

RACER - Buick City

**Site-Specific Soil Screening
Levels for Select Per- and
Polyfluoroalkyl Substances
for the Protection of
Groundwater Surface Water
Interface Protection Criteria –
Building 04 Area**

March 15, 2024

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LIST OF ACRONYMS

%	percent
ASTM	American Society for Testing and Materials
PFASs	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFHxS	perfluorohexanesulfonic acid
PFNA	perfluoronanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
<i>DAF</i>	dilution attenuation factor
<i>K_d</i>	soil-water partition coefficient
<i>k_{oc}</i>	soil-organic carbon coefficient
<i>f_{oc}</i>	fraction of organic carbon
GSI	groundwater to surface water interface criteria
GSIP	groundwater surface water interface protection screening level
SPLP	Synthetic Precipitation Leaching Procedure
EPA	U.S. Environmental Protection Agency
COPC	constituents of potential concern
MDEQ	Michigan Department of Environmental Quality
EGLE	Michigan Department of Environment, Great Lakes, and Energy
CSM	conceptual site model
TOC	Total organic carbon

1 Introduction

1.1 Purpose and Scope

The purpose of this report is to provide the basis for establishing site-specific soil screening levels for groundwater surface water interface protection (GSIP; the GSIP screening levels) for select per- and polyfluoroalkyl substances (PFAS) in soils at the RACER Buick City site located in Flint, Michigan (the Site), Building 4 area. The Site location is shown on **Figure 1**.

No GSIP criteria are currently promulgated for PFAS in Michigan. Thus, Site-specific GSIP soil screening levels were developed for the Site in accordance with Michigan Part 201 Administrative Rule R. 299.5722 (3)(b) and (4), which allows for establishing acceptable soil concentrations based on soil-water partitioning and mixing in groundwater. The proposed GSIP soil screening levels are for the Building 04 Area soils of the Site, because all of the samples used in the analysis were collected from this area. Alternative site-specific criteria may be developed for other portions of the Site in the future, or the criteria can default to those proposed in this report, depending on Site conditions in the other areas.

Groundwater is not used for drinking water at and adjacent to the Site. As such, drinking is not a relevant exposure pathway. The groundwater surface water interface (GSI) is the relevant groundwater pathway at the Site. Note, that the Site-specific GSIP criteria are based on meeting a leaching standard equivalent to the respective GSI criteria; in other words, the standard that would be required if the source area was adjacent to the receiving water body. The proposed GSIP criteria should be considered soil **screening levels** only and not compliance criteria, because the edge of the contamination or property is not a compliance point. RACER is currently developing remedial plans for preventing discharge into the Outfall 011 sewer which is downgradient of the Building 04 Area. The Building 4 impacted area on Site is at least 1,000 feet from the Flint River, the discharge point for groundwater flow from the Site, thus adding conservatism to this analysis (see **Exhibit 1**).

The methodology for determining the GSIP screening criteria was based on 1) Michigan Department of Environmental Quality (MDEQ) (now Michigan Department of Environment, Great Lakes, and Energy [EGLE]) RRD Operational Memo No. 1 – “Technical Support Document – Attachment 9 Part 201 Groundwater Protection Criteria, Part 213 Tier I – Risk-based Screening Levels” (2005) (MDEQ Op Memo 1), 2) the New Jersey Department of Environmental Protection (2013), and 3) the U.S. Environmental Protection Agency (USEPA) Soil Screening Guidance: User’s Guide (1996). The general approach used to develop site-specific soil-water partition coefficients (K_{ds} , Section 3.3) is also accepted by and used by the regulatory community (e.g., Hawaii Department of Health [HIDOH] 2017 and New Jersey Department of Environmental Protection [NJDEP] 2013).

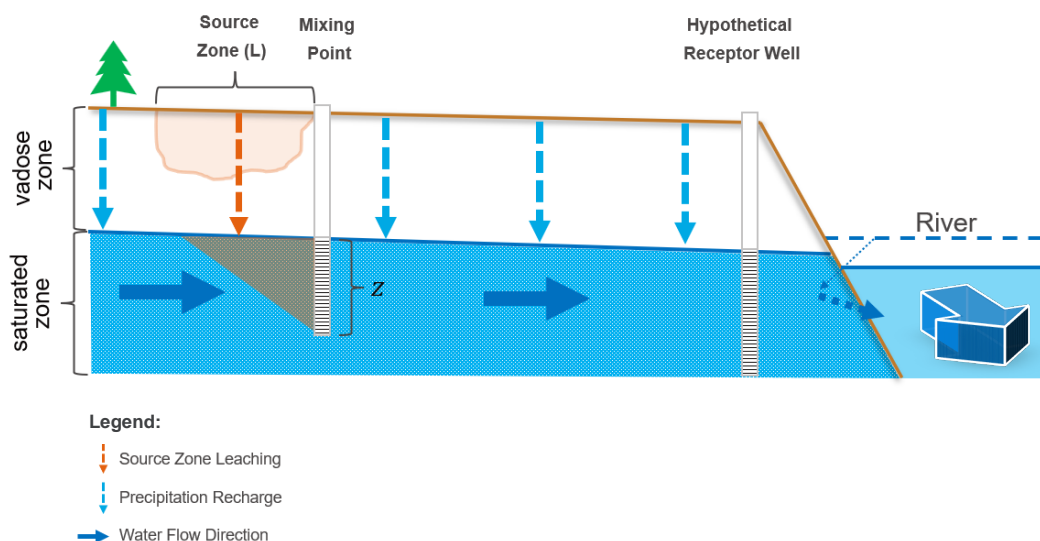
Soil samples were collected in the Building 04 Area of the Site during soil and groundwater investigations conducted in this area (**Figure 2**) and were used to support the calculation of Site-specific GSIP screening levels. Groundwater is not used for drinking at and adjacent to the Site, nor is the Flint River used as either a primary or backup drinking water source. Discharge to surface water is considered the only complete exposure pathway for groundwater migrating from the Site. The site-specific GSIP screening levels were developed only for the five constituents of potential concern (COPCs) with promulgated GSI criteria (see Sections 2 and 3.1). The analytical data are summarized in Section 2 and are presented in their entirety in **Attachment A**. The Site-specific data used in the GSIP calculations are discussed in Section 3 and are presented in **Tables 1-3**.

1.2 Conceptual Site Model

The derivation of the Site-specific GSIP screening levels was based on a conceptual site model (CSM) of COPCs leaching from COPC-impacted soils located in the unsaturated zone (source zone) and subsequent mixing and dilution in groundwater (**Exhibit 1**). The CSM also assumes that a theoretical mixing point (theoretical GSI receptor point) is at the edge of the source. Although the assumed receptor was surface water (i.e., Flint River), no subsequent mixing (attenuation) beyond mixing point was considered (i.e., attenuation beyond the mixing point from recharge or from mixing within the river were accounted for). Thus, the estimated GSIP screening levels are more protective and biased low.

Exhibit 1 – GSIP Soil Screening Level Leaching and Mixing CSM.

L = source zone length and z = mixing zone thickness.



It is important to note that a significant portion of PFAS-impacted soil samples at the Site are below the water table (i.e., are saturated soil samples or representative of groundwater). **The Site-specific, GSIP screening levels derived here are intended to address the soils above the water table only** (i.e., vadose zone, unsaturated soils). Impacted, saturated soils or groundwater below the water table will be addressed in a separate document.

2 PFAS Analytical Data

The data used for this GSIP screening evaluation was derived from vadose zone soil samples collected in the Building 04 Area at the Site. The Building 04 Area is located on the Southend of the Site and was selected due to the high concentrations of PFAS compounds and the range of soil types present there, as well as its proximity to the Flint River (approximately 1,000 feet to the east-southeast from the most highly impacted area). At the Building 04 Area, initial investigation activities included collecting a total of 35 soil samples and seven groundwater samples from five borings (SB-04-29, SB-04-30, SB-04-31, SB-04-33, and SB-04-34) (**Figure 2** and **Table 1**) to characterize PFAS impacts. A generalized soil description for each of the soil samples analyzed and the intervals selected for leaching test analysis is also provided in **Table 1**. The soil results for the 14 samples

subjected to leaching test for the five PFAS with GSIP screening level (PFBS, PFHxS, PFNA, PFOS, and PFOA) are provided in **Table 2**.

In order to support the development of the GSIP screening level, leaching and geotechnical properties were analyzed on select, representative soil samples as discussed below.

2.1 Leaching Analysis

Based on the geology observed and previous analytical results of the soil and groundwater samples collected in the Building 04 Area, 14 sample intervals were selected for leaching analysis. The intervals were selected to encompass a range of soil types (sand/gravel to clay), moisture content (dry to saturated), and PFAS concentrations. The leaching samples were collected from boreholes immediately adjacent to the total soil samples from the same depth interval.

Soil from each of the 14 samples referenced in **Table 2** were submitted to the laboratory for leaching analysis using each of the following, three procedures:

- Synthetic Precipitation Leaching Procedure (SPLP) (USEPA Method 1312)
- American Society for Testing and Materials (ASTM) Neutral Leach Test (Method 3987), and
- ASTM Neutral Leach Test using PFAS-free Site Groundwater as the leaching solution - The PFAS free groundwater was collected from the closest monitoring well to the Building 04 where no PFAS compounds were detected (RFI 09-52 which is located on the south side of Hamilton Avenue – see **Figure 2**).

The leachate concentrations from these three laboratory procedures are provided in **Table 3** for the five PFAS with GSI criteria in Michigan. Leachate results for additional PFAS analytes are presented in **Appendix A**.

As discussed below, the concentrations resulting from the different leaching methods were very similar. However, the leachate concentrations were slightly higher on average than Site groundwater solutions (i.e., more conservative). The three leaching method results were pooled to provide a more robust data set for estimating the respective K_d , as described in Section 3.3.

2.2 Geotechnical Analysis

The PFAS analytical and leaching data were reviewed and a total of seven intervals from the Building 04 soil borings (SB-04-29, SB-04-30, SB-04-31, SB-04-33, and SB-04-34) were selected and submitted for analysis of:

- Total organic carbon (TOC; Walkley Black method)
- Bulk density (ASTM D-7263)
- Moisture content (ASTM D-2216)
- Total porosity (calculated)
- Specific gravity (ASTM D-854)
- Particle size (ASTM D-422)

The geometric mean of TOC was 37,770 mg/kg (0.0377 grams per gram [g/g]) and the mean was 54,300 mg/kg (0.0543 g/g) grams per gram (g/g). The mean of the site-specific calculated total porosity was 0.43 (43 percent [%]) and the moisture content was 12.6% (**Table 4**). Comparatively, EGLE uses default values of 25% total (effective) porosity with soil water filled porosity of 16% (MDEQ 2005). The mean of the measured bulk densities

was 1.7 kg/L (**Table 4**). The EGLE formula uses default number of 1.5 kg/L for dry soil bulk density (MDEQ 2005). Generally, the soil properties have a small effect on the GSIP screening level (NJDEP 2013); however, the TOC in soils may have a larger effect on the Kd and the resulting GSIP screening level for compounds that sorb more strongly to organic carbon (see Section 3.3).

3 GSIP Evaluation and Calculations

EGLE’s Site-specific GSIP guidance and equation was followed to develop Site-specific GSIPs for the select PFAS. This section discusses the variables and equations used in calculation of the Site-specific GSIP screening level and provides the rationale for the variables. The results are primarily dependent on the applicable groundwater screening level, the dilution attenuation factor (DAF), and Site-specific soil-water partition coefficient (Kd). Further, air partitioning was considered negligible due to the low volatility of the PFAS and its minor influence on the GSIPC for the PFAS. Excluding air/vapor partitioning and air-water interfacial partitioning (Brusseau and Guo 2023) generally results in a lower bias to the GSIP screening level (i.e., more protective).

3.1 Groundwater Screening Level

Groundwater is not used for drinking water in this area and groundwater ultimately discharges to the surface water (Flint River), either directly or through a storm sewer. Furthermore, the Flint River is not used for drinking water and is not a backup drinking water source. As such, the GSI criteria are considered the applicable groundwater screening level at the site. **Exhibit 2** presents the GSI criteria for PFAS with established GSI cleanup criteria.

Exhibit 2 – Applicable Groundwater Screening Levels (Michigan EGLE Part 201 Generic Cleanup Criteria and Screening Levels – Table 1. Groundwater: Residential and Nonresidential, October 12, 2023.

Chemical Name	Chemical Abbreviation	CAS RN	GSI (ng/L)
Perfluoro-butanesulfonic acid	PFBS	375-73-5	670,000
Perfluoro-hexanesulfonic acid	PFHxS	355-46-4	210
Perfluoro-nonanoic acid	PFNA	375-95-1	30
Perfluoro-octanoic acid	PFOA	335-67-1	170
Perfluoro-octanesulfonic acid	PFOS	1763-23-1	12

Notes:

ng/L = nanograms per liter.

3.2 Dilution Attenuation Factor (DAF)

The Michigan default DAF of 16 was used for the Site specific GSIP screening level calculations (EGLE 2015). The DAF is defined as the ratio of the initial leachate concentration to the dissolved aquifer concentration at a theoretical receptor well concentration. For the Buick City Site, the receptor “well” would be represented by the storm or sanitary sewer or the Flint River (for direct groundwater discharge). In other words, it represents the reduction in constituent concentration as leaching occurs in the vadose zone and subsequently mixes with

groundwater before it reaches the mixing point (see Section 1.2 and **Exhibit 1**). There are multiple factors that influence the derivation of the DAF as described in USEPA’s Soil Screening Guidance: Technical Background Document (1996). EGLE and the USEPA use a default DAF of 16 and 20 in their GSIP calculation methods, respectively (MDEQ 2005; USEPA 1996, 1994). Note, that the DAF in this analysis only applies to the leaching of impacted soil from the vadose zone to groundwater and the subsequent mixing. Additional attenuation in the aquifer or mixing with surface water was not included.

3.3 Site-Specific Soil Water Partition Coefficient (K_d)

K_d is the coefficient relating the ratio of mass in the liquid phase (leachate) to the ratio of mass sorbed to the soil, measured in units of volume over mass, typically in liters per kilogram [L/kg]. Since the total soils method analyzes all mass in the soil (liquid phase, sorbed [solid] phase, and to a lesser degree the gaseous phase [see discussion of gaseous phase in Section 3.4]), the amount of sorbed mass needs to first be calculated by subtracting the liquid phase mass from the total mass using a standard equation (HIDOH 2017 and NJDEP 2013). The complete equation is shown below (**Equation 1**).

Equation 1: Soil Water Partition Coefficient

$$K_d = \frac{(C_T \cdot M_S - C_{SPLP} \cdot V_L) / M_S}{C_{SPLP}}$$

Where,

K_d = soil water partition coefficient $\left(\frac{L}{kg}\right)$

C_T = PFAS concentration in the paired soil sample $\left(\frac{mg}{kg}\right)$

M_S = mass of paired soil sample (0.1 kg)

C_{SPLP} = PFAS concentration in SPLP leachate $\left(\frac{mg}{L}\right)$

V_L = volume of SPLP leachate (2 L) .

In USEPA/NJDEP/HDOH guidance, K_d can be derived from leaching tests. However, K_d values for organic compounds can also be derived by multiplying the soil organic carbon/water partitioning coefficient (K_{oc}) by the fraction of organic carbon (f_{oc} ; USEPA 1996). While PFAS contain carbon and are therefore considered organic compounds, these chemicals also possess characteristics of inorganic compounds due to the presence of a fully fluorinated carbon tail on the molecule. They possess both hydrophobic and hydrophilic portions and the bulk K_d values can be higher than the K_{oc} and f_{oc} method, owing to other sorption mechanisms like air-water interfacial partitioning or organic liquid partitioning (Brusseu 2018; ITRC 2023). K_d values calculated using the Equation 1 are summarized in **Table 5** and all of the data and calculations are presented in **Appendix A**.

The site-specific K_d values were calculated using the USEPA/NJDEP method, which relies on co-located soil sample pairs of total soil sample concentrations and the soil leaching concentrations (e.g., SPLP). K_d s values were evaluated using eluent PFAS concentration data from each of the three leaching methods (SPLP method (USEPA 1312), ASTM Neutral Leachate Method (3987), ASTM site groundwater leachate method). The reference to SPLP in the equation below generically refers to the leaching method, which in this evaluation means the SPLP, ASTM, or the ASTM–Site Groundwater methods. The site-specific K_d calculations for the five PFAS are included in **Appendix A** and the average, site-specific K_d s for PFOS and PFHxS for the three leaching methods

are summarized in Figure 3, below. In general, the K_d s calculated using the respective leaching method were very similar (Figure 3).

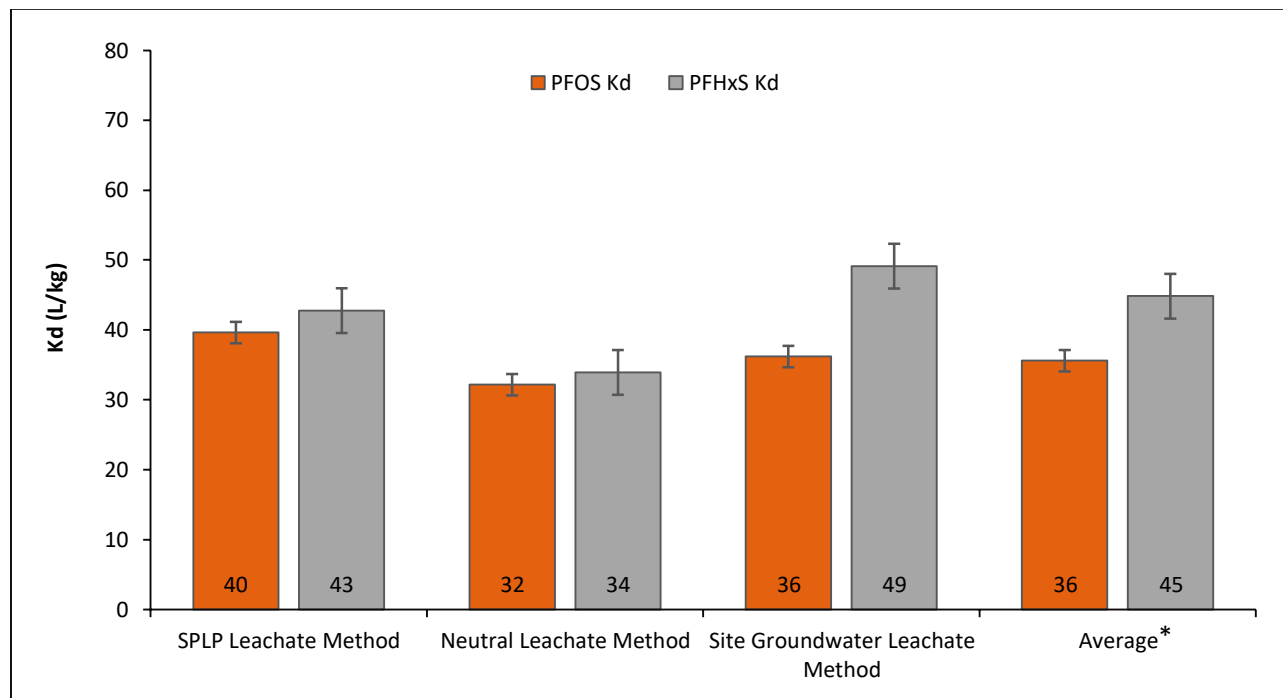


Figure 3. Average K_d Values for Select PFAS Using Various Aqueous Leaching Media for the SPLP Test (Error Bars represent the standard error of the mean). Note that the average value* is a weighted average of the three methods (i.e. some of the methods had more tests than others).

