kg	☼		04/30/19 14:46	1

Client Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Client Sample ID: SXDU11904171200RL

Lab Sample ID: 460-180141-8
Date Collected: 04/17/19 12:00
Matrix: Solid
Date Received: 04/19/19 09:04
Percent Solids: 85.5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	9100		120	80	mg/Kg	☼		04/30/19 14:54	1

Client Sample ID: SXDU21904171225RL

Lab Sample ID: 460-180141-9
Date Collected: 04/17/19 12:25
Matrix: Solid
Date Received: 04/19/19 09:04
Percent Solids: 76.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOC Result 1	10000		130	90	mg/Kg	☼		04/30/19 15:01	1

Default Detection Limits

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

General Chemistry

Analyte	RL	MDL	Units
TOC Result 1	100	69	mg/Kg

QC Sample Results

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Method: Lloyd Kahn - Organic Carbon, Total (TOC)

Lab Sample ID: MB 460-606422/3
Matrix: Solid
Analysis Batch: 606422

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			04/30/19 13:04	1

Lab Sample ID: LCSSRM 460-606422/4
Matrix: Solid
Analysis Batch: 606422

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			13800	12300		mg/Kg		89.5	34.9 - 192.8		

QC Association Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

General Chemistry

Analysis Batch: 606422

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-180141-1	SXDU31904161120MK	Total/NA	Solid	Lloyd Kahn	
460-180141-2	SXDU21904161200MK	Total/NA	Solid	Lloyd Kahn	
460-180141-3	SXDU11904161245MK	Total/NA	Solid	Lloyd Kahn	
460-180141-4	SXDU11904161430MK	Total/NA	Solid	Lloyd Kahn	
460-180141-5	SXDU21904161505MK	Total/NA	Solid	Lloyd Kahn	
460-180141-6	SXDU21904171025RL	Total/NA	Solid	Lloyd Kahn	
460-180141-7	SXDU11904171115RL	Total/NA	Solid	Lloyd Kahn	
460-180141-8	SXDU11904171200RL	Total/NA	Solid	Lloyd Kahn	
460-180141-9	SXDU21904171225RL	Total/NA	Solid	Lloyd Kahn	
MB 460-606422/3	Method Blank	Total/NA	Solid	Lloyd Kahn	
LCSSRM 460-606422/4	Lab Control Sample	Total/NA	Solid	Lloyd Kahn	

Analysis Batch: 607022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-180141-1	SXDU31904161120MK	Total/NA	Solid	Moisture	
460-180141-2	SXDU21904161200MK	Total/NA	Solid	Moisture	
460-180141-3	SXDU11904161245MK	Total/NA	Solid	Moisture	
460-180141-4	SXDU11904161430MK	Total/NA	Solid	Moisture	
460-180141-5	SXDU21904161505MK	Total/NA	Solid	Moisture	
460-180141-6	SXDU21904171025RL	Total/NA	Solid	Moisture	
460-180141-7	SXDU11904171115RL	Total/NA	Solid	Moisture	
460-180141-8	SXDU11904171200RL	Total/NA	Solid	Moisture	
460-180141-9	SXDU21904171225RL	Total/NA	Solid	Moisture	

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Client Sample ID: SXDU31904161120MK — Lab Sample ID: 460-180141-1

Date Collected: 04/16/19 11:20 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU31904161120MK — Lab Sample ID: 460-180141-1

Date Collected: 04/16/19 11:20 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 79.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 13:21	AJP	TAL EDI

Client Sample ID: SXDU21904161200MK — Lab Sample ID: 460-180141-2

Date Collected: 04/16/19 12:00 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU21904161200MK — Lab Sample ID: 460-180141-2

Date Collected: 04/16/19 12:00 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 85.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 13:52	AJP	TAL EDI

Client Sample ID: SXDU11904161245MK — Lab Sample ID: 460-180141-3

Date Collected: 04/16/19 12:45 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU11904161245MK — Lab Sample ID: 460-180141-3

Date Collected: 04/16/19 12:45 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 82.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 13:59	AJP	TAL EDI

Client Sample ID: SXDU11904161430MK — Lab Sample ID: 460-180141-4

Date Collected: 04/16/19 14:30 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Lab Chronicle

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Client Sample ID: SXDU11904161430MK — Lab Sample ID: 460-180141-4

Date Collected: 04/16/19 14:30 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 81.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 14:07	AJP	TAL EDI

Client Sample ID: SXDU21904161505MK — Lab Sample ID: 460-180141-5

Date Collected: 04/16/19 15:05 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU21904161505MK — Lab Sample ID: 460-180141-5

Date Collected: 04/16/19 15:05 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 78.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 14:15	AJP	TAL EDI

Client Sample ID: SXDU21904171025RL — Lab Sample ID: 460-180141-6

Date Collected: 04/17/19 10:25 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU21904171025RL — Lab Sample ID: 460-180141-6

Date Collected: 04/17/19 10:25 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 83.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 14:39	AJP	TAL EDI

Client Sample ID: SXDU11904171115RL — Lab Sample ID: 460-180141-7

Date Collected: 04/17/19 11:15 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU11904171115RL — Lab Sample ID: 460-180141-7

Date Collected: 04/17/19 11:15 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 86.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 14:46	AJP	TAL EDI