Sample pairs with soils concentration(s) below the analytical reporting limit were excluded from the K_d calculations because no initial mass could be quantified. If the calculations indicated more mass of PFAS was leached than in the initial (total) soil sample (i.e., a negative K_d was calculated), the K_d was transformed to a very low value of 0.01 L/kg. However, if more than 40 percent mass leached than was present in the paired soil sample, the calculated K_d was disregarded, as this indicates the paired SPLP soil sample had significantly more PFAS mass than the paired (parent) soil sample and the result was unreasonable. Negative K_d s are not uncommon using this method due to soil and contaminant heterogeneities coupled with laboratory accuracy and precision limitations (e.g., +/- 40 percent). This source of potential error may have been enhanced by using adjacent soil sample pairs rather than a single homogenized soil that was split for the separate analyses.

The median K_d is representative of site-specific conditions and is considered more protective than the average K_d s; therefore, it was selected as the K_d for use in calculating the GSIP screening levels for PFHxS and PFOS (see **Appendix A**). The median, site-specific K_d s are:

- PFHxS = 25.1 L/kg
- PFOS = 26.7 L/kg.

The ratio of calculated negative K_d s for PFBS, PFNA, and PFOA were all greater than 40% (see **Appendix A**). Therefore, these K_d estimates were considered unreliable and the USEPA default K_d was used for these PFAS. If

no default K_d was available, the USEPA reported K_{oc} was multiplied by the geometric mean site f_{oc} to estimate K_d using the method applied by the USEPA for organic compounds (USEPA 2024, 1996).

- PFBS = 2.32 L/kg
- PFNA = 9.26 L/kg
- PFOA = 15 L/kg

The calculated site-specific K_d s are consistent with expected K_d s for PFHxS and PFOS, but may be biased low as the leaching test methods aggressively extract PFAS from the soils and minimize or eliminate air-water interface partitioning, which is considered an important partitioning component in vadose zone soils for most PFASs (Brusseau and Guo 2023). Rovero et al. (2021) report K_d s range from 5.44 L/kg (1st Quartile) to 92.9 L/kg (3rd Quartile) with an average of 368.6 L/kg for PFOS and 0.548 L/kg (1st Quartile) to 8.29 L/kg (3rd Quartile) with an average of 54.3 L/kg for PFHxS. The calculated, site-specific K_d values fall within expected ranges of K_d s and for the reasons stated above are considered protective. The USEPA default K_d s are generally biased low (lower than the site-specific K_d for both PFOS and PFHxS and average values reported by Rovero [2021]; see **Table 5**).

3.4 Groundwater Surface Water Interface Protection Screening level

The EGLE surface water protection value (SWPV) equation (**Equation 2**) and the default DAF were used to calculate a site-specific GSIP screening levels in accordance with EGLE guidance. GSIP screening level calculations were completed using average site-specific values for porosity and bulk density (**Table 4**). Note, there is a less than 1% difference between calculating the GSIP screening levels using the Site-specific porosity and bulk density versus the EGLE default porosity and bulk density values. As K_d increases, the soil properties like porosity and bulk density play a decreasing role in the GSIPC (NJDEP 2013). As the site-specific values are most representative of Site conditions and allowed by EGLE guidance, the site-specific porosity and bulk density were used.

Equation 2: EGLE GSIP Equation (MDEQ 2005)

$$GSIP = C_w \cdot DAF \left[K_d + \left(\frac{\theta_w + (H' \cdot TAF \cdot \theta_a)}{\rho_b} \right) \right]$$

Where,

$GSIP$ = Groundwater Surface Water Interface Protection Criteria for soils $\left(\frac{\mu g}{kg}\right)$

C_w = Groundwater Surface Water Interface Criterion $\left(\frac{\mu g}{L}\right)$

DAF = dilution attenuation factor

K_d = Chemical – Specific Soil Water Partition Coefficient $\left(\frac{L}{kg}\right)$

θ_w = Soil water filled porosity $\left(0.16 \frac{L_{water}}{L_{air}}\right)$

H' = Henry's Law Constant, not used (see below)

TAF = Temperature adjustment factor, not used (0.5, see below)

$\theta_a = \text{Soil air filled porosity} \left(0.09 \frac{L_{air}}{L_{soil}} \right)$

$\rho_b = \text{Dry soil bulk density} \left(\frac{kg}{L} \right)$.

H' , the Henry's Law Constant is generally low for PFASs and the PFAS COCs have very low to negligible H' (ITRC 2023). Thus, the air/vapor partitioning was ignored and simplifies to the following equation (biasing the GSIP screening levels lower).

Equation 3:

$$GSIP \text{ Screening Level} = C_w \cdot DAF \left[K_d + \left(\frac{\theta_w}{\rho_b} \right) \right]$$

The primary assumptions of the GSIP calculations, as presented in USEPA (1996) and EGLE (2005), are:

- 1) The source is infinite (i.e., steady state concentrations will be maintained in soil and groundwater over the exposure period of interest)
- 2) Contaminants (hazardous substances) are uniformly distributed throughout the zone of contamination.
- 3) Soil contamination extends from the ground surface to the water table.
- 4) There is no chemical or biological degradation in the vadose zone or groundwater zone.
- 5) Equilibrium partitioning is instantaneous and linear in the contaminated soil.
- 6) The receptor well (mixing point) is at the edge of the source (i.e., there is no dilution from recharge downgradient of the mixing point) and is screened within the plume (or intersects the plume)
- 7) The aquifer is unconsolidated and unconfined.
- 8) Aquifer properties are homogenous and isotropic.
- 9) Ignores mixing in surface water (i.e., Flint River).
- 10) No degradation or other attenuation mechanisms (beyond mixing) were considered.

For these reasons, the site-specific GSIP screening levels are considered screening levels and not remediation levels. Remediation levels should be established considering additional assumptions, including dilution and attenuation between the property boundary and the Flint River. That may be accomplished through modeling or revised site-specific GSIP screening level that consider more site- or area-specific variables.

3.5 Site-Specific Soil GSIP Screening level

The site-specific soil GSIP screening levels are presented in **Table 5**. **Table 5** also provides the key parameters used to derive these values, including the DAF, K_d values using the different methodologies, and K_{oc} values. The resulting site-specific GSIP screening levels were:

- PFBS = 26,000 ug/kg
- PFHxS = 85 ug/kg
- PFNA = 2.0 ug/kg
- PFOA = 41 ug/kg
- PFOS = 5.2 ug/kg.

These screening levels have been developed based on accepted methodologies published by Hawaii (HIDOH 2017), New Jersey (NJDEP 2013), USEPA (1996, 1994), and EGLE (MDEQ 2005). The values presented above

represent the concentrations in the vadose zone soils (in the Building 04 Area only) below which the groundwater concentration at the downgradient edge of the impacted soil would be less than the respective Rule 57 surface water and GSI criteria. They should be considered conservative based on the cautious computation assumptions described above and, additionally, since the receptor (the Flint River) is at least 1,000 feet from the impacted soil on-Site.

4 Next Steps

This site-specific GSIP analysis provides guidance for the delineation of PFAS impacts in soils above the water table. Next steps include:

- Completing an evaluation of the Building 04 Area to identify areas where soils above the water table exceed these site-specific GSIP screening level.
- Identify other areas of the Buick City Site where similar analyses may be appropriate and developing factors (e.g., K_d) based on conditions in these other areas.
- Conducting evaluations of the groundwater impacts potentially including completing groundwater pore flushing calculations through the PFAS-impacted zone; determining the concentration of PFOS in groundwater necessary at the Hamilton Street railroad tracks in order to keep groundwater discharging to the river below GSIP criteria; and calculating the travel time to the Flint River for impacts west of the Hamilton Avenue railroad tracks.

These analyses will aid in determining appropriate remedies to address PFAS impacts above and below the water table. These evaluations will be determined based on EGLE's acceptance of the proposed GSIP screening levels.

5 References

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Arcadis of Michigan, LLC
28550 Cabot Drive, Suite 500
Novi
Michigan 48377
Phone: 248 994 2240
Fax: 248 994 2241
www.arcadis.com

Tables

Table 1 - Bldg 04 - PFAS Soil Analytical Results
RACER Trust, Buick City Site, Flint, Michigan

Location ID: Sample Depth (ft BGS): Date Collected:	Units	SB-04-29 3 - 3.5 07/27/20	SB-04-29 4.5 - 5 07/27/20	SB-04-29 8 - 8.5 07/27/20	SB-04-29 12 - 12.5 07/27/20	SB-04-29 16.5 - 17 07/27/20	SB-04-29 18.5 - 19 07/27/20	SB-04-29 22 - 22.5 07/27/20	SB-04-29 24.5 - 25 07/27/20	SB-04-30 0.5 - 1 07/27/20	SB-04-30 3.5 - 4 07/27/20	SB-04-30 8 - 8.5 07/27/20
Soil Description		Sand	Sand	Pebbles, Concrete rubble	Pebbles, Concrete rubble	Sand and clay	Sand	Clay and silt	Sand	Sand	Sand	Sand
Sample Subjected to Leaching Tests			X				X				X	
PFAS												
11Cl-PF3OUdS (F-53B Minor)	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4:2 FTS	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
6:2FTS	ug/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
8:2FTS	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.22	0.33
9Cl-PF3ONS (F-53B Major)	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ADONA	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HFPO-DA (GenX)	ug/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
N-ethyl perfluorooctane sulfonamidoacetic acid	ug/kg	1.2	4.6	1.5	1.1	0.1 U	0.19	0.1 U	0.1 U	0.1 U	0.45	0.21
N-methyl perfluorooctane sulfonamidoacetic acid	ug/kg	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Perfluorobutanesulfonic acid (PFBS)	ug/kg	0.035	0.097	0.081	0.079	0.01 U	0.2	0.027	0.01 U	0.065	0.033	0.056
Perfluorobutanoic acid (PFBA)	ug/kg	0.035	0.057	0.045	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.12	0.025 U
Perfluorodecanesulfonic acid (PFDS)	ug/kg	36	16	8.8	0.74	0.053	0.04	0.017	0.018	4.4	0.76	0.015 U
Perfluorodecanoic acid (PFDA)	ug/kg	4	1.2	0.55	0.2	0.018	0.024	0.015 U	0.015 U	0.18	0.099	0.083
Perfluorododecanoic acid (PFDoA)	ug/kg	0.59	0.27	0.12	0.042	0.021	0.02 U	0.033	0.02 U	0.49	0.02 U	0.02 U
Perfluoroheptanesulfonic Acid (PFHpS)	ug/kg	1.2	0.83	0.49	0.16	0.047	0.038	0.044	0.06	0.05	0.075	0.096
Perfluoroheptanoic acid (PFHpA)	ug/kg	0.19	0.26	0.15	0.035	0.02	0.02 U	0.022	0.024	0.026	0.043	0.02 U
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	2.5	2.1	1.2	0.57	2	0.37	0.44	0.35	0.71	2.3	0.51
Perfluorohexanoic acid (PFHxA)	ug/kg	0.27	0.19	0.21	0.03	0.036	0.05	0.039	0.046	0.15	0.074	0.076
Perfluoronanesulfonic acid (PFNS)	ug/kg	0.77	0.27	0.15	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.11	0.03 U	0.03 U
Perfluoronanoic acid (PFNA)	ug/kg	0.74	0.44	0.19	0.15	0.039	0.012	0.022	0.024	0.041	0.079	0.039
Perfluorooctane Sulfonamide (FOSA)	ug/kg	0.13	0.26	0.19	0.05	0.015 U	0.022	0.015 U	0.015 U	0.018	0.24	0.21
Perfluorooctane sulfonic acid	ug/kg	97	67	35	9.5	0.63	0.97	0.6	0.81	5.9	6.3	45
Perfluorooctanoic acid	ug/kg	0.69	0.73	0.34	0.18	0.079	0.11	0.066	0.05	0.099	0.18	0.062
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	0.026	0.023	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.029	0.045
Perfluoropentanoic acid (PFPeA)	ug/kg	0.45	0.33	0.12	0.068	0.069	0.039	0.025	0.03	0.18	0.16	0.048
Perfluorotetradecanoic acid (PFTeA)	ug/kg	0.099	0.025 U	0.049	800	0.025 U	0.025 U	0.025 U	0.025 U	0.17	0.025 U	0.025 U
Perfluorotridecanoic Acid (PFTriA)	ug/kg	0.077	0.025	0.03	0.02 U	0.02 U	0.02 U	0.025	0.02 U	0.1	0.024	0.02 U
Perfluoroundecanoic acid (PFUnA)	ug/kg	0.8	0.25	0.14	0.05	0.01 U	0.01 U	0.01 U	0.01 U	0.32	0.031	0.012

Notes:

ug/kg - micrograms per kilogram

ft bgs - feet below ground surface

U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Table 1 - Bldg 04 - PFAS Soil Analytical Results
RACER Trust, Buick City Site, Flint, Michigan

Location ID: Sample Depth (ft BGS): Date Collected:	Units	SB-04-30 12.5 - 13 07/27/20	SB-04-30 16.5 - 17 07/27/20	SB-04-30 18.5 - 19 07/27/20	SB-04-30 22 - 22.5 07/27/20	SB-04-30 24.5 - 25 07/27/20	SB-04-31 1 - 1.5 07/28/20	SB-04-31 4 - 4.5 07/28/20	SB-04-31 5.5 - 6 07/28/20	SB-04-31 10 - 10.5 07/28/20	SB-04-31 12.5 - 13 07/28/20	SB-04-31 16.5 - 17 07/28/20	SB-04-31 18 - 18.5 07/28/20
Soil Description		Sand	Clay	Clay	Sand	Sand	Sand	Sand	Sand	Clay	Clay	Clay	Clay
Sample Subjected to Leaching Tests		X			X	X	X	X		X	X		
PFAS													
11Cl-PF3OUdS (F-53B Minor)	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4:2 FTS	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
6:2FTS	ug/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
8:2FTS	ug/kg	0.12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
9Cl-PF3ONS (F-53B Major)	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ADONA	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HFPO-DA (GenX)	ug/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
N-ethyl perfluorooctane sulfonamidoacetic acid	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
N-methyl perfluorooctane sulfonamidoacetic acid	ug/kg	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Perfluorobutanesulfonic acid (PFBS)	ug/kg	0.063	0.22	0.14	0.13	0.17	0.02	0.041	0.019	0.024	0.065	0.056	0.039
Perfluorobutanoic acid (PFBA)	ug/kg	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Perfluorodecanesulfonic acid (PFDS)	ug/kg	0.015 U	0.033	0.015 U	0.015 U	0.015 U	0.066	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Perfluorodecanoic acid (PFDA)	ug/kg	0.03	0.015 U	0.015 U	0.015 U	0.015 U	0.052	0.015	0.048	0.015 U	0.015 U	0.015 U	0.015 U
Perfluorododecanoic acid (PFDoA)	ug/kg	0.02 U	0.041	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Perfluoroheptanesulfonic Acid (PFHpS)	ug/kg	0.15	0.021	0.088	0.067	0.054	0.015 U	0.015 U	0.015 U	0.016	0.034	0.015 U	0.015
Perfluoroheptanoic acid (PFHpA)	ug/kg	0.033	0.1	0.046	0.041	0.04	0.041	0.02 U	0.02 U	0.023	0.02 U	0.02 U	0.02 U
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	1.4	0.77	2	1.8	0.68	0.12	0.13	0.41	0.85	0.48	0.075	0.071
Perfluorohexanoic acid (PFHxA)	ug/kg	0.22	0.14	0.12	0.21	0.15	0.078	0.029	0.031	0.051	0.021	0.035	0.01 U
Perfluoronanesulfonic acid (PFNS)	ug/kg	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Perfluorononanoic acid (PFNA)	ug/kg	0.047	0.01 U	0.021	0.033	0.013	0.021	0.023	0.01 U	0.012	0.026	0.012	0.01 U
Perfluorooctane Sulfonamide (FOSA)	ug/kg	0.15	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Perfluorooctane sulfonic acid	ug/kg	52	0.45	0.73	0.55	1.3	0.94	2.6	1.1	0.12	0.75	0.02 U	0.02 U
Perfluorooctanoic acid	ug/kg	0.16	0.087	0.25	0.2	0.12	0.053	0.049	0.042	0.026	0.059	0.043	0.01 U
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	0.15	0.34	0.17	0.1	0.072	0.015 U	0.015 U	0.015 U	0.05	0.015 U	0.035	0.015 U
Perfluoropentanoic acid (PFPeA)	ug/kg	0.066	0.062	0.023	0.031	0.08	0.055	0.015 U	0.015 U	0.015 U	0.019	0.025	0.015 U
Perfluorotetradecanoic acid (PFTeA)	ug/kg	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Perfluorotridecanoic Acid (PFTriA)	ug/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Perfluoroundecanoic acid (PFUnA)	ug/kg	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.013	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U

Notes:

ug/kg - micrograms per kilogram

ft bgs - feet below ground surface

U - The compound was analyzed for but not detected.

Table 1 - Bldg 04 - PFAS Soil Analytical Results
RACER Trust, Buick City Site, Flint, Michigan

Location ID: Sample Depth (ft BGS): Date Collected:	Units	SB-04-31 22 - 22.5 07/28/20	SB-04-31 24.5 - 25 07/28/20	SB-04-33 1 - 1.5 07/28/20	SB-04-33 4 - 4.5 07/28/20	SB-04-33 8 - 8.5 07/28/20	SB-04-33 12.5 - 13 07/28/20	SB-04-33 16.5 - 17 07/28/20	SB-04-33 18.5 - 19 07/28/20	SB-04-33 24.5 - 25 07/28/20	SB-04-34 1.5 - 2.5 07/28/20	SB-04-34 9.5 - 10 07/28/20	SB-04-34 24.5 - 25 07/28/20
Soil Description		Clay	Clay	Sand	Sand	Clay	Clay	Clay	Sand	Clay	Sand	Clay	Clay
Sample Subjected to Leaching Tests						X	X				X	X	
PFAS													
11CI-PF3OUdS (F-53B Minor)	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4:2 FTS	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
6:2FTS	ug/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
8:2FTS	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.15	0.1 U	0.1 U
9CI-PF3ONS (F-53B Major)	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
ADONA	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
HFPO-DA (GenX)	ug/kg	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
N-ethyl perfluorooctane sulfonamidoacetic acid	ug/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.21	0.1 U	0.1 U
N-methyl perfluorooctane sulfonamidoacetic acid	ug/kg	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	2.1	0.2 U	0.2 U
Perfluorobutanesulfonic acid (PFBS)	ug/kg	0.034	0.047	0.024	0.039	0.074	0.64	0.25	0.17	0.38	11	1.5	1.1
Perfluorobutanoic acid (PFBA)	ug/kg	0.031	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.048	0.025 U	3.3	0.73	0.37
Perfluorodecanesulfonic acid (PFDS)	ug/kg	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	4.9	0.02	0.015 U
Perfluorodecanoic acid (PFDA)	ug/kg	0.015 U	0.022	0.052	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	1.1	0.04	0.015 U
Perfluorododecanoic acid (PFDoA)	ug/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.25	0.02 U	0.02 U
Perfluoroheptanesulfonic Acid (PFHpS)	ug/kg	0.015 U	0.022	0.84	0.49	0.075	0.18	0.12	0.015 U	0.1	29	7.2	0.015 U
Perfluoroheptanoic acid (PFHpA)	ug/kg	0.02 U	0.02 U	0.028	0.02 U	0.052	0.24	0.087	0.046	0.088	6.7	0.78	0.31
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	0.22	0.28	2.3	1.4	1.6	4.7	3.5	2.3	2.7	120	76	1.2
Perfluorohexanoic acid (PFHxA)	ug/kg	0.032	0.027	0.16	0.13	0.12	0.4	0.29	0.16	0.38	33	11	1.6
Perfluoronanesulfonic acid (PFNS)	ug/kg	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	110	4.8	0.03 U
Perfluorononanoic acid (PFNA)	ug/kg	0.011	0.028	0.55	2.1	0.081	0.074	0.058	0.01 U	0.062	0.27	0.065	0.01 U
Perfluorooctane Sulfonamide (FOSA)	ug/kg	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	16	1.8	0.015 U
Perfluorooctane sulfonic acid	ug/kg	0.26	0.93	180	10	1.5	3.3	1.2	0.049	2.8	1,300	270	0.2
Perfluorooctanoic acid	ug/kg	0.029	0.018	0.56	0.44	0.19	0.35	0.29	0.18	0.38	27	5.4	0.13
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	0.015 U	0.015 U	0.059	0.075	0.1	0.79	0.38	0.12	0.45	22	3.4	1
Perfluoropentanoic acid (PFPeA)	ug/kg	0.019	0.028	0.042	0.026	0.04	0.072	0.038	0.037	0.11	3.5	1.2	0.31
Perfluorotetradecanoic acid (PFTeA)	ug/kg	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.043	0.025 U	0.025 U
Perfluorotridecanoic Acid (PFTriA)	ug/kg	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.19	0.02 U	0.02 U
Perfluoroundecanoic acid (PFUnA)	ug/kg	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.52	0.01 U	0.01 U

Notes:

ug/kg - micrograms per kilogram

ft bgs - feet below ground surface

U - The compound was analyzed for but not detected.

**Table 2 - Soil Analytical Results for Five PFAS in Intervals Selected for Leaching Analysis
RACER Trust, Buick City Site, Flint, Michigan**

Location		SB-04-29	SB-04-29	SB-04-30	SB-04-30	SB-04-30	SB-04-30	SB-04-31	SB-04-31	SB-04-31	SB-04-31	SB-04-33	SB-04-33	SB-04-34	SB-04-34
Sample Date		7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020
Sample Depth (feet)		4.5-5	18.5 - 19	3.5 - 4	12.5 - 13	22 - 22.5	24.5-25	1 - 1.5	4.5 - 5	10 - 10.5	12.5 - 13	8 - 8.5	12.5 - 13	1.5 - 2.5	9.5 - 10
Chemical Name	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
PFBS	µg/kg	0.10	0.20	0.03	0.063	0.13	0.17	0.02	0.04	0.02	0.02	0.07	0.64	11	1.5
PFHxS	µg/kg	2.1	0.37	2.30	1.4	1.80	0.68	0.12	0.13	0.85	0.85	1.60	4.70	120	76
PFNA	µg/kg	0.44	0.012	0.079	0.047	0.033	0.013	0.021	0.023	0.01	0.01	0.08	0.07	0.27	0.1
PFOS	µg/kg	67	0.97	6.30	52	0.55	1.3	0.94	2.60	0.12	0.12	1.50	3.30	1300	270
PFOA	µg/kg	0.73	0.11	0.18	0.16	0.2	0.12	0.053	0.049	0.026	0.026	0.19	0.35	27	5.4
Moisture Content		moist	moist	moist	wet	moist	wet	dry	moist	moist	moist	moist	wet	dry	moist
Soil Type		sand	clay/silt	sand/gravel	sand	sand/clay	sand/gravel	sand	sand	clay	clay/sand	clay	clay	sand	clay

Notes:
µg/kg = micrograms per kilogram

**Table 3 – Soil Leachate Analytical Results Using the SPLP Method, Neutral Leachate, or Site Groundwater
RACER Trust, Buick City Site, Flint, Michigan**

	Location	SB-04-29	SB-04-29	SB-04-30	SB-04-30	SB-04-30	SB-04-30	SB-04-31	SB-04-31	SB-04-31	SB-04-31	SB-04-33	SB-04-33	SB-04-34	SB-04-34			
	Sample Date	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/27/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020	7/28/2020			
	Sample Depth (feet)	4.5-5	18.5 - 19	3.5 - 4	12.5 - 13	22 - 22.5	24.5-25	1 - 1.5	4.5 - 5	10 - 10.5	12.5 - 13	8 - 8.5	12.5 - 13	1.5 - 2.5	9.5 - 10	Mean	N	Standard Deviation
Analyte	Unit	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L			
Leachate																		
PFBS	ng/L	5	14	2.5	9	12	13	2.5	14	6.6	7.8	2.5	8.4	340	28	33	14	89
PFHxS	ng/L	80	8	24	47	26	18	2.5	2.5	5.6	21	27	47	11000	2200	965	14	2946
PFHxA	ng/L	9	2.5	6	16	14	10	2.5	2.5	5.5	2.5	2.5	11	1400	430	137	14	381
PFNA	ng/L	15	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5.1	2.5	4	14	3
PFOS	ng/L	1400	10	210	1,300	5.6	29	12	59	1	1	25	74	120000	4100	9088	14	31943
PFOA	ng/L	24	3	11	3	2.6	9.1	4	1	3.6	1	9	12	1300	130	108	14	345
Neutral Leachate Method																		
PFBS	ng/L	2.5	27	2.5	5	19	16	2.5	9.5	8	8.5	2.5	16	440	38	43	14	115
PFHxS	ng/L	54	2.5	28	23	40	20	2.5	2.5	8.2	14	18	52	11,000	1,600	919	14	2932
PFHxA	ng/L	17	2.5	7.8	16	21	10	2.5	2.5	2.5	2.5	5.5	16	1200	510	130	14	336
PFNA	ng/L	7.7	2.5	2.5	2.5	2.5	2.5	2.5	5.2	2.5	2.5	2.5	2.5	2.5	2.5	3	14	2
PFOS	ng/L	1000	1	250	940	12	17	9	71	1	5	27	59	110,000	9,900	8735	14	29262
PFOA	ng/L	20	8	6.8	3	4.7	3	2.8	1	1	1	2.9	6	1200	120	99	14	319
Site Groundwater Leachate Method																		
PFBS	ng/L	5	2.5	8	2.5	19	5.2	8.9	2.5	8.2	14	2.5	11	320	37	32	14	83
PFHxS	ng/L	93	13	28	40	15	24	6.3	8.4	9.5	6.8	25	41	10000	1500	844	14	2665
PFHxA	ng/L	13	7	14	13	11	15	10	6	2.5	5.2	8.1	16	1800	460	170	14	484
PFNA	ng/L	10	6	11	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	7	5 U	4	13	3
PFOS	ng/L	1100	15	350	1200	1	19	8.3	85	6.1	4	42	42	110000	7400	8591	14	29253
PFOA	ng/L	26	8	26	6.6	7.7	14	9	9.3	5.3	4.7	9.8	7.9	1700	100	138	14	450

Notes:

ng/L = nanograms per liter

Yellow, highlighted values were not detected and were evaluated at 1/2 the reporting limit

Table 4- Soil Physical Parameters and Total Organic Carbon
RACER Trust, Buick City Site, Flint, Michigan

Location ID:	Sample Depth (ft bgs)	Total Organic Carbon (mg/kg)	Specific Gravity	Bulk Density (kg/L)	Natural Moisture Content (%)	Calculated Porosity	USCS	% Gravel		% Sand			% Fines	
								Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
SB-04-29	3-5	119,000	2.587	1.29	11.8	0.56	SM	2.1	39	15.8	18.9	10	10.7	3.5
SB-04-30	5-7	23,200	2.646	NS	11.3	NA	SM	0	1.6	1.8	6.3	64.2	22.2	3.9
SB-04-30	11.5-13.5	37,700	2.619	1.77	15	0.43	SM	1.6	7.3	1.7	5.3	64	17.3	2.8
SB-04-31	2-4	9,560	2.7	1.89	11	0.38	SM	0	3.1	4.8	12.5	50.1	20.6	8.9
SB-04-33	6-8	14,900	2.66	1.99	14.2	0.36	SM	0	0.8	0.6	2.5	72.4	19.5	4.2
SB-04-33	13-15	67,000	2.717	NS	13.9	NA	ML	0	1.8	5.8	4.3	12.1	55	21
SB-04-34	0-2	109,000	2.573	1.6	10.7	0.45	GM	17.9	29.8	12.1	17.7	9.4	10.4	2.7
<i>Mean</i>		54,337	2.64	1.7	12.6	0.43		4.3	16.7	8.5	13.5	56.4	31.1	9.4
<i>Geomean</i>		37,702												

Notes:

ft bgs - feet below ground surface

kg/L - kilograms per liter

mg/kg - milligrams per kilogram

NS - Not sampled - Sand was loose and fell out of Shelby tube. Unable to collect sample.

NA - Not applicable.

USCS - Unified Soil Classification System

**Table 5 - Soil Water Partitioning Coefficients and Site-Specific GSIP Screening Levels
RACER Trust, Buick City Site, Flint, Michigan**

Chemical Name	CAS RN	Criteria Type	GSI (C_w) (ng/L)	DAF (unitless)	Site-Specific Median Kd (L/kg)	USEPA koc (L/kg)	Kd (koc-foc) (L/kg)	USEPA Kd (L/kg)	Kd Used (L/kg)	Kd Method (a, b, c)	Soil GSIP Screening Level (ug/kg)
Perfluorobutanesulfonic acid (PFBS)	375-73-5	GSI	670,000	16	0	61.66	2.32	0.3	2.32	c	26,000
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	GSI	210	16	25.1	112.2	4.23	n/a	25.1	a	85
Perfluorononanoic acid (PFNA)	375-95-1	GSI	30	16	14.2	245.5	9.26	4	4	b	2.0
Perfluorooctanoic acid (PFOA)	335-67-1	GSI	170	16	2.5	114.8	4.33	15	15	b	41
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	GSI	12	16	26.7	371.5	14.01	7.42	26.7	a	5.2

Definitions:

CAS RN: chemical abstract services registry number

C_w : target soil leachate concentration = GSI criteria

DAF: dilution attenuation factor, default value applied = 16 (L/L)

foc: fraction of organic carbon (geometric mean) = 0.0377 (g/g)

GSI: Michigan Part 201 groundwater surface water interface protection criterion (non-drinking water)

GSIP: groundwater surface water interface protection screening level for soil, rounded to 2 significant digits

L/kg: liters per kilogram

ng/kg: nanograms per kilogram

ng/L: nanograms per liter

θ_w : water filled porosity (site average) = 0.2 (L/L)

ρ_b : soil bulk density (site average) = 1.6 (L/kg)

Notes:

a. Estimated using site-specific median value

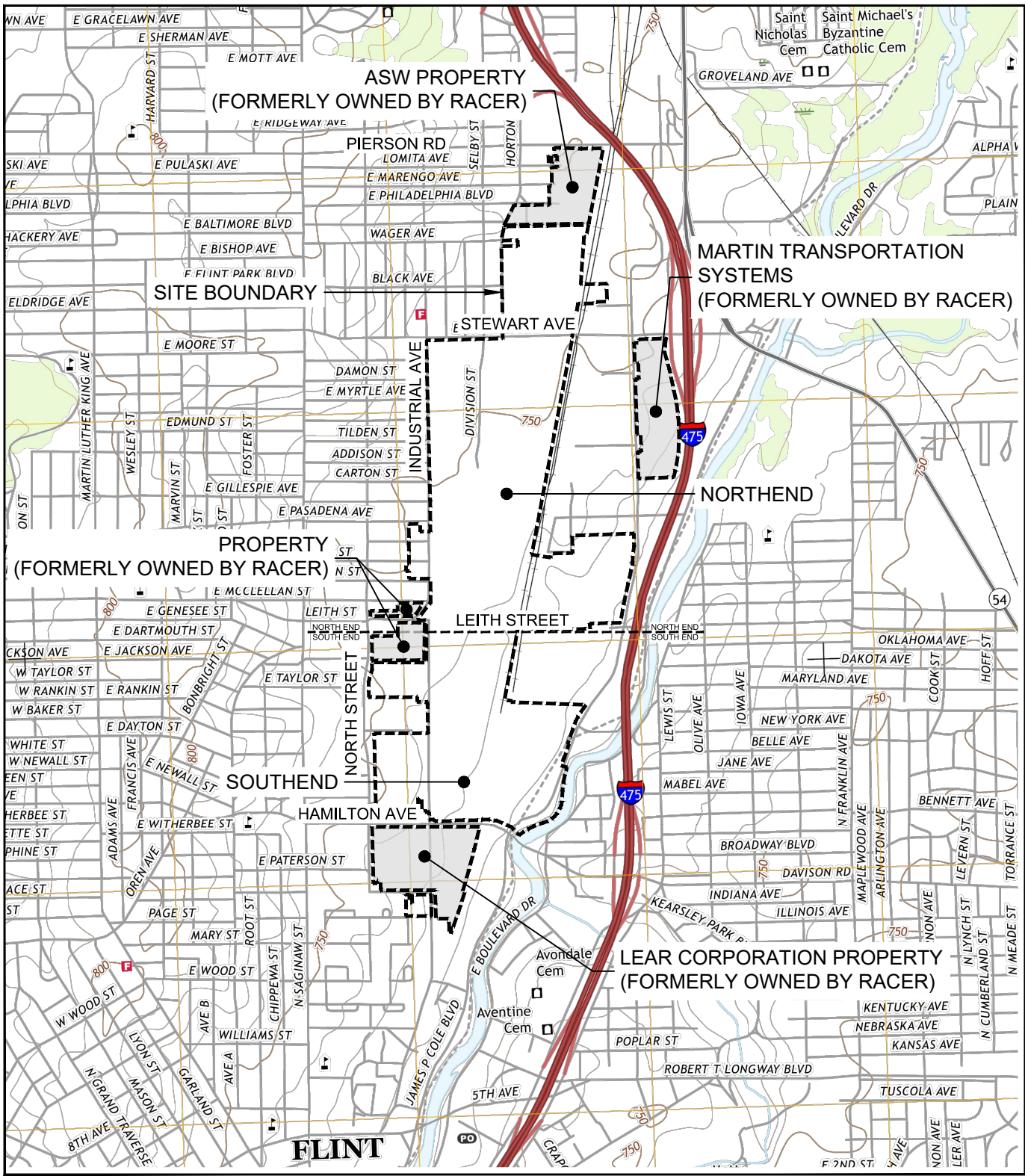
b. USEPA Kd used, as insufficient data was available to accurately estimate Kd

c. USEPA koc-foc used, as insufficient data was available to accurately estimate Kd and no Kd reported by USEPA

$$\text{Soil GSIPC} = C_w \cdot \text{DAF} \cdot \left(K_d + \frac{\theta_w}{\rho_b} \right)$$

Figures

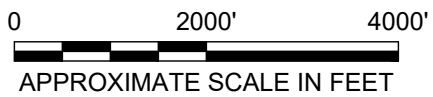
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SOURCE: USGS 7.5 MIN., FLINT NORTH QUADRANGLE, FLINT NORTH 2017



AREA LOCATION
MICHIGAN



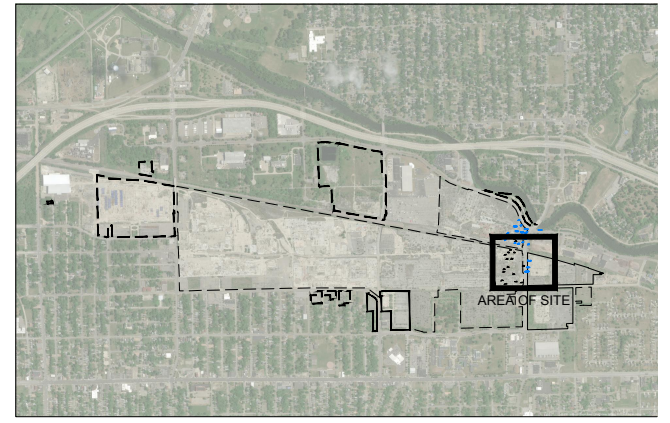
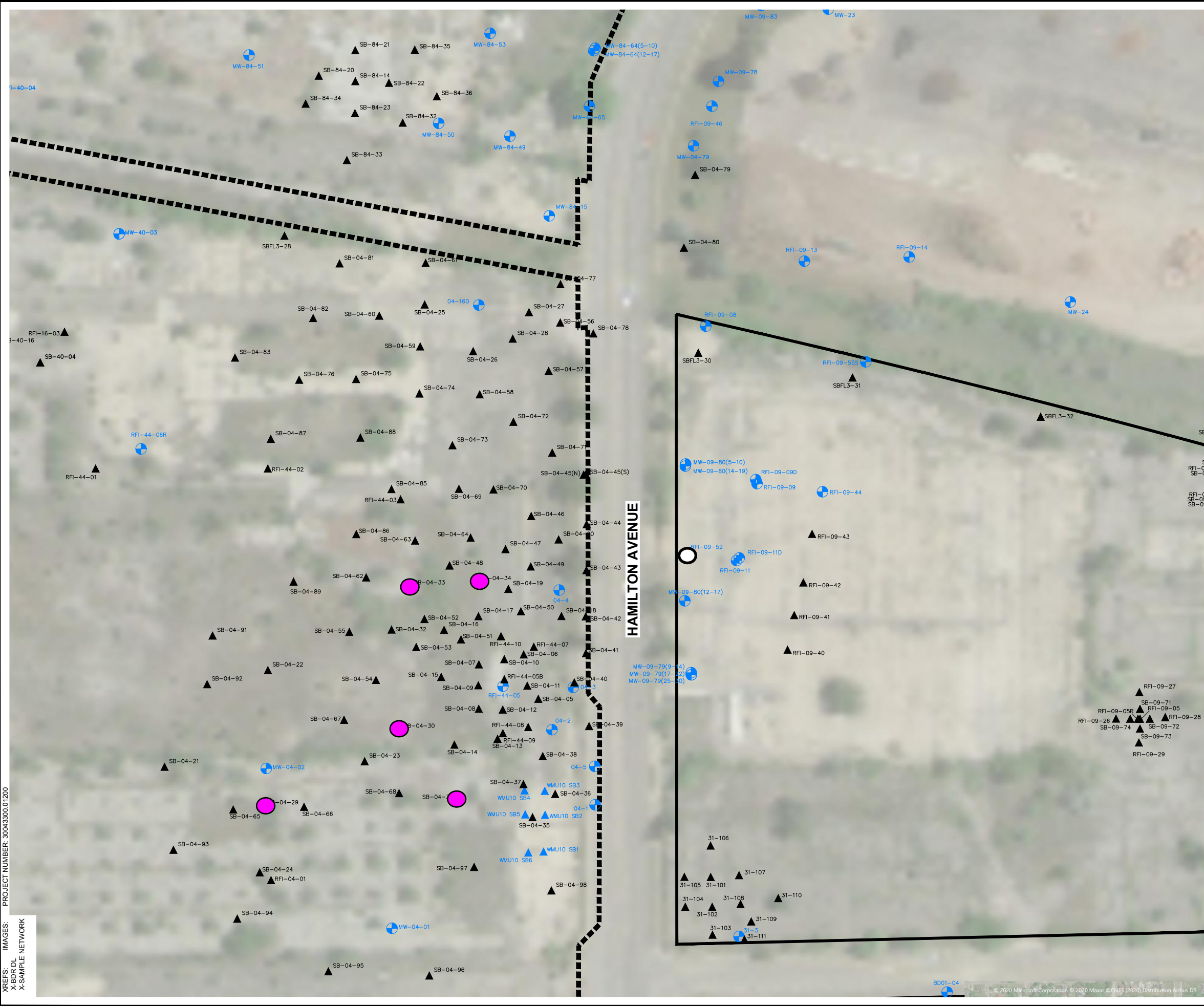
RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SITE LOCATION MAP



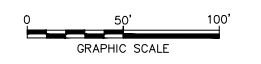
FIGURE
1

DIV/GROUP: INDV DB: G STOWELL LD: A SIGMS PIC: C S PETERS PM: C KIKER TM: C KIKER LVR: ON* OFF: BEE* ACADVER: 23.1 S (LMS TECH) PAGES/SETUP: 11A PLOTSTYLETABLE: PLOTTED: 2/22/2021 12:58 PM BY: OBERLANDER, ROSEANNE
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 XREFS: IMAGES: PROJECT NUMBER: 30043300.01200
 X-BDR DL
 X-SAMPLE NETWORK



LEGEND:

- RACER PROPERTY BOUNDARY
- FORMER RACER PROPERTY
- SOIL BORING
- MONITORING WELL (ACTIVE)
- SWPV SAMPLE LOCATION
- SITE GROUNDWATER COLLECTION LOCATION



RACER TRUST
 BUICK CITY
 FLINT, MICHIGAN

**BUILDING 44 AREA
 SWPV SAMPLE LOCATIONS**

Design & Consultancy
for natural and
built assets

Appendix A

Lab Reports



Monday, September 21, 2020

Joey Barker
Arcadis - Novi
28550 Cabot Drive
Ste 500
Novi, MI 48377

Workorder: 364347
Purchase Order: 30043300.03100

Joey Barker,
Paragon Laboratories, Inc. received the samples associated with the workorder listed above for the analyses presented in the following report. The analyses pertain only to the aliquot of sample received.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number below.