Client Sample ID: SXDU11904171200RL — Lab Sample ID: 460-180141-8

Date Collected: 04/17/19 12:00 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU11904171200RL — Lab Sample ID: 460-180141-8

Date Collected: 04/17/19 12:00 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 85.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 14:54	AJP	TAL EDI

Client Sample ID: SXDU21904171225RL — Lab Sample ID: 460-180141-9

Date Collected: 04/17/19 12:25 — **Matrix: Solid**
Date Received: 04/19/19 09:04

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	607022	05/02/19 15:35	MMC	TAL EDI

Client Sample ID: SXDU21904171225RL — Lab Sample ID: 460-180141-9

Date Collected: 04/17/19 12:25 — **Matrix: Solid**
Date Received: 04/19/19 09:04 — **Percent Solids: 76.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Lloyd Kahn		1	606422	04/30/19 15:01	AJP	TAL EDI

Laboratory References:

TAL EDI = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Accreditation/Certification Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Laboratory: Eurofins 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	09-30-20
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-19
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-20
Pennsylvania	NELAP	3	68-00522	02-28-20
Rhode Island	State Program	1	LAO00132	12-30-19
USDA	Federal		NJCA-003-08	05-03-21

Laboratory: Eurofins 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	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

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 = Eurofins TestAmerica, Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Sample Summary

Client: Michigan Dept of Environmental Quality
Project/Site: Statewide WWTP Biosolids

Job ID: 460-180141-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-180141-1	SXDU31904161120MK	Solid	04/16/19 11:20	04/19/19 09:04
460-180141-2	SXDU21904161200MK	Solid	04/16/19 12:00	04/19/19 09:04
460-180141-3	SXDU11904161245MK	Solid	04/16/19 12:45	04/19/19 09:04
460-180141-4	SXDU11904161430MK	Solid	04/16/19 14:30	04/19/19 09:04
460-180141-5	SXDU21904161505MK	Solid	04/16/19 15:05	04/19/19 09:04
460-180141-6	SXDU21904171025RL	Solid	04/17/19 10:25	04/19/19 09:04
460-180141-7	SXDU11904171115RL	Solid	04/17/19 11:15	04/19/19 09:04
460-180141-8	SXDU11904171200RL	Solid	04/17/19 12:00	04/19/19 09:04
460-180141-9	SXDU21904171225RL	Solid	04/17/19 12:25	04/19/19 09:04

REAGENT TRACEABILITY SUMMARY

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
WT-TOCLK_00013	10/20/19	CE ELANTECH, Lot 030417			(Purchased Reagent)		TOC Result 1	360700 mg/Kg
WTlktocLCS_00019	07/12/19	ERA, Lot 07031805			(Purchased Reagent)		TOC Result 1	13800 mg/Kg

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job Number: 460-180141-1

SDG No.:

Project: Statewide WWTP Biosolids

Client Sample ID	Lab Sample ID
SXDU31904161120MK	460-180141-1
SXDU21904161200MK	460-180141-2
SXDU11904161245MK	460-180141-3
SXDU11904161430MK	460-180141-4
SXDU21904161505MK	460-180141-5
SXDU21904171025RL	460-180141-6
SXDU11904171115RL	460-180141-7
SXDU11904171200RL	460-180141-8
SXDU21904171225RL	460-180141-9

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU31904161120MK
Lab Sample ID: 460-180141-1
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/16/2019 11:20
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 79.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	13000	130	86	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU21904161200MK
Lab Sample ID: 460-180141-2
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/16/2019 12:00
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 85.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	8400	120	80	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU11904161245MK
Lab Sample ID: 460-180141-3
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/16/2019 12:45
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 82.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	18000	120	84	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU11904161430MK
Lab Sample ID: 460-180141-4
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/16/2019 14:30
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 81.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	12000	120	84	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU21904161505MK
Lab Sample ID: 460-180141-5
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/16/2019 15:05
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 78.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	14000	130	87	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU21904171025RL
Lab Sample ID: 460-180141-6
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/17/2019 10:25
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 83.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	9400	120	82	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU11904171115RL
Lab Sample ID: 460-180141-7
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/17/2019 11:15
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 86.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	14000	120	79	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU11904171200RL
Lab Sample ID: 460-180141-8
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/17/2019 12:00
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 85.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	9100	120	80	mg/Kg			1	Lloyd Kahn

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: SXDU21904171225RL
Lab Sample ID: 460-180141-9
Lab Name: Eurofins TestAmerica, Edison
Job No.: 460-180141-1
SDG ID.:
Matrix: Solid
Date Sampled: 04/17/2019 12:25
Reporting Basis: DRY
Date Received: 04/19/2019 09:04
% Solids: 76.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
	TOC Result 1	10000	130	90	mg/Kg			1	Lloyd Kahn

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Analyst: AJP Batch Start Date: 04/30/2019

Reporting Units: mg/L Analytical Batch No.: 606422

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	12:47	TOC Result 1	353000	361000	98	90-110		WT-TOCLK_00013
2	ICB	12:57	TOC Result 1	ND					
10	CCV	14:22	TOC Result 1	353000	361000	98	90-110		WT-TOCLK_00013
11	CCB	14:31	TOC Result 1	ND					
16	CCV	15:09	TOC Result 1	336000	361000	93	90-110		WT-TOCLK_00013
17	CCB	15:19	TOC Result 1	ND					