Please note that any unused portion of the sample(s) will be discarded 40 days after sample receipt, unless requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact me at 734-469-5625.

Sincerely,

Margaret Snyder
Account Coordinator



SAMPLE SUMMARY

Lab ID	Sample ID	Sample Description	Matrix	Date Collected	Date Received	Collector
3643470001	SB-04-30(22-22.5)	Neutral	AL	07/27/2020 00:00	09/10/2020 12:00	
3643470002	SB-04-30(22-22.5)	SiteGW	AL	07/27/2020 00:00	09/10/2020 12:00	
3643470003	SB-04-30(22-22.5)	SPLP	AL	07/27/2020 00:00	09/10/2020 12:00	
3643470004	SB-04-31(4.5-5)	Neutral	AL	07/28/2020 00:00	09/10/2020 12:00	
3643470005	SB-04-31(4.5-5)	SiteGW	AL	07/28/2020 00:00	09/10/2020 12:00	
3643470006	SB-04-31(4.5-5)	SPLP	AL	07/28/2020 00:00	09/10/2020 12:00	
3643470007	SB-04-31(12.5-13)	Neutral	AL	07/28/2020 00:00	09/10/2020 12:00	
3643470008	SB-04-31(12.5-13)	SiteGW	AL	07/28/2020 00:00	09/10/2020 12:00	
3643470009	SB-04-31(12.5-13)	SPLP	AL	07/28/2020 00:00	09/10/2020 12:00	

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WORKORDER SUMMARY

Accreditations

Paragon Laboratories, Inc. is certified by the Michigan Department of Environment, Great Lakes, and Energy to analyze Drinking Water. (EGLE Lab No. 9901 Expires 2/25/2023)

Surrogate Results Narrative

3643470002 - SB-04-30(22-22.5)SiteGW - M7PFUnDA

Surrogate recovery is outside acceptance criteria.

3643470009 - SB-04-31(12.5-13)SPLP - M7PFUnDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

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ANALYTICAL RESULTS

Lab ID: 3643470001
 Sample ID: SB-04-30(22-22.5)Neutral

Date Collected: 07/27/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/14/2020 23:18	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/14/2020 23:18	JKP
6:2 FTSA	310		ng/L	50	13	1			09/14/2020 23:18	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/14/2020 23:18	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/14/2020 23:18	JKP
ADONA	<50		ng/L	50	24	1			09/14/2020 23:18	JKP
HFPO-DA	<100		ng/L	100	63	1			09/14/2020 23:18	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/14/2020 23:18	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/14/2020 23:18	JKP
PFBA	11		ng/L	2.0	0.90	1			09/14/2020 23:18	JKP
PFBS	19		ng/L	5.0	2.7	1			09/14/2020 23:18	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/14/2020 23:18	JKP
PFDS	<10		ng/L	10	5.6	1			09/14/2020 23:18	JKP
PFDoDA	7.9		ng/L	5.0	2.1	1			09/14/2020 23:18	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/14/2020 23:18	JKP
PFHpS	<10		ng/L	10	4.8	1			09/14/2020 23:18	JKP
PFHxA	21		ng/L	5.0	2.3	1			09/14/2020 23:18	JKP
PFHxS	40		ng/L	5.0	2.6	1			09/14/2020 23:18	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/14/2020 23:18	JKP
PFNS	<10		ng/L	10	5.2	1			09/14/2020 23:18	JKP
PFOA	4.7		ng/L	2.0	0.80	1			09/14/2020 23:18	JKP
PFOS	12		ng/L	2.0	0.80	1			09/14/2020 23:18	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/14/2020 23:18	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/14/2020 23:18	JKP
PFPeS	<10		ng/L	10	4.5	1			09/14/2020 23:18	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/14/2020 23:18	JKP
PFTrDA	<10		ng/L	10	4.4	1			09/14/2020 23:18	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/14/2020 23:18	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	2100	129	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1800	114	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1700	107	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1500	91	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1300	80	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1300	79	70 - 130	
M2PFDoDA (S)	ng/L	160	190	116	70 - 130	
M2PFTeDA (S)	ng/L	160	130	79	70 - 130	
M3PFBS (S)	ng/L	160	180	111	70 - 130	
M3PFHxS (S)	ng/L	160	130	80	70 - 130	
M4PFBA (S)	ng/L	160	150	97	70 - 130	
M4PFHpA (S)	ng/L	160	160	103	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M5PFHxA (S)	ng/L	160	200	124	70 - 130
M5PFPeA (S)	ng/L	160	170	109	70 - 130
M6PFDA (S)	ng/L	160	200	124	70 - 130
M7PFUnDA (S)	ng/L	160	160	102	70 - 130
M8PFOA (S)	ng/L	160	160	98	70 - 130
M8PFOS (S)	ng/L	160	130	82	70 - 130
M8PFOSA (S)	ng/L	160	170	106	70 - 130
M9PFNA (S)	ng/L	160	190	117	70 - 130

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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ANALYTICAL RESULTS

Lab ID: 3643470002
 Sample ID: SB-04-30(22-22.5)SiteGW

Date Collected: 07/27/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/19/2020 03:26	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/19/2020 03:26	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/19/2020 03:26	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/19/2020 03:26	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/19/2020 03:26	JKP
ADONA	<50		ng/L	50	24	1			09/19/2020 03:26	JKP
HFPO-DA	<100		ng/L	100	63	1			09/19/2020 03:26	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/19/2020 03:26	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/19/2020 03:26	JKP
PFBA	9.3		ng/L	2.0	0.90	1			09/19/2020 03:26	JKP
PFBS	19		ng/L	5.0	2.7	1			09/19/2020 03:26	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 03:26	JKP
PFDS	<10		ng/L	10	5.6	1			09/19/2020 03:26	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/19/2020 03:26	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/19/2020 03:26	JKP
PFHpS	<10		ng/L	10	4.8	1			09/19/2020 03:26	JKP
PFHxA	11		ng/L	5.0	2.3	1			09/19/2020 03:26	JKP
PFHxS	15		ng/L	5.0	2.6	1			09/19/2020 03:26	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/19/2020 03:26	JKP
PFNS	<10		ng/L	10	5.2	1			09/19/2020 03:26	JKP
PFOA	7.7		ng/L	2.0	0.80	1			09/19/2020 03:26	JKP
PFOS	<2.0		ng/L	2.0	0.80	1			09/19/2020 03:26	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/19/2020 03:26	JKP
PFPeA	8.6		ng/L	5.0	2.3	1			09/19/2020 03:26	JKP
PFPeS	<10		ng/L	10	4.5	1			09/19/2020 03:26	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/19/2020 03:26	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/19/2020 03:26	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 03:26	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	1500	97	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1400	87	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1600	100	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1500	91	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1300	83	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1400	88	70 - 130	
M2PFDoDA (S)	ng/L	160	170	108	70 - 130	
M2PFTeDA (S)	ng/L	160	140	91	70 - 130	
M3PFBS (S)	ng/L	160	140	86	70 - 130	
M3PFHxS (S)	ng/L	160	130	81	70 - 130	
M4PFBA (S)	ng/L	160	160	101	70 - 130	
M4PFHpA (S)	ng/L	160	140	87	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M5PFHxA (S)	ng/L	160	150	94	70 - 130
M5PFPeA (S)	ng/L	160	150	92	70 - 130
M6PFDA (S)	ng/L	160	170	107	70 - 130
M7PFUnDA (S)	ng/L	160	220	135	70 - 130 *
M8PFOA (S)	ng/L	160	150	92	70 - 130
M8PFOS (S)	ng/L	160	200	128	70 - 130
M8PFOSA (S)	ng/L	160	160	101	70 - 130
M9PFNA (S)	ng/L	160	130	82	70 - 130

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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ANALYTICAL RESULTS

Lab ID: 3643470003
 Sample ID: SB-04-30(22-22.5)SPLP

Date Collected: 07/27/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/19/2020 07:35	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/19/2020 07:35	JKP
6:2 FTSA	120		ng/L	50	13	1			09/19/2020 07:35	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/19/2020 07:35	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/19/2020 07:35	JKP
ADONA	<50		ng/L	50	24	1			09/19/2020 07:35	JKP
HFPO-DA	<100		ng/L	100	63	1			09/19/2020 07:35	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/19/2020 07:35	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/19/2020 07:35	JKP
PFBA	9.4		ng/L	2.0	0.90	1			09/19/2020 07:35	JKP
PFBS	12		ng/L	5.0	2.7	1			09/19/2020 07:35	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 07:35	JKP
PFDS	<10		ng/L	10	5.6	1			09/19/2020 07:35	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/19/2020 07:35	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/19/2020 07:35	JKP
PFHpS	<10		ng/L	10	4.8	1			09/19/2020 07:35	JKP
PFHxA	14		ng/L	5.0	2.3	1			09/19/2020 07:35	JKP
PFHxS	26		ng/L	5.0	2.6	1			09/19/2020 07:35	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/19/2020 07:35	JKP
PFNS	<10		ng/L	10	5.2	1			09/19/2020 07:35	JKP
PFOA	2.6		ng/L	2.0	0.80	1			09/19/2020 07:35	JKP
PFOS	5.6		ng/L	2.0	0.80	1			09/19/2020 07:35	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/19/2020 07:35	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/19/2020 07:35	JKP
PFPeS	<10		ng/L	10	4.5	1			09/19/2020 07:35	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/19/2020 07:35	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/19/2020 07:35	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 07:35	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	2000	128	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1600	97	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1900	118	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1500	91	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1400	85	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1400	86	70 - 130	
M2PFDODA (S)	ng/L	160	210	130	70 - 130	
M2PFTeDA (S)	ng/L	160	150	96	70 - 130	
M3PFBS (S)	ng/L	160	160	98	70 - 130	
M3PFHxS (S)	ng/L	160	120	77	70 - 130	
M4PFBA (S)	ng/L	160	160	103	70 - 130	
M4PFHpA (S)	ng/L	160	150	95	70 - 130	

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ANALYTICAL RESULTS

M5PFHxA (S)	ng/L	160	170	104	70 - 130
M5PFPeA (S)	ng/L	160	180	112	70 - 130
M6PFDA (S)	ng/L	160	150	93	70 - 130
M7PFUnDA (S)	ng/L	160	130	83	70 - 130
M8PFOA (S)	ng/L	160	140	85	70 - 130
M8PFOS (S)	ng/L	160	180	114	70 - 130
M8PFOSA (S)	ng/L	160	190	120	70 - 130
M9PFNA (S)	ng/L	160	160	97	70 - 130

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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ANALYTICAL RESULTS

Lab ID: 3643470004
 Sample ID: SB-04-31(4.5-5)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/14/2020 23:39	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/14/2020 23:39	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/14/2020 23:39	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/14/2020 23:39	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/14/2020 23:39	JKP
ADONA	<50		ng/L	50	24	1			09/14/2020 23:39	JKP
HFPO-DA	<100		ng/L	100	63	1			09/14/2020 23:39	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/14/2020 23:39	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/14/2020 23:39	JKP
PFBA	6.2		ng/L	2.0	0.90	1			09/14/2020 23:39	JKP
PFBS	9.5		ng/L	5.0	2.7	1			09/14/2020 23:39	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/14/2020 23:39	JKP
PFDS	<10		ng/L	10	5.6	1			09/14/2020 23:39	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/14/2020 23:39	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/14/2020 23:39	JKP
PFHpS	<10		ng/L	10	4.8	1			09/14/2020 23:39	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/14/2020 23:39	JKP
PFHxS	<5.0		ng/L	5.0	2.6	1			09/14/2020 23:39	JKP
PFNA	5.2		ng/L	5.0	1.3	1			09/14/2020 23:39	JKP
PFNS	<10		ng/L	10	5.2	1			09/14/2020 23:39	JKP
PFOA	<2.0		ng/L	2.0	0.80	1			09/14/2020 23:39	JKP
PFOS	71		ng/L	2.0	0.80	1			09/14/2020 23:39	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/14/2020 23:39	JKP
PFPeA	5.2		ng/L	5.0	2.3	1			09/14/2020 23:39	JKP
PFPeS	<10		ng/L	10	4.5	1			09/14/2020 23:39	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/14/2020 23:39	JKP
PFTrDA	<10		ng/L	10	4.4	1			09/14/2020 23:39	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/14/2020 23:39	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	1700	104	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1700	105	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1600	101	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1600	102	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1600	98	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1300	82	70 - 130	
M2PFDoDA (S)	ng/L	160	200	122	70 - 130	
M2PFTeDA (S)	ng/L	160	160	103	70 - 130	
M3PFBS (S)	ng/L	160	190	120	70 - 130	
M3PFHxS (S)	ng/L	160	160	99	70 - 130	
M4PFBA (S)	ng/L	160	170	107	70 - 130	
M4PFHpA (S)	ng/L	160	160	97	70 - 130	

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M5PFHxA (S)	ng/L	160	150	97	70 - 130
M5PFPeA (S)	ng/L	160	140	88	70 - 130
M6PFDA (S)	ng/L	160	180	111	70 - 130
M7PFUnDA (S)	ng/L	160	190	118	70 - 130
M8PFOA (S)	ng/L	160	160	98	70 - 130
M8PFOS (S)	ng/L	160	190	117	70 - 130
M8PFOSA (S)	ng/L	160	160	101	70 - 130
M9PFNA (S)	ng/L	160	160	99	70 - 130

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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ANALYTICAL RESULTS

Lab ID: 3643470005
 Sample ID: SB-04-31(4.5-5)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/19/2020 03:47	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/19/2020 03:47	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/19/2020 03:47	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/19/2020 03:47	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/19/2020 03:47	JKP
ADONA	<50		ng/L	50	24	1			09/19/2020 03:47	JKP
HFPO-DA	<100		ng/L	100	63	1			09/19/2020 03:47	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/19/2020 03:47	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/19/2020 03:47	JKP
PFBA	10		ng/L	2.0	0.90	1			09/19/2020 03:47	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/19/2020 03:47	JKP
PFDA	7.0		ng/L	5.0	1.8	1			09/19/2020 03:47	JKP
PFDS	<10		ng/L	10	5.6	1			09/19/2020 03:47	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/19/2020 03:47	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/19/2020 03:47	JKP
PFHpS	<10		ng/L	10	4.8	1			09/19/2020 03:47	JKP
PFHxA	6.0		ng/L	5.0	2.3	1			09/19/2020 03:47	JKP
PFHxS	8.4		ng/L	5.0	2.6	1			09/19/2020 03:47	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/19/2020 03:47	JKP
PFNS	<10		ng/L	10	5.2	1			09/19/2020 03:47	JKP
PFOA	9.3		ng/L	2.0	0.80	1			09/19/2020 03:47	JKP
PFOS	85		ng/L	2.0	0.80	1			09/19/2020 03:47	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/19/2020 03:47	JKP
PFPeA	10		ng/L	5.0	2.3	1			09/19/2020 03:47	JKP
PFPeS	<10		ng/L	10	4.5	1			09/19/2020 03:47	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/19/2020 03:47	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/19/2020 03:47	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 03:47	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	2000	122	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1500	95	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1700	109	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1400	87	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1600	102	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1400	89	70 - 130	
M2PFDODA (S)	ng/L	160	200	124	70 - 130	
M2PFTeDA (S)	ng/L	160	120	73	70 - 130	
M3PFBS (S)	ng/L	160	140	85	70 - 130	
M3PFHxS (S)	ng/L	160	170	105	70 - 130	
M4PFBA (S)	ng/L	160	160	103	70 - 130	
M4PFHpA (S)	ng/L	160	190	117	70 - 130	

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M5PFHxA (S)	ng/L	160	160	103	70 - 130
M5PFPeA (S)	ng/L	160	170	109	70 - 130
M6PFDA (S)	ng/L	160	160	100	70 - 130
M7PFUnDA (S)	ng/L	160	200	127	70 - 130
M8PFOA (S)	ng/L	160	170	105	70 - 130
M8PFOS (S)	ng/L	160	160	98	70 - 130
M8PFOSA (S)	ng/L	160	170	105	70 - 130
M9PFNA (S)	ng/L	160	180	111	70 - 130

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete		1	09/10/2020 16:10	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete		1	09/14/2020 09:37	JKP
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ANALYTICAL RESULTS

Lab ID: 3643470006
 Sample ID: SB-04-31(4.5-5)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/19/2020 07:56	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/19/2020 07:56	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/19/2020 07:56	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/19/2020 07:56	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/19/2020 07:56	JKP
ADONA	<50		ng/L	50	24	1			09/19/2020 07:56	JKP
HFPO-DA	<100		ng/L	100	63	1			09/19/2020 07:56	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/19/2020 07:56	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/19/2020 07:56	JKP
PFBA	5.5		ng/L	2.0	0.90	1			09/19/2020 07:56	JKP
PFBS	14		ng/L	5.0	2.7	1			09/19/2020 07:56	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 07:56	JKP
PFDS	<10		ng/L	10	5.6	1			09/19/2020 07:56	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/19/2020 07:56	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/19/2020 07:56	JKP
PFHpS	<10		ng/L	10	4.8	1			09/19/2020 07:56	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/19/2020 07:56	JKP
PFHxS	<5.0		ng/L	5.0	2.6	1			09/19/2020 07:56	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/19/2020 07:56	JKP
PFNS	<10		ng/L	10	5.2	1			09/19/2020 07:56	JKP
PFOA	<2.0		ng/L	2.0	0.80	1			09/19/2020 07:56	JKP
PFOS	59		ng/L	2.0	0.80	1			09/19/2020 07:56	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/19/2020 07:56	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/19/2020 07:56	JKP
PFPeS	<10		ng/L	10	4.5	1			09/19/2020 07:56	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/19/2020 07:56	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/19/2020 07:56	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 07:56	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	1800	112	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1600	97	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	2100	130	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1400	86	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1500	94	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1600	98	70 - 130	
M2PFDoDA (S)	ng/L	160	180	115	70 - 130	
M2PFTeDA (S)	ng/L	160	160	102	70 - 130	
M3PFBS (S)	ng/L	160	190	121	70 - 130	
M3PFHxS (S)	ng/L	160	150	91	70 - 130	
M4PFBA (S)	ng/L	160	170	104	70 - 130	
M4PFHpA (S)	ng/L	160	180	112	70 - 130	

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M5PFHxA (S)	ng/L	160	140	90	70 - 130
M5PFPeA (S)	ng/L	160	150	97	70 - 130
M6PFDA (S)	ng/L	160	170	108	70 - 130
M7PFUnDA (S)	ng/L	160	180	111	70 - 130
M8PFOA (S)	ng/L	160	150	91	70 - 130
M8PFOS (S)	ng/L	160	180	115	70 - 130
M8PFOSA (S)	ng/L	160	160	100	70 - 130
M9PFNA (S)	ng/L	160	170	106	70 - 130

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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ANALYTICAL RESULTS

Lab ID: 3643470007
 Sample ID: SB-04-31(12.5-13)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/14/2020 22:16	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/14/2020 22:16	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/14/2020 22:16	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/14/2020 22:16	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/14/2020 22:16	JKP
ADONA	<50		ng/L	50	24	1			09/14/2020 22:16	JKP
HFPO-DA	<100		ng/L	100	63	1			09/14/2020 22:16	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/14/2020 22:16	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/14/2020 22:16	JKP
PFBA	11		ng/L	2.0	0.90	1			09/14/2020 22:16	JKP
PFBS	8.5		ng/L	5.0	2.7	1			09/14/2020 22:16	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/14/2020 22:16	JKP
PFDS	<10		ng/L	10	5.6	1			09/14/2020 22:16	JKP
PFDoDA	10		ng/L	5.0	2.1	1			09/14/2020 22:16	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/14/2020 22:16	JKP
PFHpS	<10		ng/L	10	4.8	1			09/14/2020 22:16	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/14/2020 22:16	JKP
PFHxS	14		ng/L	5.0	2.6	1			09/14/2020 22:16	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/14/2020 22:16	JKP
PFNS	<10		ng/L	10	5.2	1			09/14/2020 22:16	JKP
PFOA	<2.0		ng/L	2.0	0.80	1			09/14/2020 22:16	JKP
PFOS	5.0		ng/L	2.0	0.80	1			09/14/2020 22:16	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/14/2020 22:16	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/14/2020 22:16	JKP
PFPeS	<10		ng/L	10	4.5	1			09/14/2020 22:16	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/14/2020 22:16	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/14/2020 22:16	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/14/2020 22:16	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	1800	114	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1600	101	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1400	89	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1400	85	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1100	70	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1300	81	70 - 130	
M2PFDoDA (S)	ng/L	160	140	89	70 - 130	
M2PFTeDA (S)	ng/L	160	140	90	70 - 130	
M3PFBS (S)	ng/L	160	150	93	70 - 130	
M3PFHxS (S)	ng/L	160	150	96	70 - 130	
M4PFBA (S)	ng/L	160	160	103	70 - 130	
M4PFHpA (S)	ng/L	160	170	105	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M5PFHxA (S)	ng/L	160	180	115	70 - 130
M5PFPeA (S)	ng/L	160	170	108	70 - 130
M6PFDA (S)	ng/L	160	130	84	70 - 130
M7PFUnDA (S)	ng/L	160	170	106	70 - 130
M8PFOA (S)	ng/L	160	180	111	70 - 130
M8PFOS (S)	ng/L	160	190	121	70 - 130
M8PFOSA (S)	ng/L	160	170	106	70 - 130
M9PFNA (S)	ng/L	160	150	93	70 - 130

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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ANALYTICAL RESULTS

Lab ID: 3643470008
 Sample ID: SB-04-31(12.5-13)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/19/2020 02:24	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/19/2020 02:24	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/19/2020 02:24	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/19/2020 02:24	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/19/2020 02:24	JKP
ADONA	<50		ng/L	50	24	1			09/19/2020 02:24	JKP
HFPO-DA	<100		ng/L	100	63	1			09/19/2020 02:24	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/19/2020 02:24	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/19/2020 02:24	JKP
PFBA	16		ng/L	2.0	0.90	1			09/19/2020 02:24	JKP
PFBS	14		ng/L	5.0	2.7	1			09/19/2020 02:24	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 02:24	JKP
PFDS	<10		ng/L	10	5.6	1			09/19/2020 02:24	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/19/2020 02:24	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/19/2020 02:24	JKP
PFHpS	<10		ng/L	10	4.8	1			09/19/2020 02:24	JKP
PFHxA	5.2		ng/L	5.0	2.3	1			09/19/2020 02:24	JKP
PFHxS	6.8		ng/L	5.0	2.6	1			09/19/2020 02:24	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/19/2020 02:24	JKP
PFNS	<10		ng/L	10	5.2	1			09/19/2020 02:24	JKP
PFOA	4.7		ng/L	2.0	0.80	1			09/19/2020 02:24	JKP
PFOS	4.0		ng/L	2.0	0.80	1			09/19/2020 02:24	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/19/2020 02:24	JKP
PFPeA	15		ng/L	5.0	2.3	1			09/19/2020 02:24	JKP
PFPeS	<10		ng/L	10	4.5	1			09/19/2020 02:24	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/19/2020 02:24	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/19/2020 02:24	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 02:24	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	1900	122	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1500	91	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1700	106	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1400	90	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1500	92	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1600	100	70 - 130	
M2PFDoDA (S)	ng/L	160	180	112	70 - 130	
M2PFTeDA (S)	ng/L	160	97	61	70 - 130	
M3PFBS (S)	ng/L	160	140	90	70 - 130	
M3PFHxS (S)	ng/L	160	130	84	70 - 130	
M4PFBA (S)	ng/L	160	160	101	70 - 130	
M4PFHpA (S)	ng/L	160	170	106	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M5PFHxA (S)	ng/L	160	170	104	70 - 130
M5PFPeA (S)	ng/L	160	170	106	70 - 130
M6PFDA (S)	ng/L	160	190	117	70 - 130
M7PFUnDA (S)	ng/L	160	160	101	70 - 130
M8PFOA (S)	ng/L	160	150	94	70 - 130
M8PFOS (S)	ng/L	160	160	98	70 - 130
M8PFOSA (S)	ng/L	160	140	88	70 - 130
M9PFNA (S)	ng/L	160	180	115	70 - 130

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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ANALYTICAL RESULTS

Lab ID: 3643470009
 Sample ID: SB-04-31(12.5-13)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 09/10/2020 12:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/19/2020 06:33	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/19/2020 06:33	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/19/2020 06:33	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/19/2020 06:33	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/19/2020 06:33	JKP
ADONA	<50		ng/L	50	24	1			09/19/2020 06:33	JKP
HFPO-DA	<100		ng/L	100	63	1			09/19/2020 06:33	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/19/2020 06:33	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/19/2020 06:33	JKP
PFBA	7.5		ng/L	2.0	0.90	1			09/19/2020 06:33	JKP
PFBS	7.8		ng/L	5.0	2.7	1			09/19/2020 06:33	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 06:33	JKP
PFDS	<10		ng/L	10	5.6	1			09/19/2020 06:33	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/19/2020 06:33	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/19/2020 06:33	JKP
PFHpS	<10		ng/L	10	4.8	1			09/19/2020 06:33	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/19/2020 06:33	JKP
PFHxS	21		ng/L	5.0	2.6	1			09/19/2020 06:33	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/19/2020 06:33	JKP
PFNS	<10		ng/L	10	5.2	1			09/19/2020 06:33	JKP
PFOA	<2.0		ng/L	2.0	0.80	1			09/19/2020 06:33	JKP
PFOS	<2.0		ng/L	2.0	0.80	1			09/19/2020 06:33	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/19/2020 06:33	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/19/2020 06:33	JKP
PFPeS	<10		ng/L	10	4.5	1			09/19/2020 06:33	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/19/2020 06:33	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/19/2020 06:33	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/19/2020 06:33	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/L	1600	1500	93	50 - 150	
d3-NMeFOSAA (S)	ng/L	1600	1600	98	70 - 130	
d5-NEtFOSAA (S)	ng/L	1600	1500	97	70 - 130	
M2-4:2 FTS (S)	ng/L	1600	1400	85	70 - 130	
M2-6:2 FTS (S)	ng/L	1600	1300	84	70 - 130	
M2-8:2 FTS (S)	ng/L	1600	1300	84	70 - 130	
M2PFDoDA (S)	ng/L	160	200	127	70 - 130	
M2PFTeDA (S)	ng/L	160	120	76	70 - 130	
M3PFBS (S)	ng/L	160	160	102	70 - 130	
M3PFHxS (S)	ng/L	160	120	77	70 - 130	
M4PFBA (S)	ng/L	160	150	95	70 - 130	
M4PFHpA (S)	ng/L	160	190	121	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M5PFHxA (S)	ng/L	160	150	91	70 - 130
M5PFPeA (S)	ng/L	160	150	92	70 - 130
M6PFDA (S)	ng/L	160	190	120	70 - 130
M7PFUnDA (S)	ng/L	160	210	133	70 - 130 *
M8PFOA (S)	ng/L	160	120	75	70 - 130
M8PFOS (S)	ng/L	160	160	102	70 - 130
M8PFOSA (S)	ng/L	160	170	105	70 - 130
M9PFNA (S)	ng/L	160	160	98	70 - 130

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete			1	09/14/2020 09:37	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete			1	09/10/2020 16:10	RLC
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Friday, September 11, 2020

Joey Barker
Arcadis - Novi
28550 Cabot Drive
Ste 500
Novi, MI 48377

Workorder: 363231
Purchase Order: 30043300.03100
Revision of Report ID: 363231 - 0807201408

Joey Barker,
Paragon Laboratories, Inc. received the samples associated with the workorder listed above for the analyses presented in the following report. The analyses pertain only to the aliquot of sample received.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number below.

Please note that any unused portion of the sample(s) will be discarded 40 days after sample receipt, unless requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact me at 734-469-5625.

Sincerely,

Margaret Snyder
Account Coordinator

SAMPLE SUMMARY

Lab ID	Sample ID	Sample Description	Matrix	Date Collected	Date Received	Collector
3632310001	SB-04-29 (3-3.5)	07272020	S	07/27/2020 10:50	07/28/2020 16:55	KH
3632310002	SB-04-29 (4.5-5)	07272020	S	07/27/2020 10:55	07/28/2020 16:55	KH
3632310003	SB-04-29 (8-8.5)	07272020	S	07/27/2020 11:15	07/28/2020 16:55	KH
3632310004	SB-04-29 (12-12.5)	07272020	S	07/27/2020 11:20	07/28/2020 16:55	KH
3632310005	SB-04-29 (16.5-17)	07272020	S	07/27/2020 12:02	07/28/2020 16:55	KH
3632310006	SB-04-29 (18.5-19)	07272020	S	07/27/2020 12:07	07/28/2020 16:55	KH
3632310007	SB-04-29 (22-22.5)	07272020	S	07/27/2020 13:10	07/28/2020 16:55	KH
3632310008	SB-04-29 (24.5-25)	07272020	S	07/27/2020 13:15	07/28/2020 16:55	KH
3632310009	SB-04-30 (0.5-1)	07272020	S	07/27/2020 14:20	07/28/2020 16:55	KH
3632310010	SB-04-30 (3.5-4)	07272020	S	07/27/2020 14:35	07/28/2020 16:55	KH
3632310011	SB-04-30 (8-8.5)	07272020	S	07/27/2020 15:10	07/28/2020 16:55	KH
3632310012	SB-04-30 (12.5-13)	07272020	S	07/27/2020 15:12	07/28/2020 16:55	KH
3632310013	SB-04-30 (16.5-17)	07272020	S	07/27/2020 15:23	07/28/2020 16:55	KH
3632310014	SB-04-30 (18.5-19)	07272020	S	07/27/2020 15:25	07/28/2020 16:55	KH
3632310015	SB-04-30 (22-22.5)	07272020	S	07/27/2020 15:28	07/28/2020 16:55	KH
3632310016	SB-04-30 (24.5-25)	07272020	S	07/27/2020 15:30	07/28/2020 16:55	KH
3632310017	SB-04-31 (1-1.5)	07282020	S	07/28/2020 11:20	07/28/2020 16:55	KH
3632310018	SB-04-31 (4-4.5)	07282020	S	07/28/2020 11:22	07/28/2020 16:55	KH
3632310019	SB-04-31 (5.5-6)	07282020	S	07/28/2020 11:40	07/28/2020 16:55	KH
3632310020	SB-04-31 (10-10.5)	07282020	S	07/28/2020 11:50	07/28/2020 16:55	KH
3632310021	SB-04-31 (12.5-13)	07282020	S	07/28/2020 12:00	07/28/2020 16:55	KH
3632310022	SB-04-31 (16.5-17)	07282020	S	07/28/2020 12:05	07/28/2020 16:55	KH
3632310023	SB-04-31 (18-18.5)	07282020	S	07/28/2020 12:08	07/28/2020 16:55	KH
3632310024	SB-04-31 (22-22.5)	07282020	S	07/28/2020 12:15	07/28/2020 16:55	KH
3632310025	SB-04-31 (24.5-25)	07282020	S	07/28/2020 12:17	07/28/2020 16:55	KH
3632310026	SB-04-32 (2-2.5)	07282020	S	07/28/2020 14:25	07/28/2020 16:55	KH
3632310027	SB-04-32 (5-5.5)	07282020	S	07/28/2020 14:45	07/28/2020 16:55	KH
3632310028	SB-04-32 (8-8.5)	07282020	S	07/28/2020 15:00	07/28/2020 16:55	KH
3632310029	SB-04-32 (11.5-12)	07282020	S	07/28/2020 15:03	07/28/2020 16:55	KH
3632310030	SB-04-61 (2-2.5)	072820	S	07/28/2020 09:30	07/28/2020 16:55	MO/SJ
3632310031	SB-04-61 (4-4.5)	072820	S	07/28/2020 09:32	07/28/2020 16:55	MO/SJ
3632310032	SB-04-61 (8-8.5)	072820	S	07/28/2020 09:34	07/28/2020 16:55	MO/SJ
3632310033	SB-04-61 (18.5-19)	072820	S	07/28/2020 09:36	07/28/2020 16:55	MO/SJ
3632310034	SB-04-61 (22-22.5)	072820	S	07/28/2020 09:38	07/28/2020 16:55	MO/SJ
3632310035	SB-04-61 (24.5-25)	072820	S	07/28/2020 09:40	07/28/2020 16:55	MO/SJ
3632310036	SB-04-33 (1-1.5)	072820	S	07/28/2020 11:00	07/28/2020 16:55	MO/SJ
3632310037	SB-04-33 (4-4.5)	072820	S	07/28/2020 11:05	07/28/2020 16:55	MO/SJ
3632310038	SB-04-33 (8-8.5)	072820	S	07/28/2020 11:10	07/28/2020 16:55	MO/SJ
3632310039	SB-04-33 (12.5-13)	072820	S	07/28/2020 11:15	07/28/2020 16:55	MO/SJ
3632310040	SB-04-33 (16.5-17)	072820	S	07/28/2020 11:25	07/28/2020 16:55	MO/SJ
3632310041	SB-04-33 (18.5-19)	072820	S	07/28/2020 11:30	07/28/2020 16:55	MO/SJ
3632310042	SB-04-33 (24.5-25)	072820	S	07/28/2020 11:35	07/28/2020 16:55	MO/SJ
3632310043	SB-04-34 (1.5-2.5)	072820	S	07/28/2020 14:05	07/28/2020 16:55	MO/SJ
3632310044	SB-04-34 (9.5-10)	072820	S	07/28/2020 14:10	07/28/2020 16:55	MO/SJ
3632310045	SB-04-34 (24.5-25)	072820	S	07/28/2020 14:15	07/28/2020 16:55	MO/SJ

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WORKORDER SUMMARY

Accreditations

Paragon Laboratories, Inc. is certified by the Michigan Department of Environment, Great Lakes, and Energy to analyze Drinking Water. (EGLE Lab No. 9901 Expires 2/25/2023)

Workorder Narrative

General Comment:

Report revised to correct sample ID of 3632310006.

Surrogate Results Narrative

3632310014 - SB-04-30 (18.5-19) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310014 - SB-04-30 (18.5-19) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310014 - SB-04-30 (18.5-19) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310014 - SB-04-30 (18.5-19) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310015 - SB-04-30 (22-22.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310015 - SB-04-30 (22-22.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310015 - SB-04-30 (22-22.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310015 - SB-04-30 (22-22.5) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310015 - SB-04-30 (22-22.5) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310016 - SB-04-30 (24.5-25) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310016 - SB-04-30 (24.5-25) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310016 - SB-04-30 (24.5-25) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310017 - SB-04-31 (1-1.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310017 - SB-04-31 (1-1.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310017 - SB-04-31 (1-1.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310017 - SB-04-31 (1-1.5) - M7PFUnDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310017 - SB-04-31 (1-1.5) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310017 - SB-04-31 (1-1.5) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310018 - SB-04-31 (4-4.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310018 - SB-04-31 (4-4.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310018 - SB-04-31 (4-4.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310018 - SB-04-31 (4-4.5) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310019 - SB-04-31 (5.5-6) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310019 - SB-04-31 (5.5-6) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310019 - SB-04-31 (5.5-6) - M3PFBS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310019 - SB-04-31 (5.5-6) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310020 - SB-04-31 (10-10.5) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310020 - SB-04-31 (10-10.5) - M8PFOSA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310020 - SB-04-31 (10-10.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

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WORKORDER SUMMARY

Surrogate Results Narrative

3632310020 - SB-04-31 (10-10.5) - M3PFBS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310030 - SB-04-61 (2-2.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310030 - SB-04-61 (2-2.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310030 - SB-04-61 (2-2.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310030 - SB-04-61 (2-2.5) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310031 - SB-04-61 (4-4.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310031 - SB-04-61 (4-4.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310031 - SB-04-61 (4-4.5) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310032 - SB-04-61 (8-8.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310032 - SB-04-61 (8-8.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310032 - SB-04-61 (8-8.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310032 - SB-04-61 (8-8.5) - M2PFDoDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310032 - SB-04-61 (8-8.5) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310033 - SB-04-61 (18.5-19) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310033 - SB-04-61 (18.5-19) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310033 - SB-04-61 (18.5-19) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310033 - SB-04-61 (18.5-19) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310034 - SB-04-61 (22-22.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310034 - SB-04-61 (22-22.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310035 - SB-04-61 (24.5-25) - M3PFBS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310035 - SB-04-61 (24.5-25) - M5PFPeA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310035 - SB-04-61 (24.5-25) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310035 - SB-04-61 (24.5-25) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310035 - SB-04-61 (24.5-25) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310036 - SB-04-33 (1-1.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310036 - SB-04-33 (1-1.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310036 - SB-04-33 (1-1.5) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310037 - SB-04-33 (4-4.5) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310037 - SB-04-33 (4-4.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310037 - SB-04-33 (4-4.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310037 - SB-04-33 (4-4.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310038 - SB-04-33 (8-8.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310038 - SB-04-33 (8-8.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310039 - SB-04-33 (12.5-13) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310039 - SB-04-33 (12.5-13) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310039 - SB-04-33 (12.5-13) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