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 606422	Date: 04/30/2019 13:04						
Lloyd Kahn	MB 460-606422/3	TOC Result 1	ND		mg/Kg	100	1

FORM III-IN

7A-IN
LCS-CERTIFIED REFERENCE MATERIAL
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Matrix: Solid

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 606422	Date: 04/30/2019 13:12										
						LCS Source: WTlktocLCS_00019					
Lloyd Kahn	LCSSRM 460-606422/4	TOC Result 1	12300		mg/Kg	13800	89.5	34.9-19	2.8		

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job Number: 460-180141-1

SDG Number:

Matrix: Solid Instrument ID: TOC_Finnigan

Method: Lloyd Kahn MDL Date: 01/14/2013 13:17

Analyte	Wavelength/ Mass	RL (mg/Kg)	MDL (mg/Kg)
TOC Result 1		100	68.5

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job Number: 460-180141-1

SDG Number:

Matrix: Solid Instrument ID: TOC_Finnigan

Method: Lloyd Kahn XMDL Date: 01/10/2013 09:50

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
TOC Result 1		1	0.296

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job Number: 460-180141-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture RL Date: 02/15/2007 17:07

Analyte	Wavelength/ Mass	RL (%)	
Percent Moisture		1	
Percent Solids		1	

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job Number: 460-180141-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture XRL Date: 01/01/2007 16:49

Analyte	Wavelength/ Mass	XRL (%)	
Percent Moisture		1	
Percent Solids		1	

FORM IX - IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Instrument ID: TOC_Finnigan Analysis Method: Lloyd Kahn

Start Date: 04/30/2019 12:47 End Date: 04/30/2019 15:19

Lab Sample Id	D/F	Type	Time	Analytes																							
				TOC1																							
ICV 460-606422/1	1		12:47	X																							
ICB 460-606422/2	1		12:57	X																							
MB 460-606422/3	1	T	13:04	X																							
LCSSRM 460-606422/4	1	T	13:12	X																							
460-180141-1	1	T	13:21	X																							
460-180141-2	1	T	13:52	X																							
460-180141-3	1	T	13:59	X																							
460-180141-4	1	T	14:07	X																							
460-180141-5	1	T	14:15	X																							
CCV 460-606422/10	1		14:22	X																							
CCB 460-606422/11	1		14:31	X																							
460-180141-6	1	T	14:39	X																							
460-180141-7	1	T	14:46	X																							
460-180141-8	1	T	14:54	X																							
460-180141-9	1	T	15:01	X																							
CCV 460-606422/16	1		15:09	X																							
CCB 460-606422/17	1		15:19	X																							

Prep Types:
T = Total/NA

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 05/02/2019 15:35 End Date: 05/02/2019 15:35

Lab Sample Id	D/F	Type	Time	Analytes																							
				% Sol	Moist																						
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
460-180141-1	1	T	15:35	X	X																						
460-180141-2	1	T	15:35	X	X																						
460-180141-3	1	T	15:35	X	X																						
460-180141-4	1	T	15:35	X	X																						
460-180141-5	1	T	15:35	X	X																						
460-180141-6	1	T	15:35	X	X																						
460-180141-7	1	T	15:35	X	X																						
460-180141-8	1	T	15:35	X	X																						
460-180141-9	1	T	15:35	X	X																						
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								
ZZZZZZ			15:35																								

Prep Types:
T = Total/NA

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Batch Number: 606422 Batch Start Date: 04/30/19 12:47 Batch Analyst: Patel, Ankita J

Batch Method: Lloyd Kahn Batch End Date: 04/30/19 15:33

Lab Sample ID	Client Sample ID	Method Chain	Basis	FinalAmount	WT-TOCLK 00013	WT1ktocLCS 00019			
ICV 460-606422/1		Lloyd Kahn		5.00 mg	5 mg				
ICB 460-606422/2		Lloyd Kahn		0 mg					
MB 460-606422/3		Lloyd Kahn		0 mg					
LCSSRM 460-606422/4		Lloyd Kahn		97.47 mg		97.47 mg			
460-180141-A-1	SXDU31904161120MK	Lloyd Kahn	T	97.84 mg					
460-180141-A-2	SXDU21904161200MK	Lloyd Kahn	T	89.25 mg					
460-180141-A-3	SXDU11904161245MK	Lloyd Kahn	T	91.68 mg					
460-180141-A-4	SXDU11904161430MK	Lloyd Kahn	T	94.22 mg					
460-180141-A-5	SXDU21904161505MK	Lloyd Kahn	T	94.8 mg					
CCV 460-606422/10		Lloyd Kahn		4.63 mg	4.63 mg				
CCB 460-606422/11		Lloyd Kahn		0 mg					
460-180141-A-6	SXDU21904171025RL	Lloyd Kahn	T	99.5 mg					
460-180141-A-7	SXDU11904171115RL	Lloyd Kahn	T	71.78 mg					
460-180141-A-8	SXDU11904171200RL	Lloyd Kahn	T	81.06 mg					
460-180141-A-9	SXDU21904171225RL	Lloyd Kahn	T	110.79 mg					
CCV 460-606422/16		Lloyd Kahn		4.54 mg	4.54 mg				
CCB 460-606422/17		Lloyd Kahn		0 mg					