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WORKORDER SUMMARY

Surrogate Results Narrative

3632310039 - SB-04-33 (12.5-13) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310040 - SB-04-33 (16.5-17) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310040 - SB-04-33 (16.5-17) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310040 - SB-04-33 (16.5-17) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310040 - SB-04-33 (16.5-17) - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310040 - SB-04-33 (16.5-17) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310041 - SB-04-33 (18.5-19) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310041 - SB-04-33 (18.5-19) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310041 - SB-04-33 (18.5-19) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310041 - SB-04-33 (18.5-19) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310042 - SB-04-33 (24.5-25) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310042 - SB-04-33 (24.5-25) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310042 - SB-04-33 (24.5-25) - M3PFBS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310043 - SB-04-34 (1.5-2.5) - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310043 - SB-04-34 (1.5-2.5) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310044 - SB-04-34 (9.5-10) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310044 - SB-04-34 (9.5-10) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310044 - SB-04-34 (9.5-10) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310044 - SB-04-34 (9.5-10) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310045 - SB-04-34 (24.5-25) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310045 - SB-04-34 (24.5-25) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310045 - SB-04-34 (24.5-25) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310045 - SB-04-34 (24.5-25) - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310021 - SB-04-31 (12.5-13) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310021 - SB-04-31 (12.5-13) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310022 - SB-04-31 (16.5-17) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310022 - SB-04-31 (16.5-17) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310022 - SB-04-31 (16.5-17) - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310023 - SB-04-31 (18-18.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310023 - SB-04-31 (18-18.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

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WORKORDER SUMMARY

Surrogate Results Narrative

3632310023 - SB-04-31 (18-18.5) - M3PFHxS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310024 - SB-04-31 (22-22.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310024 - SB-04-31 (22-22.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310024 - SB-04-31 (22-22.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310025 - SB-04-31 (24.5-25) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310025 - SB-04-31 (24.5-25) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310025 - SB-04-31 (24.5-25) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310025 - SB-04-31 (24.5-25) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310026 - SB-04-32 (2-2.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310026 - SB-04-32 (2-2.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310026 - SB-04-32 (2-2.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310026 - SB-04-32 (2-2.5) - M8PFOS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310026 - SB-04-32 (2-2.5) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310026 - SB-04-32 (2-2.5) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310027 - SB-04-32 (5-5.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310027 - SB-04-32 (5-5.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310027 - SB-04-32 (5-5.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310027 - SB-04-32 (5-5.5) - M3PFHxS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310027 - SB-04-32 (5-5.5) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310027 - SB-04-32 (5-5.5) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310028 - SB-04-32 (8-8.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310028 - SB-04-32 (8-8.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310028 - SB-04-32 (8-8.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310028 - SB-04-32 (8-8.5) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310028 - SB-04-32 (8-8.5) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310029 - SB-04-32 (11.5-12) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310029 - SB-04-32 (11.5-12) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310029 - SB-04-32 (11.5-12) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310029 - SB-04-32 (11.5-12) - M2PFTeDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310029 - SB-04-32 (11.5-12) - M8PFOS
Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310001 - SB-04-29 (3-3.5) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310001 - SB-04-29 (3-3.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310001 - SB-04-29 (3-3.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310001 - SB-04-29 (3-3.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310001 - SB-04-29 (3-3.5) - M8PFOS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310002 - SB-04-29 (4.5-5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

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WORKORDER SUMMARY

Surrogate Results Narrative

3632310002 - SB-04-29 (4.5-5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310002 - SB-04-29 (4.5-5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310002 - SB-04-29 (4.5-5) - M8PFOS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310002 - SB-04-29 (4.5-5) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310002 - SB-04-29 (4.5-5) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - M6PFDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - M8PFOS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310003 - SB-04-29 (8-8.5) - M2PFTeDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - M2PFDoDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - M2PFTeDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - M6PFDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310004 - SB-04-29 (12-12.5) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310005 - SB-04-29 (16.5-17) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310005 - SB-04-29 (16.5-17) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310005 - SB-04-29 (16.5-17) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310005 - SB-04-29 (16.5-17) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310006 - SB-04-29 (18.5-19) - M7PFUnDA
Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310006 - SB-04-29 (18.5-19) - M8PFOSA
Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3632310006 - SB-04-29 (18.5-19) - d3-NMeFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310006 - SB-04-29 (18.5-19) - d5-NEtFOSAA
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310006 - SB-04-29 (18.5-19) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310006 - SB-04-29 (18.5-19) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310006 - SB-04-29 (18.5-19) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310007 - SB-04-29 (22-22.5) - M8PFOS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310007 - SB-04-29 (22-22.5) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310007 - SB-04-29 (22-22.5) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310008 - SB-04-29 (24.5-25) - M2-4:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310008 - SB-04-29 (24.5-25) - M2-6:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310008 - SB-04-29 (24.5-25) - M2-8:2 FTS
Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

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WORKORDER SUMMARY

Surrogate Results Narrative

3632310008 - SB-04-29 (24.5-25) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - 13C-HFPO-DA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310009 - SB-04-30 (0.5-1) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310010 - SB-04-30 (3.5-4) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310010 - SB-04-30 (3.5-4) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310010 - SB-04-30 (3.5-4) - M2PFTeDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310010 - SB-04-30 (3.5-4) - d3-NMeFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310010 - SB-04-30 (3.5-4) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310011 - SB-04-30 (8-8.5) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310011 - SB-04-30 (8-8.5) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310011 - SB-04-30 (8-8.5) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310011 - SB-04-30 (8-8.5) - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310012 - SB-04-30 (12.5-13) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310012 - SB-04-30 (12.5-13) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310012 - SB-04-30 (12.5-13) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310012 - SB-04-30 (12.5-13) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310013 - SB-04-30 (16.5-17) - d5-NEtFOSAA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310013 - SB-04-30 (16.5-17) - M2-4:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310013 - SB-04-30 (16.5-17) - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310013 - SB-04-30 (16.5-17) - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3632310013 - SB-04-30 (16.5-17) - M5PFPeA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

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ANALYTICAL RESULTS

Lab ID: 3632310001 **Date Collected:** 07/27/2020 10:50 **Matrix:** Soil
Sample ID: SB-04-29 (3-3.5) **Date Received:** 07/28/2020 16:55 **Collector:** KH
Description: 07272020

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	88		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/30/2020 18:55	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/30/2020 18:55	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/30/2020 18:55	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/30/2020 18:55	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/30/2020 18:55	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/30/2020 18:55	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/30/2020 18:55	JKP
NEtFOSAA	1200		ng/Kg-dry	100	57	1			07/30/2020 18:55	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/30/2020 18:55	JKP
PFBA	35		ng/Kg-dry	25	20	1			07/30/2020 18:55	JKP
PFBS	35		ng/Kg-dry	10	9.2	1			07/30/2020 18:55	JKP
PFDA	4000		ng/Kg-dry	300	14	1			07/30/2020 18:55	JKP
PFDS	36000		ng/Kg-dry	3000	15	1			07/30/2020 18:55	JKP
PFD _o DA	590		ng/Kg-dry	20	17	1			07/30/2020 18:55	JKP
PFHpA	190		ng/Kg-dry	20	16	1			07/30/2020 18:55	JKP
PFHpS	1200		ng/Kg-dry	300	12	1			07/30/2020 18:55	JKP
PFHxA	270		ng/Kg-dry	10	7.5	1			07/30/2020 18:55	JKP
PFHxS	2500		ng/Kg-dry	200	5.8	1			07/30/2020 18:55	JKP
PFNA	740		ng/Kg-dry	10	5.2	1			07/30/2020 18:55	JKP
PFNS	770		ng/Kg-dry	30	29	1			07/30/2020 18:55	JKP
PFOA	690		ng/Kg-dry	10	9.3	1			07/30/2020 18:55	JKP
PFOS	97000		ng/Kg-dry	20000	20	1			07/30/2020 18:55	JKP
PFOSA	130		ng/Kg-dry	15	10	1			07/30/2020 18:55	JKP
PFPeA	450		ng/Kg-dry	15	12	1			07/30/2020 18:55	JKP
PFPeS	26		ng/Kg-dry	15	15	1			07/30/2020 18:55	JKP
PFTeDA	99		ng/Kg-dry	25	23	1			07/30/2020 18:55	JKP
PFTTrDA	77		ng/Kg-dry	20	10	1			07/30/2020 18:55	JKP
PFUnDA	800		ng/Kg-dry	10	8.7	1			07/30/2020 18:55	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9100	9800	108	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	910	1300	140	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	910	810	89	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	910	1400	153	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	910	2500	281	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	910	1900	207	70 - 130	*
M2PFD _o DA (S)	ng/Kg-dry	910	800	89	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	910	760	84	70 - 130	
M3PFBS (S)	ng/Kg-dry	910	790	87	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	910	660	73	70 - 130
M4PFBA (S)	ng/Kg-dry	910	770	85	70 - 130
M4PFHpA (S)	ng/Kg-dry	910	1000	114	70 - 130
M5PFHxA (S)	ng/Kg-dry	910	730	80	70 - 130
M5PFPeA (S)	ng/Kg-dry	910	850	94	70 - 130
M6PFDA (S)	ng/Kg-dry	910	1100	126	70 - 130
M7PFUnDA (S)	ng/Kg-dry	910	1100	119	70 - 130
M8PFOA (S)	ng/Kg-dry	910	750	83	70 - 130
M8PFOS (S)	ng/Kg-dry	910	250	27	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	910	790	87	70 - 130
M9PFNA (S)	ng/Kg-dry	910	910	100	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0014	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310002
 Sample ID: SB-04-29 (4.5-5)
 Description: 07272020

Date Collected: 07/27/2020 10:55
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	90		% m/m	0.10		1			07/29/2020 15:23	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/30/2020 19:57	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/30/2020 19:57	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/30/2020 19:57	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/30/2020 19:57	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/30/2020 19:57	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/30/2020 19:57	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/30/2020 19:57	JKP
NEtFOSAA	4600		ng/Kg-dry	100	57	1			07/30/2020 19:57	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/30/2020 19:57	JKP
PFBA	57		ng/Kg-dry	25	20	1			07/30/2020 19:57	JKP
PFBS	97		ng/Kg-dry	10	9.2	1			07/30/2020 19:57	JKP
PFDA	1200		ng/Kg-dry	15	14	1			07/30/2020 19:57	JKP
PFDS	16000		ng/Kg-dry	3000	15	1			07/30/2020 19:57	JKP
PFDoDA	270		ng/Kg-dry	20	17	1			07/30/2020 19:57	JKP
PFHpA	260		ng/Kg-dry	20	16	1			07/30/2020 19:57	JKP
PFHpS	830		ng/Kg-dry	15	12	1			07/30/2020 19:57	JKP
PFHxA	190		ng/Kg-dry	10	7.5	1			07/30/2020 19:57	JKP
PFHxS	2100		ng/Kg-dry	200	5.8	1			07/30/2020 19:57	JKP
PFNA	440		ng/Kg-dry	10	5.2	1			07/30/2020 19:57	JKP
PFNS	270		ng/Kg-dry	30	29	1			07/30/2020 19:57	JKP
PFOA	730		ng/Kg-dry	10	9.3	1			07/30/2020 19:57	JKP
PFOS	67000		ng/Kg-dry	4000	20	1			07/30/2020 19:57	JKP
PFOSA	260		ng/Kg-dry	15	10	1			07/30/2020 19:57	JKP
PFPeA	330		ng/Kg-dry	15	12	1			07/30/2020 19:57	JKP
PFPeS	23		ng/Kg-dry	15	15	1			07/30/2020 19:57	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/30/2020 19:57	JKP
PFTrDA	25		ng/Kg-dry	20	10	1			07/30/2020 19:57	JKP
PFUnDA	250		ng/Kg-dry	10	8.7	1			07/30/2020 19:57	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8900	7800	87	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	890	1400	160	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	890	1300	149	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	890	3300	370	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	890	2700	308	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	890	1800	199	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	890	830	93	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	890	670	75	70 - 130	
M3PFBS (S)	ng/Kg-dry	890	780	87	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	890	790	89	70 - 130
M4PFBA (S)	ng/Kg-dry	890	830	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	890	910	102	70 - 130
M5PFHxA (S)	ng/Kg-dry	890	920	103	70 - 130
M5PFPeA (S)	ng/Kg-dry	890	740	83	70 - 130
M6PFDA (S)	ng/Kg-dry	890	1100	127	70 - 130
M7PFUnDA (S)	ng/Kg-dry	890	1000	115	70 - 130
M8PFOA (S)	ng/Kg-dry	890	1000	117	70 - 130
M8PFOS (S)	ng/Kg-dry	890	590	66	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	890	700	78	70 - 130
M9PFNA (S)	ng/Kg-dry	890	940	106	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0012	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310003
 Sample ID: SB-04-29 (8-8.5)
 Description: 07272020

Date Collected: 07/27/2020 11:15
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	85		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/30/2020 20:59	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/30/2020 20:59	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/30/2020 20:59	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/30/2020 20:59	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/30/2020 20:59	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/30/2020 20:59	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/30/2020 20:59	JKP
NEtFOSAA	1500		ng/Kg-dry	100	57	1			07/30/2020 20:59	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/30/2020 20:59	JKP
PFBA	45		ng/Kg-dry	25	20	1			07/30/2020 20:59	JKP
PFBS	81		ng/Kg-dry	10	9.2	1			07/30/2020 20:59	JKP
PFDA	550		ng/Kg-dry	15	14	1			07/30/2020 20:59	JKP
PFDS	8800		ng/Kg-dry	300	15	1			07/30/2020 20:59	JKP
PFDoDA	120		ng/Kg-dry	20	17	1			07/30/2020 20:59	JKP
PFHpA	150		ng/Kg-dry	20	16	1			07/30/2020 20:59	JKP
PFHpS	490		ng/Kg-dry	15	12	1			07/30/2020 20:59	JKP
PFHxA	210		ng/Kg-dry	10	7.5	1			07/30/2020 20:59	JKP
PFHxS	1200		ng/Kg-dry	200	5.8	1			07/30/2020 20:59	JKP
PFNA	190		ng/Kg-dry	10	5.2	1			07/30/2020 20:59	JKP
PFNS	150		ng/Kg-dry	30	29	1			07/30/2020 20:59	JKP
PFOA	340		ng/Kg-dry	10	9.3	1			07/30/2020 20:59	JKP
PFOS	35000		ng/Kg-dry	4000	20	1			07/30/2020 20:59	JKP
PFOSA	190		ng/Kg-dry	15	10	1			07/30/2020 20:59	JKP
PFPeA	120		ng/Kg-dry	15	12	1			07/30/2020 20:59	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/30/2020 20:59	JKP
PFTeDA	49		ng/Kg-dry	25	23	1			07/30/2020 20:59	JKP
PFTTrDA	30		ng/Kg-dry	20	10	1			07/30/2020 20:59	JKP
PFUnDA	140		ng/Kg-dry	10	8.7	1			07/30/2020 20:59	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9400	9000	95	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	940	1700	180	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	940	1200	126	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	940	1700	182	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	940	2300	245	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	940	1700	180	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	940	990	105	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	940	600	64	70 - 130	*
M3PFBS (S)	ng/Kg-dry	940	810	86	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	940	750	80	70 - 130	
M4PFBA (S)	ng/Kg-dry	940	840	89	70 - 130	
M4PFHpA (S)	ng/Kg-dry	940	930	99	70 - 130	
M5PFHxA (S)	ng/Kg-dry	940	830	89	70 - 130	
M5PFPeA (S)	ng/Kg-dry	940	820	87	70 - 130	
M6PFDA (S)	ng/Kg-dry	940	1300	134	70 - 130	*
M7PFUnDA (S)	ng/Kg-dry	940	1200	130	70 - 130	
M8PFOA (S)	ng/Kg-dry	940	1000	107	70 - 130	
M8PFOS (S)	ng/Kg-dry	940	520	56	70 - 130	*
M8PFOSA (S)	ng/Kg-dry	940	850	91	70 - 130	
M9PFNA (S)	ng/Kg-dry	940	870	92	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0031	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310004
 Sample ID: SB-04-29 (12-12.5)
 Description: 07272020

Date Collected: 07/27/2020 11:20
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	93		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/30/2020 22:02	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/30/2020 22:02	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/30/2020 22:02	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/30/2020 22:02	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/30/2020 22:02	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/30/2020 22:02	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/30/2020 22:02	JKP
NEtFOSAA	1100		ng/Kg-dry	100	57	1			07/30/2020 22:02	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/30/2020 22:02	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/30/2020 22:02	JKP
PFBS	79		ng/Kg-dry	10	9.2	1			07/30/2020 22:02	JKP
PFDA	200		ng/Kg-dry	15	14	1			07/30/2020 22:02	JKP
PFDS	740		ng/Kg-dry	300	15	1			07/30/2020 22:02	JKP
PFDoDA	42		ng/Kg-dry	20	17	1			07/30/2020 22:02	JKP
PFHpA	35		ng/Kg-dry	20	16	1			07/30/2020 22:02	JKP
PFHpS	160		ng/Kg-dry	15	12	1			07/30/2020 22:02	JKP
PFHxA	30		ng/Kg-dry	10	7.5	1			07/30/2020 22:02	JKP
PFHxS	570		ng/Kg-dry	10	5.8	1			07/30/2020 22:02	JKP
PFNA	150		ng/Kg-dry	10	5.2	1			07/30/2020 22:02	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/30/2020 22:02	JKP
PFOA	180		ng/Kg-dry	10	9.3	1			07/30/2020 22:02	JKP
PFOS	9500		ng/Kg-dry	400	20	1			07/30/2020 22:02	JKP
PFOSA	50		ng/Kg-dry	15	10	1			07/30/2020 22:02	JKP
PFPeA	68		ng/Kg-dry	15	12	1			07/30/2020 22:02	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/30/2020 22:02	JKP
PFTeDA	800000		ng/Kg-dry	25	23	1			07/30/2020 22:02	JKP
PFTTrDA	<20		ng/Kg-dry	20	10	1			07/30/2020 22:02	JKP
PFUnDA	50		ng/Kg-dry	10	8.7	1			07/30/2020 22:02	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	9700	113	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	1100	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	860	1200	134	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	860	2000	234	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	860	2700	312	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	1400	165	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	860	580	67	70 - 130	*
M2PFTeDA (S)	ng/Kg-dry	860	260	30	70 - 130	*
M3PFBS (S)	ng/Kg-dry	860	780	91	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	640	74	70 - 130
M4PFBA (S)	ng/Kg-dry	860	830	97	70 - 130
M4PFHpA (S)	ng/Kg-dry	860	980	114	70 - 130
M5PFHxA (S)	ng/Kg-dry	860	880	103	70 - 130
M5PFPeA (S)	ng/Kg-dry	860	750	87	70 - 130
M6PFDA (S)	ng/Kg-dry	860	1300	146	70 - 130
M7PFUnDA (S)	ng/Kg-dry	860	1000	116	70 - 130
M8PFOA (S)	ng/Kg-dry	860	820	95	70 - 130
M8PFOS (S)	ng/Kg-dry	860	650	76	70 - 130
M8PFOSA (S)	ng/Kg-dry	860	880	102	70 - 130
M9PFNA (S)	ng/Kg-dry	860	790	92	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0031	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310005
 Sample ID: SB-04-29 (16.5-17)
 Description: 07272020

Date Collected: 07/27/2020 12:02
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	87		% m/m	0.10		1			07/29/2020 15:23	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/30/2020 23:04	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/30/2020 23:04	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/30/2020 23:04	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/30/2020 23:04	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/30/2020 23:04	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/30/2020 23:04	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/30/2020 23:04	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/30/2020 23:04	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/30/2020 23:04	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/30/2020 23:04	JKP
PFBS	<10		ng/Kg-dry	10	9.2	1			07/30/2020 23:04	JKP
PFDA	18		ng/Kg-dry	15	14	1			07/30/2020 23:04	JKP
PFDS	53		ng/Kg-dry	15	15	1			07/30/2020 23:04	JKP
PFDoDA	21		ng/Kg-dry	20	17	1			07/30/2020 23:04	JKP
PFHpA	20		ng/Kg-dry	20	16	1			07/30/2020 23:04	JKP
PFHpS	47		ng/Kg-dry	15	12	1			07/30/2020 23:04	JKP
PFHxA	36		ng/Kg-dry	10	7.5	1			07/30/2020 23:04	JKP
PFHxS	2000		ng/Kg-dry	200	5.8	1			07/30/2020 23:04	JKP
PFNA	39		ng/Kg-dry	10	5.2	1			07/30/2020 23:04	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/30/2020 23:04	JKP
PFOA	79		ng/Kg-dry	10	9.3	1			07/30/2020 23:04	JKP
PFOS	630		ng/Kg-dry	20	20	1			07/30/2020 23:04	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/30/2020 23:04	JKP
PFPeA	69		ng/Kg-dry	15	12	1			07/30/2020 23:04	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/30/2020 23:04	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/30/2020 23:04	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/30/2020 23:04	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/30/2020 23:04	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9200	9700	105	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	920	1100	120	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	920	1300	144	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	920	2100	225	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	920	2200	241	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	920	1300	145	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	920	1100	123	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	920	710	76	70 - 130	
M3PFBS (S)	ng/Kg-dry	920	780	84	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	920	780	84	70 - 130
M4PFBA (S)	ng/Kg-dry	920	870	94	70 - 130
M4PFHpA (S)	ng/Kg-dry	920	1100	116	70 - 130
M5PFHxA (S)	ng/Kg-dry	920	1100	115	70 - 130
M5PFPeA (S)	ng/Kg-dry	920	820	89	70 - 130
M6PFDA (S)	ng/Kg-dry	920	1200	125	70 - 130
M7PFUnDA (S)	ng/Kg-dry	920	1000	112	70 - 130
M8PFOA (S)	ng/Kg-dry	920	1000	108	70 - 130
M8PFOS (S)	ng/Kg-dry	920	710	77	70 - 130
M8PFOSA (S)	ng/Kg-dry	920	1200	130	70 - 130
M9PFNA (S)	ng/Kg-dry	920	1100	116	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0075	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310006
 Sample ID: SB-04-29 (18.5-19)
 Description: 07272020

Date Collected: 07/27/2020 12:07
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	93		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 00:06	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 00:06	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 00:06	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 00:06	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 00:06	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 00:06	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 00:06	JKP
NEtFOSAA	190		ng/Kg-dry	100	57	1			07/31/2020 00:06	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 00:06	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 00:06	JKP
PFBS	200		ng/Kg-dry	10	9.2	1			07/31/2020 00:06	JKP
PFDA	24		ng/Kg-dry	15	14	1			07/31/2020 00:06	JKP
PFDS	40		ng/Kg-dry	15	15	1			07/31/2020 00:06	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 00:06	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 00:06	JKP
PFHpS	38		ng/Kg-dry	15	12	1			07/31/2020 00:06	JKP
PFHxA	50		ng/Kg-dry	10	7.5	1			07/31/2020 00:06	JKP
PFHxS	370		ng/Kg-dry	10	5.8	1			07/31/2020 00:06	JKP
PFNA	12		ng/Kg-dry	10	5.2	1			07/31/2020 00:06	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 00:06	JKP
PFOA	110		ng/Kg-dry	10	9.3	1			07/31/2020 00:06	JKP
PFOS	970		ng/Kg-dry	20	20	1			07/31/2020 00:06	JKP
PFOSA	22		ng/Kg-dry	15	10	1			07/31/2020 00:06	JKP
PFPeA	39		ng/Kg-dry	15	12	1			07/31/2020 00:06	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 00:06	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 00:06	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 00:06	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 00:06	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	8100	94	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	1200	140	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	860	1600	185	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	860	1900	221	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	860	3200	372	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	2700	313	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	860	1000	121	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	860	690	80	70 - 130	
M3PFBS (S)	ng/Kg-dry	860	800	93	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	770	89	70 - 130	
M4PFBA (S)	ng/Kg-dry	860	820	94	70 - 130	
M4PFHpA (S)	ng/Kg-dry	860	1000	117	70 - 130	
M5PFHxA (S)	ng/Kg-dry	860	890	103	70 - 130	
M5PFPeA (S)	ng/Kg-dry	860	630	73	70 - 130	
M6PFDA (S)	ng/Kg-dry	860	1100	123	70 - 130	
M7PFUnDA (S)	ng/Kg-dry	860	1200	138	70 - 130	*
M8PFOA (S)	ng/Kg-dry	860	840	97	70 - 130	
M8PFOS (S)	ng/Kg-dry	860	800	93	70 - 130	
M8PFOSA (S)	ng/Kg-dry	860	1200	142	70 - 130	*
M9PFNA (S)	ng/Kg-dry	860	980	114	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0032	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310007
 Sample ID: SB-04-29 (22-22.5)
 Description: 07272020

Date Collected: 07/27/2020 13:10
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	93		% m/m	0.10		1			07/29/2020 15:23	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 01:09	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 01:09	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 01:09	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 01:09	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 01:09	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 01:09	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 01:09	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 01:09	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 01:09	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 01:09	JKP
PFBS	27		ng/Kg-dry	10	9.2	1			07/31/2020 01:09	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 01:09	JKP
PFDS	17		ng/Kg-dry	15	15	1			07/31/2020 01:09	JKP
PFDoDA	33		ng/Kg-dry	20	17	1			07/31/2020 01:09	JKP
PFHpA	22		ng/Kg-dry	20	16	1			07/31/2020 01:09	JKP
PFHpS	44		ng/Kg-dry	15	12	1			07/31/2020 01:09	JKP
PFHxA	39		ng/Kg-dry	10	7.5	1			07/31/2020 01:09	JKP
PFHxS	440		ng/Kg-dry	10	5.8	1			07/31/2020 01:09	JKP
PFNA	22		ng/Kg-dry	10	5.2	1			07/31/2020 01:09	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 01:09	JKP
PFOA	66		ng/Kg-dry	10	9.3	1			07/31/2020 01:09	JKP
PFOS	600		ng/Kg-dry	20	20	1			07/31/2020 01:09	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 01:09	JKP
PFPeA	25		ng/Kg-dry	15	12	1			07/31/2020 01:09	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 01:09	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 01:09	JKP
PFTrDA	25		ng/Kg-dry	20	10	1			07/31/2020 01:09	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 01:09	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	10000	117	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	960	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	860	1100	126	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	860	1400	164	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	860	3000	344	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	970	112	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	860	800	93	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	860	670	77	70 - 130	
M3PFBS (S)	ng/Kg-dry	860	720	83	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	750	87	70 - 130
M4PFBA (S)	ng/Kg-dry	860	730	84	70 - 130
M4PFHpA (S)	ng/Kg-dry	860	670	78	70 - 130
M5PFHxA (S)	ng/Kg-dry	860	730	84	70 - 130
M5PFPeA (S)	ng/Kg-dry	860	630	73	70 - 130
M6PFDA (S)	ng/Kg-dry	860	830	96	70 - 130
M7PFUnDA (S)	ng/Kg-dry	860	840	98	70 - 130
M8PFOA (S)	ng/Kg-dry	860	920	107	70 - 130
M8PFOS (S)	ng/Kg-dry	860	560	64	70 - 130
M8PFOSA (S)	ng/Kg-dry	860	770	89	70 - 130
M9PFNA (S)	ng/Kg-dry	860	930	107	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0066	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310008
 Sample ID: SB-04-29 (24.5-25)
 Description: 07272020

Date Collected: 07/27/2020 13:15
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	91		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 02:11	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 02:11	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 02:11	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 02:11	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 02:11	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 02:11	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 02:11	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 02:11	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 02:11	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 02:11	JKP
PFBS	<10		ng/Kg-dry	10	9.2	1			07/31/2020 02:11	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 02:11	JKP
PFDS	18		ng/Kg-dry	15	15	1			07/31/2020 02:11	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 02:11	JKP
PFHpA	24		ng/Kg-dry	20	16	1			07/31/2020 02:11	JKP
PFHpS	60		ng/Kg-dry	15	12	1			07/31/2020 02:11	JKP
PFHxA	46		ng/Kg-dry	10	7.5	1			07/31/2020 02:11	JKP
PFHxS	350		ng/Kg-dry	10	5.8	1			07/31/2020 02:11	JKP
PFNA	24		ng/Kg-dry	10	5.2	1			07/31/2020 02:11	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 02:11	JKP
PFOA	50		ng/Kg-dry	10	9.3	1			07/31/2020 02:11	JKP
PFOS	810		ng/Kg-dry	400	20	1			07/31/2020 02:11	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 02:11	JKP
PFPeA	30		ng/Kg-dry	15	12	1			07/31/2020 02:11	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 02:11	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 02:11	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 02:11	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 02:11	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8800	9400	107	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	880	850	97	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	880	1200	132	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	880	1700	194	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	880	1700	193	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	880	1800	202	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	880	1000	117	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	880	800	91	70 - 130	
M3PFBS (S)	ng/Kg-dry	880	930	106	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	880	890	101	70 - 130
M4PFBA (S)	ng/Kg-dry	880	820	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	880	980	112	70 - 130
M5PFHxA (S)	ng/Kg-dry	880	910	103	70 - 130
M5PFPeA (S)	ng/Kg-dry	880	890	102	70 - 130
M6PFDA (S)	ng/Kg-dry	880	1100	128	70 - 130
M7PFUnDA (S)	ng/Kg-dry	880	1100	130	70 - 130
M8PFOA (S)	ng/Kg-dry	880	920	105	70 - 130
M8PFOS (S)	ng/Kg-dry	880	730	83	70 - 130
M8PFOSA (S)	ng/Kg-dry	880	890	101	70 - 130
M9PFNA (S)	ng/Kg-dry	880	1000	113	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0035	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310009
 Sample ID: SB-04-30 (0.5-1)
 Description: 07272020

Date Collected: 07/27/2020 14:20
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	96		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 03:13	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 03:13	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 03:13	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 03:13	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 03:13	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 03:13	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 03:13	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 03:13	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 03:13	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 03:13	JKP
PFBS	65		ng/Kg-dry	10	9.2	1			07/31/2020 03:13	JKP
PFDA	180		ng/Kg-dry	15	14	1			07/31/2020 03:13	JKP
PFDS	4400		ng/Kg-dry	300	15	1			07/31/2020 03:13	JKP
PFDoDA	490		ng/Kg-dry	20	17	1			07/31/2020 03:13	JKP
PFHpA	26		ng/Kg-dry	20	16	1			07/31/2020 03:13	JKP
PFHpS	50		ng/Kg-dry	15	12	1			07/31/2020 03:13	JKP
PFHxA	150		ng/Kg-dry	10	7.5	1			07/31/2020 03:13	JKP
PFHxS	710		ng/Kg-dry	10	5.8	1			07/31/2020 03:13	JKP
PFNA	41		ng/Kg-dry	10	5.2	1			07/31/2020 03:13	JKP
PFNS	110		ng/Kg-dry	30	29	1			07/31/2020 03:13	JKP
PFOA	99		ng/Kg-dry	10	9.3	1			07/31/2020 03:13	JKP
PFOS	5900		ng/Kg-dry	400	20	1			07/31/2020 03:13	JKP
PFOSA	18		ng/Kg-dry	15	10	1			07/31/2020 03:13	JKP
PFPeA	180		ng/Kg-dry	15	12	1			07/31/2020 03:13	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 03:13	JKP
PFTeDA	170		ng/Kg-dry	25	23	1			07/31/2020 03:13	JKP
PFTrDA	100		ng/Kg-dry	20	10	1			07/31/2020 03:13	JKP
PFUnDA	320		ng/Kg-dry	10	8.7	1			07/31/2020 03:13	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8300	4600	55	70 - 130	*
d3-NMeFOSAA (S)	ng/Kg-dry	830	1300	160	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	830	1700	201	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	830	2100	247	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	830	3900	469	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	830	2300	277	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	830	930	111	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	830	900	109	70 - 130	
M3PFBS (S)	ng/Kg-dry	830	760	91	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	830	700	84	70 - 130
M4PFBA (S)	ng/Kg-dry	830	780	94	70 - 130
M4PFHpA (S)	ng/Kg-dry	830	930	111	70 - 130
M5PFHxA (S)	ng/Kg-dry	830	860	103	70 - 130
M5PFPeA (S)	ng/Kg-dry	830	680	81	70 - 130
M6PFDA (S)	ng/Kg-dry	830	1000	120	70 - 130
M7PFUnDA (S)	ng/Kg-dry	830	1000	126	70 - 130
M8PFOA (S)	ng/Kg-dry	830	910	110	70 - 130
M8PFOS (S)	ng/Kg-dry	830	540	65	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	830	850	102	70 - 130
M9PFNA (S)	ng/Kg-dry	830	830	99	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0013	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310010
 Sample ID: SB-04-30 (3.5-4)
 Description: 07272020

Date Collected: 07/27/2020 14:35
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	96		% m/m	0.10		1			07/29/2020 15:23	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 04:36	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 04:36	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 04:36	JKP
8:2 FTSA	220		ng/Kg-dry	100	50	1			07/31/2020 04:36	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 04:36	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 04:36	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 04:36	JKP
NEtFOSAA	450		ng/Kg-dry	100	57	1			07/31/2020 04:36	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 04:36	JKP
PFBA	120		ng/Kg-dry	25	20	1			07/31/2020 04:36	JKP
PFBS	33		ng/Kg-dry	10	9.2	1			07/31/2020 04:36	JKP
PFDA	99		ng/Kg-dry	15	14	1			07/31/2020 04:36	JKP
PFDS	760		ng/Kg-dry	15	15	1			07/31/2020 04:36	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 04:36	JKP
PFHpA	43		ng/Kg-dry	20	16	1			07/31/2020 04:36	JKP
PFHpS	75		ng/Kg-dry	15	12	1			07/31/2020 04:36	JKP
PFHxA	74		ng/Kg-dry	10	7.5	1			07/31/2020 04:36	JKP
PFHxS	2300		ng/Kg-dry	200	5.8	1			07/31/2020 04:36	JKP
PFNA	79		ng/Kg-dry	10	5.2	1			07/31/2020 04:36	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 04:36	JKP
PFOA	180		ng/Kg-dry	10	9.3	1			07/31/2020 04:36	JKP
PFOS	6300		ng/Kg-dry	400	20	1			07/31/2020 04:36	JKP
PFOSA	240		ng/Kg-dry	15	10	1			07/31/2020 04:36	JKP
PFPeA	160		ng/Kg-dry	15	12	1			07/31/2020 04:36	JKP
PFPeS	29		ng/Kg-dry	15	15	1			07/31/2020 04:36	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 04:36	JKP
PFTrDA	24		ng/Kg-dry	20	10	1			07/31/2020 04:36	JKP
PFUnDA	31		ng/Kg-dry	10	8.7	1			07/31/2020 04:36	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8300	7500	91	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	830	1200	150	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	830	1100	134	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	830	2200	261	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	830	3100	374	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	830	790	95	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	830	620	74	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	830	210	25	70 - 130	*
M3PFBS (S)	ng/Kg-dry	830	880	106	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	830	670	81	70 - 130
M4PFBA (S)	ng/Kg-dry	830	770	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	830	910	110	70 - 130
M5PFHxA (S)	ng/Kg-dry	830	820	99	70 - 130
M5PFPeA (S)	ng/Kg-dry	830	640	78	70 - 130
M6PFDA (S)	ng/Kg-dry	830	870	105	70 - 130
M7PFUnDA (S)	ng/Kg-dry	830	740	89	70 - 130
M8PFOA (S)	ng/Kg-dry	830	910	109	70 - 130
M8PFOS (S)	ng/Kg-dry	830	600	73	70 - 130
M8PFOSA (S)	ng/Kg-dry	830	740	89	70 - 130
M9PFNA (S)	ng/Kg-dry	830	760	92	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0065	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310011
 Sample ID: SB-04-30 (8-8.5)
 Description: 07272020

Date Collected: 07/27/2020 15:10
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	90		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 05:38	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 05:38	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 05:38	JKP
8:2 FTSA	330		ng/Kg-dry	100	50	1			07/31/2020 05:38	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 05:38	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 05:38	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 05:38	JKP
NEtFOSAA	210		ng/Kg-dry	100	57	1			07/31/2020 05:38	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 05:38	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 05:38	JKP
PFBS	56		ng/Kg-dry	10	9.2	1			07/31/2020 05:38	JKP
PFDA	83		ng/Kg-dry	15	14	1			07/31/2020 05:38	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 05:38	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 05:38	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 05:38	JKP
PFHpS	96		ng/Kg-dry	15	12	1			07/31/2020 05:38	JKP
PFHxA	76		ng/Kg-dry	10	7.5	1			07/31/2020 05:38	JKP
PFHxS	510		ng/Kg-dry	10	5.8	1			07/31/2020 05:38	JKP
PFNA	39		ng/Kg-dry	10	5.2	1			07/31/2020 05:38	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 05:38	JKP
PFOA	62		ng/Kg-dry	10	9.3	1			07/31/2020 05:38	JKP
PFOS	45000		ng/Kg-dry	400	20	1			07/31/2020 05:38	JKP
PFOSA	210		ng/Kg-dry	15	10	1			07/31/2020 05:38	JKP
PFPeA	48		ng/Kg-dry	15	12	1			07/31/2020 05:38	JKP
PFPeS	45		ng/Kg-dry	15	15	1			07/31/2020 05:38	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 05:38	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 05:38	JKP
PFUnDA	12		ng/Kg-dry	10	8.7	1			07/31/2020 05:38	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8900	11000	122	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	890	1100	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	890	950	106	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	890	1500	173	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	890	4100	465	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	890	2400	272	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	890	870	97	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	890	950	107	70 - 130	
M3PFBS (S)	ng/Kg-dry	890	800	90	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	890	780	88	70 - 130
M4PFBA (S)	ng/Kg-dry	890	820	92	70 - 130
M4PFHpA (S)	ng/Kg-dry	890	820	93	70 - 130
M5PFHxA (S)	ng/Kg-dry	890	790	89	70 - 130
M5PFPeA (S)	ng/Kg-dry	890	820	92	70 - 130
M6PFDA (S)	ng/Kg-dry	890	1100	122	70 - 130
M7PFUnDA (S)	ng/Kg-dry	890	1100	119	70 - 130
M8PFOA (S)	ng/Kg-dry	890	930	104	70 - 130
M8PFOS (S)	ng/Kg-dry	890	610	69	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	890	850	95	70 - 130
M9PFNA (S)	ng/Kg-dry	890	870	98	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.007	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310012
 Sample ID: SB-04-30 (12.5-13)
 Description: 07272020