Batch Notes	
Acid ID	C-7816-19, 10% H3PO4. LOT# 030417
Batch Comment	HIGH RANGE. CALI ON 03/21/19. EXP ON 06/21/19

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Batch Number: 606422 Batch Start Date: 04/30/19 12:47 Batch Analyst: Patel, Ankita J

Batch Method: Lloyd Kahn Batch End Date: 04/30/19 15:33

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Batch Number: 607022 Batch Start Date: 05/02/19 15:35 Batch Analyst: Crocco, Michael

Batch Method: Moisture Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	DISH#	DishWeight	SampleMassWet	SampleMassDry		
460-180141-A-1	SXDU31904161120MK	Moisture	T	878	1.03 g	7.16 g	5.90 g		
460-180141-A-2	SXDU21904161200MK	Moisture	T	879	1.03 g	6.82 g	5.97 g		
460-180141-A-3	SXDU11904161245MK	Moisture	T	880	1.04 g	6.86 g	5.81 g		
460-180141-A-4	SXDU11904161430MK	Moisture	T	881	1.02 g	8.46 g	7.08 g		
460-180141-A-5	SXDU21904161505MK	Moisture	T	882	1.00 g	7.09 g	5.80 g		
460-180141-A-6	SXDU21904171025RL	Moisture	T	883	1.02 g	7.38 g	6.34 g		
460-180141-A-7	SXDU11904171115RL	Moisture	T	884	1.03 g	7.09 g	6.26 g		
460-180141-A-8	SXDU11904171200RL	Moisture	T	885	1.03 g	6.98 g	6.12 g		
460-180141-A-9	SXDU21904171225RL	Moisture	T	886	1.02 g	7.74 g	6.15 g		

Batch Notes	
Balance ID	104
Date and Time Samples in Desiccator	05/03/2019 09:23
Date and Time Samples out of Desiccator	05/03/2019 09:34
Date samples were placed in the oven	05/02/2019
Oven Temp In	95 Degrees C
Time samples were place in the oven	15:56
Date samples were removed from oven	05/03/2019
Oven Temp Out	93 Degrees C
Time Samples were removed from oven	09:23
Oven ID	2
Thermometer ID	181079
Temperature - Start - Uncorrected	107 Degrees C
Temperature - End - Uncorrected	102 Degrees C

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, Edison Job No.: 460-180141-1

SDG No.:

Batch Number: 607022 Batch Start Date: 05/02/19 15:35 Batch Analyst: Crocco, Michael

Batch Method: Moisture Batch End Date:

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Summary Results

	Group	Sample name	Filename	Inj Time	Type	Weight (mg)	Carbon
1	0	Bypass	190321001	03/21/2019	By-Pass		0
2	0	Blank	190321002	03/21/2019	Blank		0
3	0	Std1	190321003	03/21/2019	STD	2.1	36.09000015
4	0	Std2	190321004	03/21/2019	STD	5.07	36.09000015
5	0	Std3	190321005	03/21/2019	STD	10.07	36.09000015
6	0	Std4	190321006	03/21/2019	STD	15.08	36.09000015
7	0	Std5	190321007	03/21/2019	STD	20.07	36.09000015
8	0	Std6	190321008	03/21/2019	STD	25.05	36.09000015
9	0	ICV	190430009	04/30/2019	UNK	5	35.25976563
10	0	ICB	190430010	04/30/2019	Blank		0
11	0	MB	190430011	04/30/2019	Blank		0
12	0	LCSSRM	190430012	04/30/2019	UNK	97.47	1.234727979
13	0	460-180141-a-1	190430013	04/30/2019	UNK	97.84	1.03694272
14	0	460-180141-a-1 DUP	190430014	04/30/2019	UNK	96.36	1.115365982
15	0	460-180141-a-1 DUP	190430015	04/30/2019	UNK	97.12	1.446885109
16	0	460-180141-a-1 DUP	190430016	04/30/2019	UNK	97.08	1.207517624
17	0	460-180141-a-2	190430017	04/30/2019	UNK	89.25	0.715388656
18	0	460-180141-a-3	190430018	04/30/2019	UNK	91.68	1.438622236
19	0	460-180141-a-4	190430019	04/30/2019	UNK	94.22	0.977577925
20	0	460-180141-a-5	190430020	04/30/2019	UNK	94.8	1.130537987
21	0	CCV	190430021	04/30/2019	UNK	4.63	35.34525681
22	0	CCB	190430022	04/30/2019	Blank		0
23	0	460-180141-a-6	190430023	04/30/2019	UNK	99.5	0.788727105
24	0	460-180141-a-7	190430024	04/30/2019	UNK	71.78	1.21674943
25	0	460-180141-a-8	190430025	04/30/2019	UNK	81.06	0.777971387
26	0	460-180141-a-9	190430026	04/30/2019	UNK	110.79	0.760818362
27	0	CCV	190430027	04/30/2019	UNK	4.54	33.57730484
28	0	CCB	190430028	04/30/2019	Blank		0

DATE: 04/30/19

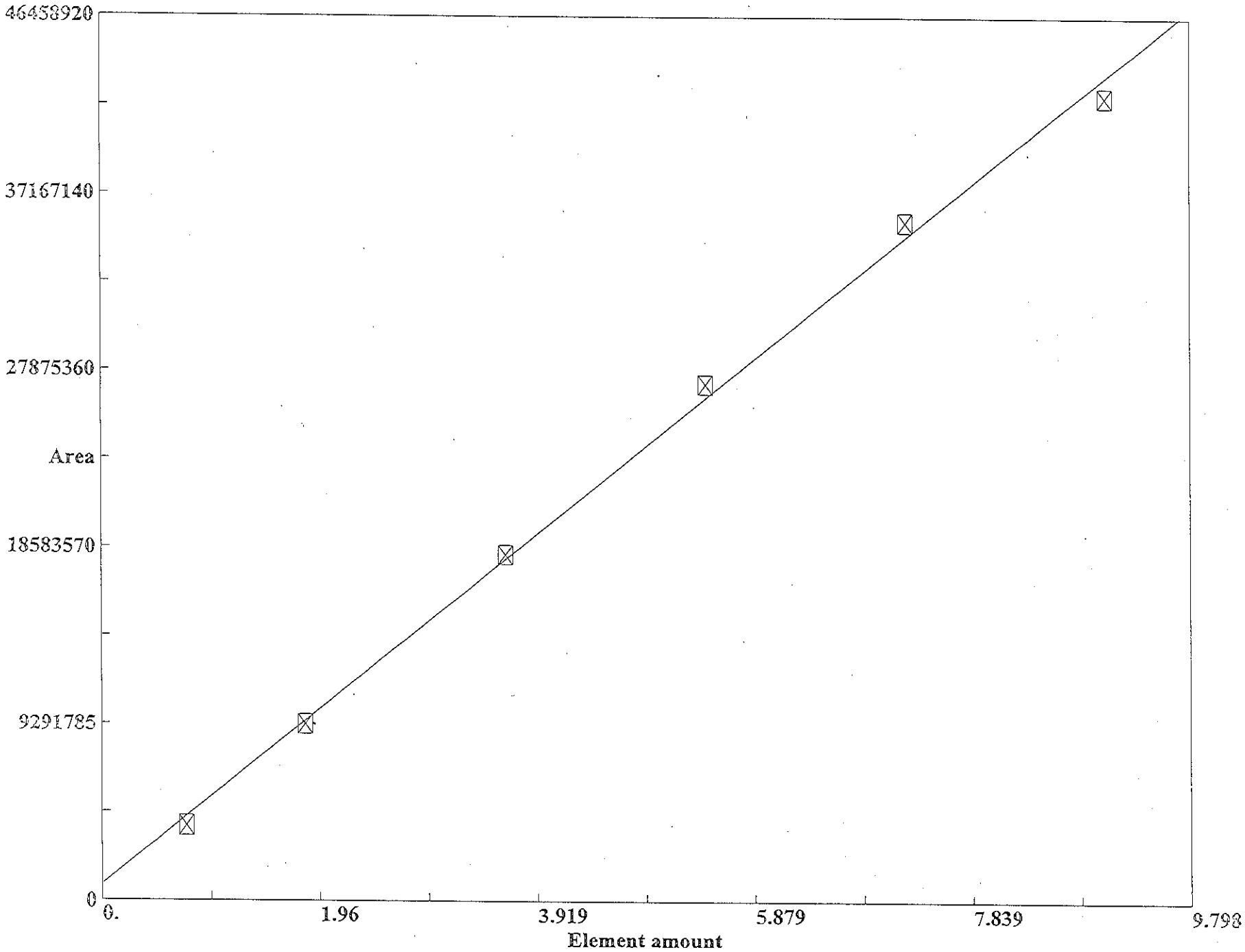
JOB: 180141

BATCH: 606422

C- 7816-19, 10% H_3PO_4 Lot # 030417

Cali on 03/21/19. Exp on 06/21/19

Eager300 Calibration curve on 03/21/2019 - High Range



Component name : Carbon (Linear fit) Kb=4700011 Kc=866716.4 CF=0.9976793

Eager 300 Report

Page: 1 Sample: Bypass (190321001)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321001
Operator ID : Company Name :
Analysed : 03/21/2019 17:25 Printed : 3/25/2019 17:32
Sample ID : Bypass (# 1)
Instrument N. : Instrument #1
Analysis Type : By-Pass (Area) Sample weight :---

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio
Nitrogen	0.0000	87	2410170	RS	8.353511
Carbon	0.0000	145	20133380	RS	1.000000
Totals	0.0000		22543550		

Eager 300 Report

Page: 1 Sample: Blank (190321002)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321002
Operator ID : Company Name :
Analysed : 03/21/2019 17:34 Printed : 3/25/2019 17:32
Sample ID : Blank (# 2)
Instrument N. : Instrument #1
Analysis Type : Blank (Area) Sample weight :---

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio
Nitrogen	0.0000	114	483042	FU	.037338
Carbon	0.0000	169	18036	FU	1.000000
Totals	0.0000		501078		

Eager 300 Report

Page: 1 Sample: Std1 (190321003)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321003
Operator ID : Company Name :
Analysed : 03/21/2019 17:41 Printed : 3/25/2019 17:32
Sample ID : Std1 (# 3)
Instrument N. : Instrument #1
Analysis Type : Calibration (Area) Sample weight : 2.1

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5200	89	445069	RS	8.865973	
Carbon	36.0900	164	3945970	RS	1.000000	
Totals	46.6100		4391039			

Eager 300 Report

Page: 1 Sample: Std2 (190321004)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321004
Operator ID : Company Name :
Analysed : 03/21/2019 17:49 Printed : 3/25/2019 17:32
Sample ID : Std2 (# 4)
Instrument N. : Instrument #1
Analysis Type : Calibration (Area) Sample weight : 5.07

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5200	88	1077734	RS	8.614512	
Carbon	36.0900	155	9284153	RS	1.000000	
Totals	46.6100		10361890			

Eager 300 Report

Page: 1 Sample: Std3 (190321005)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321005
Operator ID : Company Name :
Analysed : 03/21/2019 17:56 Printed : 3/25/2019 17:32
Sample ID : Std3 (# 5)
Instrument N. : Instrument #1
Analysis Type : Calibration (Area) Sample weight : 10.07

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5200	88	2167683	RS	8.393828
Carbon	36.0900	147	18195160	RS	1.000000
Totals	46.6100		20362840		

Eager 300 Report

Page: 1 Sample: Std4 (190321006)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321006
Operator ID : Company Name :
Analysed : 03/21/2019 18:04 Printed : 3/25/2019 17:32
Sample ID : Std4 (# 6)
Instrument N. : Instrument #1
Analysis Type : Calibration (Area) Sample weight : 15.08

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5200	87	3320487	FU	8.180161
Carbon	36.0900	141	27162120	FU	1.000000
Totals	46.6100		30482600		

Eager 300 Report

Page: 1 Sample: Std5 (190321007)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321007
Operator ID : Company Name :
Analysed : 03/21/2019 18:12 Printed : 3/25/2019 17:32
Sample ID : Std5 (# 7)
Instrument N. : Instrument #1
Analysis Type : Calibration (Area) Sample weight : 20.07

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5200	86	4505589	FU	7.921143	
Carbon	36.0900	135	35689420	FU	1.000000	
Totals	46.6100		40195000			

Eager 300 Report

Page: 1 Sample: Std6 (190321008)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190325.mth
Chromatogram : 190321008
Operator ID : Company Name :
Analysed : 03/21/2019 18:20 Printed : 3/25/2019 17:32
Sample ID : Std6 (# 8)
Instrument N. : Instrument #1
Analysis Type : Calibration (Area) Sample weight : 25.05

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5200	85	5603464	FU	7.545301
Carbon	36.0900	131	42279820	FU	1.000000
Totals	46.6100		47883280		

Eager 300 Report

Page: 1 Sample: ICV (190430009)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430009
Operator ID : Company Name :
Analysed : 04/30/2019 12:47 Printed : 4/30/2019 15:27
Sample ID : ICV (# 9)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 5

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.4033	89	1052865	RS	8.693213
Carbon	35.2598	157	9152780	RS	1.000000
Totals	45.6630		10205650		

Eager 300 Report

Page: 1 Sample: ICB (190430010)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430010
Operator ID : Company Name :
Analysed : 04/30/2019 12:57 Printed : 4/30/2019 13:04
Sample ID : ICB (# 10)
Instrument N. : Instrument #1
Analysis Type : Blank (Area) Sample weight :---

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio
Nitrogen	0.0000	112	28349	RS	.652722
Carbon	0.0000	171	18504	RS	1.000000
Totals	0.0000		46853		

Eager 300 Report

Page: 1 Sample: MB (190430011)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430011
Operator ID : Company Name :
Analysed : 04/30/2019 13:04 Printed : 4/30/2019 13:12
Sample ID : MB (# 11)
Instrument N. : Instrument #1
Analysis Type : Blank (Area) Sample weight :---

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio
Nitrogen	0.0000	113	24543	RS	.633513
Carbon	0.0000	170	15548	RS	1.000000
Totals	0.0000		40091		

Eager 300 Report

Page: 1 Sample: LCSSRM (190430012)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430012
Operator ID : Company Name :
Analysed : 04/30/2019 13:12 Printed : 4/30/2019 13:19
Sample ID : LCSSRM (# 12)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 97.47

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1217	93	189643	RS	34.396890	
Carbon	1.2347	166	6523129	RS	1.000000	
Totals	1.3564		6712772			

Eager 300 Report

Page: 1 Sample: 460-180141-a-1 (190430013)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430013
Operator ID : Company Name :
Analysed : 04/30/2019 13:21 Printed : 4/30/2019 13:28
Sample ID : 460-180141-a-1 (# 13)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 97.84

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.4279	107	834689	FU	6.751126
Carbon	1.0369	170	5635087	FU	1.000000
Totals	1.4648		6469776		

Eager 300 Report

Page: 1 Sample: 460-180141-a-1 DUP (190430014)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430014
Operator ID : Company Name :
Analysed : 04/30/2019 13:28 Printed : 4/30/2019 13:36
Sample ID : 460-180141-a-1 DUP (# 14)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 96.36

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1590	94	264070	RS	22.411220	
Carbon	1.1154	171	5918131	RS	1.000000	
Totals	1.2744		6182201			

Eager 300 Report

Page: 1 Sample: 460-180141-a-1 DUP (190430015)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430015
Operator ID : Company Name :
Analysed : 04/30/2019 13:36 Printed : 4/30/2019 13:44
Sample ID : 460-180141-a-1 DUP (# 15)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 97.12

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1841	92	319063	RS	23.416190	
Carbon	1.4469	167	7471241	RS	1.000000	
Totals	1.6310		7790304			

Eager 300 Report

Page: 1 Sample: 460-180141-a-1 DUP (190430016)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430016
Operator ID : Company Name :
Analysed : 04/30/2019 13:44 Printed : 4/30/2019 13:51
Sample ID : 460-180141-a-1 DUP (# 16)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 97.08

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1613	94	271381	RS	23.495900
Carbon	1.2075	170	6376342	RS	1.000000
Totals	1.3688		6647723		

Eager 300 Report

Page: 1 Sample: 460-180141-a-2 (190430017)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430017
Operator ID : Company Name :
Analysed : 04/30/2019 13:52 Printed : 4/30/2019 13:59
Sample ID : 460-180141-a-2 (# 17)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 89.25

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.3993	110	700738	FU	5.519320	
Carbon	0.7154	173	3867600	FU	1.000000	
Totals	1.1147		4568338			

Eager 300 Report

Page: 1 Sample: 460-180141-a-3 (190430018)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430018
Operator ID : Company Name :
Analysed : 04/30/2019 13:59 Printed : 4/30/2019 14:07
Sample ID : 460-180141-a-3 (# 18)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 91.68

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1747	94	279039	RS	25.321580
Carbon	1.4386	169	7065696	RS	1.000000
Totals	1.6133		7344735		

Eager 300 Report

Page: 1 Sample: 460-180141-a-4 (190430019)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430019
Operator ID : Company Name :
Analysed : 04/30/2019 14:07 Printed : 4/30/2019 14:14
Sample ID : 460-180141-a-4 (# 19)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 94.22

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1303	94	198693	RS	26.149820
Carbon	0.9776	172	5195774	RS	1.000000
Totals	1.1079		5394466		

Eager 300 Report

Page: 1 Sample: 460-180141-a-5 (190430020)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430020
Operator ID : Company Name :
Analysed : 04/30/2019 14:15 Printed : 4/30/2019 14:22
Sample ID : 460-180141-a-5 (# 20)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 94.8

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1515	94	243423	RS	24.253880
Carbon	1.1305	171	5903953	RS	1.000000
Totals	1.2820		6147376		

Eager 300 Report

Page: 1 Sample: CCV (190430021)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430021
Operator ID : Company Name :
Analysed : 04/30/2019 14:22 Printed : 4/30/2019 14:30
Sample ID : CCV (# 21)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 4.63

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.5177	88	981519	RS	8.719357	
Carbon	35.3453	157	8558215	RS	1.000000	
Totals	45.8630		9539734			

Eager 300 Report

Page: 1 Sample: CCB (190430022)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430022
Operator ID : Company Name :
Analysed : 04/30/2019 14:31 Printed : 4/30/2019 14:39
Sample ID : CCB (# 22)
Instrument N. : Instrument #1
Analysis Type : Blank (Area) Sample weight :---

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio
Nitrogen	0.0000	113	658581	FU	.050667
Carbon	0.0000	168	33368	FU	1.000000
Totals	0.0000		691950		

Eager 300 Report

Page: 1 Sample: 460-180141-a-6 (190430023)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430023
Operator ID : Company Name :
Analysed : 04/30/2019 14:39 Printed : 4/30/2019 14:46
Sample ID : 460-180141-a-6 (# 23)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 99.5

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1010	94	150743	RS	30.218470
Carbon	0.7887	176	4555207	RS	1.000000
Totals	0.8897		4705950		

Eager 300 Report

Page: 1 Sample: 460-180141-a-7 (190430024)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430024
Operator ID : Company Name :
Analysed : 04/30/2019 14:46 Printed : 4/30/2019 14:54
Sample ID : 460-180141-a-7 (# 24)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 71.78

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1415	94	153155	RS	32.461390	
Carbon	1.2167	173	4971625	RS	1.000000	
Totals	1.3583		5124780			

Eager 300 Report

Page: 1 Sample: 460-180141-a-8 (190430025)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430025
Operator ID : Company Name :
Analysed : 04/30/2019 14:54 Printed : 4/30/2019 15:01
Sample ID : 460-180141-a-8 (# 25)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 81.06

Calib. method : using 'Least Squares to Linear fit'

Element Name		Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.1095	94	125522	RS	30.517790	
Carbon	0.7780	172	3830654	RS	1.000000	
Totals	0.8874		3956176			

Eager 300 Report

Page: 1 Sample: 460-180141-a-9 (190430026)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430026
Operator ID : Company Name :
Analysed : 04/30/2019 15:01 Printed : 4/30/2019 15:09
Sample ID : 460-180141-a-9 (# 26)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 110.79

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	0.0954	94	162061	RS	29.793750
Carbon	0.7608	175	4828406	RS	1.000000
Totals	0.8563		4990467		

Eager 300 Report

Page: 1 Sample: CCV (190430027)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430027
Operator ID : Company Name :
Analysed : 04/30/2019 15:09 Printed : 4/30/2019 15:17
Sample ID : CCV (# 27)
Instrument N. : Instrument #1
Analysis Type : UnkNown (Area) Sample weight : 4.54

Calib. method : using 'Least Squares to Linear fit'

Element Name	Ret.Time	Area	BC	Area ratio	K factor
Nitrogen	10.0289	88	913468	RS	8.792271	
Carbon	33.5773	158	8031458	RS	1.000000	
Totals	43.6062		8944926			

Eager 300 Report

Page: 1 Sample: CCB (190430028)

Method Name : NC-SOIL
Method File : C:\Eager for FLASH\data\2019 DATA\190430.mth
Chromatogram : 190430028
Operator ID : Company Name :
Analysed : 04/30/2019 15:19 Printed : 4/30/2019 15:27
Sample ID : CCB (# 28)
Instrument N. : Instrument #1
Analysis Type : Blank (Area) Sample weight :---

Calib. method : using 'Least Squares to Linear fit'

!!! Warning missing one or more peaks.

Element Name		Ret.Time	Area	BC	Area ratio
Carbon	0.0000	171	15715	RS	1.000000
Totals	0.0000		15715		

TOTAL ORGANIC CARBON

Matrix: SOLID **Lab Sample No.: 180141-a-1**

QA Batch No: 606422 **Lab Job No.: 180141**

Sample Replicates				
#1 (mg/kg)	#2 (mg/kg)	#3 (mg/kg)	#4 (mg/kg)	AVG (mg/kg)
13000	14000	18000	15000	15000

Standard Deviation	%RSD	Control Limits
2160.25	14.40	18.0

Shipping and Receiving Documents

TestAmerica Edison
777 New Durham Road

Edison, NJ 08817-2859
phone 732.549.3900 fax 732.549.3679

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Dorin Bogdan	Site Contact:	Date:	COC No:
AECOM	Tel/Fax: (616) 516-5995	Lab Contact:	Carrier:	____ of ____ COCs
3950 Sparks Dr SE	Analysis Turnaround Time			Sampler:
Grand Rapids, MI 49546	☑ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(616) 516-5995 PHONE	TAT if different from Below ___21___			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name: Statewide WWTP Biosolids PFAS Evaluation	☐ 1 week			
Site: -	☐ 2 days			Job / SDG No.: 180141
P O # 60588767.01	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
SXDU31904161120MK	4/16/2019	1120	C	SO	1			-1 TOC Analysis
SXDU21904161200MK	4/16/2019	1200	C	SO	1			-2 TOC Analysis
SXDU11904161245MK	4/16/2019	1245	C	SO	1			-3 TOC Analysis
SXDU11904161430MK	4/16/2019	1430	C	SO	1			-4 TOC Analysis
SXDU21904161505MK	4/16/2019	1505	C	SO	1			-5 TOC Analysis
SXDU21904171025RL	4/17/2019	1025	C	SO	1			-6 TOC Analysis
SXDU11904171115RL	4/17/2019	1115	C	SO	1			-7 TOC Analysis
SXDU11904171200RL	4/17/2019	1200	C	SO	1			-8 TOC Analysis
SXDU21904171225RL	4/17/2019	1225	C	SO	1			-9 TOC Analysis

460-180141 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

3.1°C IR#9

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: PRESENT | Cooler Temp. (°C): Obsd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Michal Kosc	AECOM	4/18/19 1800	Angela Pinilla	TA Edison	04/19/19 09:04
Relinquished by:	Company:	Date/Time:	Received by: via FEDEX	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Edison
Receipt Temperature and pH Log

Job Number: 180141

Number of Coolers: 1 IR Gun #: 4

Cooler Temperatures

	Raw	Corrected		Raw	Corrected		Raw	Corrected
Cooler #1:	3.1 °C	3.1 °C	Cooler #4:	°C	°C	Cooler #7:	°C	°C
Cooler #2:	°C	°C	Cooler #5:	°C	°C	Cooler #8:	°C	°C
Cooler #3:	°C	°C	Cooler #6:	°C	°C	Cooler #9:	°C	°C

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite (pH<2)	Metals* (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH<2)	Sulfide (pH>9)	TKN (pH<2)	TOC (pH<2)	Total Cyanide (pH>12)	Total Phos (pH<2)	Other	Other

If pH adjustments are required record the information below:

Sample No(s). adjusted: _____

Preservative Name/Conc.: _____ Volume of Preservative used (ml): _____

Lot # of Preservative(s): _____ Expiration Date: _____

The appropriate Project Manager and Department Manager should be notified about the samples which were pH adjusted.

**Samples for Metal analysis which are out of compliance must be acidified at least 24 hours prior to analysis.*

Initials: ACCP Date: 04/19/19

EDS-WI-038, Rev 4, 06/09/2014

Login Sample Receipt Checklist

Client: Michigan Dept of Environmental Quality

Job Number: 460-180141-1

Login Number: 180141
List Number: 1
Creator: Lysy, Susan

List Source: Eurofins TestAmerica, Edison

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	custody seal present
Sample custody seals, if present, are intact.	N/A	
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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

AECOM

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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.

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