Date Collected: 07/27/2020 15:12
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	87		% m/m	0.10		1			07/29/2020 15:42	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 06:41	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 06:41	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 06:41	JKP
8:2 FTSA	120		ng/Kg-dry	100	50	1			07/31/2020 06:41	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 06:41	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 06:41	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 06:41	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 06:41	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 06:41	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 06:41	JKP
PFBS	63		ng/Kg-dry	10	9.2	1			07/31/2020 06:41	JKP
PFDA	30		ng/Kg-dry	15	14	1			07/31/2020 06:41	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 06:41	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 06:41	JKP
PFHpA	33		ng/Kg-dry	20	16	1			07/31/2020 06:41	JKP
PFHpS	150		ng/Kg-dry	15	12	1			07/31/2020 06:41	JKP
PFHxA	220		ng/Kg-dry	10	7.5	1			07/31/2020 06:41	JKP
PFHxS	1400		ng/Kg-dry	200	5.8	1			07/31/2020 06:41	JKP
PFNA	47		ng/Kg-dry	10	5.2	1			07/31/2020 06:41	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 06:41	JKP
PFOA	160		ng/Kg-dry	10	9.3	1			07/31/2020 06:41	JKP
PFOS	52000		ng/Kg-dry	400	20	1			07/31/2020 06:41	JKP
PFOSA	150		ng/Kg-dry	15	10	1			07/31/2020 06:41	JKP
PFPeA	66		ng/Kg-dry	15	12	1			07/31/2020 06:41	JKP
PFPeS	150		ng/Kg-dry	15	15	1			07/31/2020 06:41	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 06:41	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 06:41	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 06:41	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9200	9200	101	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	920	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	920	1200	131	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	920	2300	251	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	920	2100	231	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	920	3000	322	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	920	920	101	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	920	980	107	70 - 130	
M3PFBS (S)	ng/Kg-dry	920	800	87	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	920	940	102	70 - 130
M4PFBA (S)	ng/Kg-dry	920	870	95	70 - 130
M4PFHpA (S)	ng/Kg-dry	920	960	105	70 - 130
M5PFHxA (S)	ng/Kg-dry	920	880	96	70 - 130
M5PFPeA (S)	ng/Kg-dry	920	850	92	70 - 130
M6PFDA (S)	ng/Kg-dry	920	1200	129	70 - 130
M7PFUnDA (S)	ng/Kg-dry	920	1100	122	70 - 130
M8PFOA (S)	ng/Kg-dry	920	910	99	70 - 130
M8PFOS (S)	ng/Kg-dry	920	680	74	70 - 130
M8PFOSA (S)	ng/Kg-dry	920	940	102	70 - 130
M9PFNA (S)	ng/Kg-dry	920	1200	128	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0064	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310013
 Sample ID: SB-04-30 (16.5-17)
 Description: 07272020

Date Collected: 07/27/2020 15:23
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	89		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 07:43	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 07:43	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 07:43	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 07:43	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 07:43	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 07:43	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 07:43	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 07:43	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 07:43	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 07:43	JKP
PFBS	220		ng/Kg-dry	10	9.2	1			07/31/2020 07:43	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 07:43	JKP
PFDS	33		ng/Kg-dry	15	15	1			07/31/2020 07:43	JKP
PFDoDA	41		ng/Kg-dry	20	17	1			07/31/2020 07:43	JKP
PFHpA	100		ng/Kg-dry	20	16	1			07/31/2020 07:43	JKP
PFHpS	21		ng/Kg-dry	15	12	1			07/31/2020 07:43	JKP
PFHxA	140		ng/Kg-dry	10	7.5	1			07/31/2020 07:43	JKP
PFHxS	770		ng/Kg-dry	10	5.8	1			07/31/2020 07:43	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			07/31/2020 07:43	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 07:43	JKP
PFOA	87		ng/Kg-dry	10	9.3	1			07/31/2020 07:43	JKP
PFOS	450		ng/Kg-dry	20	20	1			07/31/2020 07:43	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 07:43	JKP
PFPeA	62		ng/Kg-dry	15	12	1			07/31/2020 07:43	JKP
PFPeS	340		ng/Kg-dry	15	15	1			07/31/2020 07:43	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 07:43	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 07:43	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 07:43	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9000	8100	90	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	900	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	900	1200	133	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	900	1600	179	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	900	1700	187	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	900	2500	275	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	900	790	87	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	900	930	103	70 - 130	
M3PFBS (S)	ng/Kg-dry	900	840	93	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	900	700	78	70 - 130
M4PFBA (S)	ng/Kg-dry	900	780	87	70 - 130
M4PFHpA (S)	ng/Kg-dry	900	710	79	70 - 130
M5PFHxA (S)	ng/Kg-dry	900	840	93	70 - 130
M5PFPeA (S)	ng/Kg-dry	900	620	69	70 - 130
M6PFDA (S)	ng/Kg-dry	900	1100	123	70 - 130
M7PFUnDA (S)	ng/Kg-dry	900	1100	119	70 - 130
M8PFOA (S)	ng/Kg-dry	900	880	97	70 - 130
M8PFOS (S)	ng/Kg-dry	900	660	73	70 - 130
M8PFOSA (S)	ng/Kg-dry	900	820	91	70 - 130
M9PFNA (S)	ng/Kg-dry	900	870	96	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0012	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310014
 Sample ID: SB-04-30 (18.5-19)
 Description: 07272020

Date Collected: 07/27/2020 15:25
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	92		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 08:45	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 08:45	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 08:45	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 08:45	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 08:45	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 08:45	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 08:45	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 08:45	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 08:45	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 08:45	JKP
PFBS	140		ng/Kg-dry	10	9.2	1			07/31/2020 08:45	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 08:45	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 08:45	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 08:45	JKP
PFHpA	46		ng/Kg-dry	20	16	1			07/31/2020 08:45	JKP
PFHpS	88		ng/Kg-dry	15	12	1			07/31/2020 08:45	JKP
PFHxA	120		ng/Kg-dry	10	7.5	1			07/31/2020 08:45	JKP
PFHxS	2000		ng/Kg-dry	200	5.8	1			07/31/2020 08:45	JKP
PFNA	21		ng/Kg-dry	10	5.2	1			07/31/2020 08:45	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 08:45	JKP
PFOA	250		ng/Kg-dry	10	9.3	1			07/31/2020 08:45	JKP
PFOS	730		ng/Kg-dry	20	20	1			07/31/2020 08:45	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 08:45	JKP
PFPeA	23		ng/Kg-dry	15	12	1			07/31/2020 08:45	JKP
PFPeS	170		ng/Kg-dry	15	15	1			07/31/2020 08:45	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 08:45	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 08:45	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 08:45	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8700	9400	107	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	870	1100	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	870	1000	115	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	870	1300	150	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	870	1200	140	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	870	1400	166	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	870	980	112	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	870	780	89	70 - 130	
M3PFBS (S)	ng/Kg-dry	870	930	106	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	870	710	81	70 - 130
M4PFBA (S)	ng/Kg-dry	870	800	92	70 - 130
M4PFHpA (S)	ng/Kg-dry	870	1000	114	70 - 130
M5PFHxA (S)	ng/Kg-dry	870	880	101	70 - 130
M5PFPeA (S)	ng/Kg-dry	870	810	93	70 - 130
M6PFDA (S)	ng/Kg-dry	870	1100	123	70 - 130
M7PFUnDA (S)	ng/Kg-dry	870	1100	126	70 - 130
M8PFOA (S)	ng/Kg-dry	870	820	94	70 - 130
M8PFOS (S)	ng/Kg-dry	870	590	68	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	870	890	101	70 - 130
M9PFNA (S)	ng/Kg-dry	870	820	94	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0074	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310015
 Sample ID: SB-04-30 (22-22.5)
 Description: 07272020

Date Collected: 07/27/2020 15:28
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	90		% m/m	0.10		1			07/29/2020 15:42	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 09:47	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 09:47	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 09:47	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 09:47	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 09:47	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 09:47	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 09:47	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 09:47	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 09:47	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 09:47	JKP
PFBS	130		ng/Kg-dry	10	9.2	1			07/31/2020 09:47	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 09:47	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 09:47	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 09:47	JKP
PFHpA	41		ng/Kg-dry	20	16	1			07/31/2020 09:47	JKP
PFHpS	67		ng/Kg-dry	15	12	1			07/31/2020 09:47	JKP
PFHxA	210		ng/Kg-dry	10	7.5	1			07/31/2020 09:47	JKP
PFHxS	1800		ng/Kg-dry	200	5.8	1			07/31/2020 09:47	JKP
PFNA	33		ng/Kg-dry	10	5.2	1			07/31/2020 09:47	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 09:47	JKP
PFOA	200		ng/Kg-dry	10	9.3	1			07/31/2020 09:47	JKP
PFOS	550		ng/Kg-dry	20	20	1			07/31/2020 09:47	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 09:47	JKP
PFPeA	31		ng/Kg-dry	15	12	1			07/31/2020 09:47	JKP
PFPeS	100		ng/Kg-dry	15	15	1			07/31/2020 09:47	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 09:47	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 09:47	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 09:47	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8900	9300	105	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	890	1000	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	890	1300	148	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	890	2200	251	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	890	2500	280	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	890	1300	143	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	890	870	98	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	890	800	91	70 - 130	
M3PFBS (S)	ng/Kg-dry	890	630	71	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	890	850	96	70 - 130
M4PFBA (S)	ng/Kg-dry	890	840	95	70 - 130
M4PFHpA (S)	ng/Kg-dry	890	940	106	70 - 130
M5PFHxA (S)	ng/Kg-dry	890	830	94	70 - 130
M5PFPeA (S)	ng/Kg-dry	890	670	76	70 - 130
M6PFDA (S)	ng/Kg-dry	890	1100	125	70 - 130
M7PFUnDA (S)	ng/Kg-dry	890	1100	125	70 - 130
M8PFOA (S)	ng/Kg-dry	890	1000	116	70 - 130
M8PFOS (S)	ng/Kg-dry	890	590	67	70 - 130
M8PFOSA (S)	ng/Kg-dry	890	920	104	70 - 130
M9PFNA (S)	ng/Kg-dry	890	960	109	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS 2.0098 grams 1 07/29/2020 15:00 JKP

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310016
 Sample ID: SB-04-30 (24.5-25)
 Description: 07272020

Date Collected: 07/27/2020 15:30
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	87		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 10:50	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 10:50	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 10:50	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 10:50	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 10:50	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 10:50	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 10:50	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 10:50	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 10:50	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 10:50	JKP
PFBS	170		ng/Kg-dry	10	9.2	1			07/31/2020 10:50	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 10:50	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 10:50	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 10:50	JKP
PFHpA	40		ng/Kg-dry	20	16	1			07/31/2020 10:50	JKP
PFHpS	54		ng/Kg-dry	15	12	1			07/31/2020 10:50	JKP
PFHxA	150		ng/Kg-dry	10	7.5	1			07/31/2020 10:50	JKP
PFHxS	680		ng/Kg-dry	10	5.8	1			07/31/2020 10:50	JKP
PFNA	13		ng/Kg-dry	10	5.2	1			07/31/2020 10:50	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 10:50	JKP
PFOA	120		ng/Kg-dry	10	9.3	1			07/31/2020 10:50	JKP
PFOS	1300		ng/Kg-dry	400	20	1			07/31/2020 10:50	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 10:50	JKP
PFPeA	80		ng/Kg-dry	15	12	1			07/31/2020 10:50	JKP
PFPeS	72		ng/Kg-dry	15	15	1			07/31/2020 10:50	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 10:50	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 10:50	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 10:50	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9200	9800	107	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	920	1300	140	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	920	810	89	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	920	2000	220	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	920	2800	301	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	920	1100	119	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	920	830	91	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	920	880	96	70 - 130	
M3PFBS (S)	ng/Kg-dry	920	840	92	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	920	980	107	70 - 130
M4PFBA (S)	ng/Kg-dry	920	850	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	920	1000	110	70 - 130
M5PFHxA (S)	ng/Kg-dry	920	820	90	70 - 130
M5PFPeA (S)	ng/Kg-dry	920	780	85	70 - 130
M6PFDA (S)	ng/Kg-dry	920	1100	120	70 - 130
M7PFUnDA (S)	ng/Kg-dry	920	1000	111	70 - 130
M8PFOA (S)	ng/Kg-dry	920	790	86	70 - 130
M8PFOS (S)	ng/Kg-dry	920	730	80	70 - 130
M8PFOSA (S)	ng/Kg-dry	920	1000	110	70 - 130
M9PFNA (S)	ng/Kg-dry	920	760	83	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.008	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310017
 Sample ID: SB-04-31 (1-1.5)
 Description: 07282020

Date Collected: 07/28/2020 11:20
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	89		% m/m	0.10		1			07/29/2020 15:42	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 11:52	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 11:52	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 11:52	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 11:52	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 11:52	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 11:52	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 11:52	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 11:52	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 11:52	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 11:52	JKP
PFBS	20		ng/Kg-dry	10	9.2	1			07/31/2020 11:52	JKP
PFDA	52		ng/Kg-dry	15	14	1			07/31/2020 11:52	JKP
PFDS	66		ng/Kg-dry	15	15	1			07/31/2020 11:52	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 11:52	JKP
PFHpA	41		ng/Kg-dry	20	16	1			07/31/2020 11:52	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/31/2020 11:52	JKP
PFHxA	78		ng/Kg-dry	10	7.5	1			07/31/2020 11:52	JKP
PFHxS	120		ng/Kg-dry	10	5.8	1			07/31/2020 11:52	JKP
PFNA	21		ng/Kg-dry	10	5.2	1			07/31/2020 11:52	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 11:52	JKP
PFOA	53		ng/Kg-dry	10	9.3	1			07/31/2020 11:52	JKP
PFOS	940		ng/Kg-dry	400	20	1			07/31/2020 11:52	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 11:52	JKP
PFPeA	55		ng/Kg-dry	15	12	1			07/31/2020 11:52	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 11:52	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 11:52	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 11:52	JKP
PFUnDA	13		ng/Kg-dry	10	8.7	1			07/31/2020 11:52	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9000	8400	93	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	900	1300	150	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	900	1400	158	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	900	1700	193	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	900	2400	269	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	900	1800	205	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	900	950	106	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	900	980	109	70 - 130	
M3PFBS (S)	ng/Kg-dry	900	640	71	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	900	910	101	70 - 130
M4PFBA (S)	ng/Kg-dry	900	790	88	70 - 130
M4PFHpA (S)	ng/Kg-dry	900	1000	116	70 - 130
M5PFHxA (S)	ng/Kg-dry	900	780	87	70 - 130
M5PFPeA (S)	ng/Kg-dry	900	790	88	70 - 130
M6PFDA (S)	ng/Kg-dry	900	1100	127	70 - 130
M7PFUnDA (S)	ng/Kg-dry	900	1200	133	70 - 130
M8PFOA (S)	ng/Kg-dry	900	1100	119	70 - 130
M8PFOS (S)	ng/Kg-dry	900	840	93	70 - 130
M8PFOSA (S)	ng/Kg-dry	900	780	87	70 - 130
M9PFNA (S)	ng/Kg-dry	900	1000	111	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS 2.0002 grams 1 07/29/2020 15:00 JKP

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310018
 Sample ID: SB-04-31 (4-4.5)
 Description: 07282020

Date Collected: 07/28/2020 11:22
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	91		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 12:54	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 12:54	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 12:54	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 12:54	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 12:54	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 12:54	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 12:54	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 12:54	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 12:54	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 12:54	JKP
PFBS	41		ng/Kg-dry	10	9.2	1			07/31/2020 12:54	JKP
PFDA	15		ng/Kg-dry	15	14	1			07/31/2020 12:54	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 12:54	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 12:54	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 12:54	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/31/2020 12:54	JKP
PFHxA	29		ng/Kg-dry	10	7.5	1			07/31/2020 12:54	JKP
PFHxS	130		ng/Kg-dry	10	5.8	1			07/31/2020 12:54	JKP
PFNA	23		ng/Kg-dry	10	5.2	1			07/31/2020 12:54	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 12:54	JKP
PFOA	49		ng/Kg-dry	10	9.3	1			07/31/2020 12:54	JKP
PFOS	2600		ng/Kg-dry	400	20	1			07/31/2020 12:54	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 12:54	JKP
PFPeA	<15		ng/Kg-dry	15	12	1			07/31/2020 12:54	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 12:54	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 12:54	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 12:54	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 12:54	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8800	11000	126	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	880	1000	120	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	880	1200	136	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	880	1300	145	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	880	1800	205	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	880	1200	132	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	880	890	101	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	880	1000	115	70 - 130	
M3PFBS (S)	ng/Kg-dry	880	870	99	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	880	900	102	70 - 130
M4PFBA (S)	ng/Kg-dry	880	800	91	70 - 130
M4PFHpA (S)	ng/Kg-dry	880	1100	125	70 - 130
M5PFHxA (S)	ng/Kg-dry	880	950	108	70 - 130
M5PFPeA (S)	ng/Kg-dry	880	800	91	70 - 130
M6PFDA (S)	ng/Kg-dry	880	930	106	70 - 130
M7PFUnDA (S)	ng/Kg-dry	880	1000	115	70 - 130
M8PFOA (S)	ng/Kg-dry	880	890	101	70 - 130
M8PFOS (S)	ng/Kg-dry	880	780	89	70 - 130
M8PFOSA (S)	ng/Kg-dry	880	870	99	70 - 130
M9PFNA (S)	ng/Kg-dry	880	990	113	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS 2.0077 grams 1 07/29/2020 15:00 JKP

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ANALYTICAL RESULTS

Lab ID: 3632310019
 Sample ID: SB-04-31 (5.5-6)
 Description: 07282020

Date Collected: 07/28/2020 11:40
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	86		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 13:56	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 13:56	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 13:56	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 13:56	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 13:56	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 13:56	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 13:56	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 13:56	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 13:56	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 13:56	JKP
PFBS	19		ng/Kg-dry	10	9.2	1			07/31/2020 13:56	JKP
PFDA	48		ng/Kg-dry	15	14	1			07/31/2020 13:56	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 13:56	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 13:56	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 13:56	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/31/2020 13:56	JKP
PFHxA	31		ng/Kg-dry	10	7.5	1			07/31/2020 13:56	JKP
PFHxS	410		ng/Kg-dry	10	5.8	1			07/31/2020 13:56	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			07/31/2020 13:56	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 13:56	JKP
PFOA	42		ng/Kg-dry	10	9.3	1			07/31/2020 13:56	JKP
PFOS	1100		ng/Kg-dry	400	20	1			07/31/2020 13:56	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 13:56	JKP
PFPeA	<15		ng/Kg-dry	15	12	1			07/31/2020 13:56	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 13:56	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 13:56	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 13:56	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 13:56	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9300	11000	116	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	930	1100	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	930	1200	128	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	930	1200	130	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	930	2300	246	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	930	2100	220	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	930	1000	108	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	930	910	98	70 - 130	
M3PFBS (S)	ng/Kg-dry	930	580	62	70 - 130	*

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	930	820	88	70 - 130
M4PFBA (S)	ng/Kg-dry	930	830	89	70 - 130
M4PFHpA (S)	ng/Kg-dry	930	880	94	70 - 130
M5PFHxA (S)	ng/Kg-dry	930	930	99	70 - 130
M5PFPeA (S)	ng/Kg-dry	930	710	76	70 - 130
M6PFDA (S)	ng/Kg-dry	930	980	105	70 - 130
M7PFUnDA (S)	ng/Kg-dry	930	1000	107	70 - 130
M8PFOA (S)	ng/Kg-dry	930	930	99	70 - 130
M8PFOS (S)	ng/Kg-dry	930	580	63	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	930	830	89	70 - 130
M9PFNA (S)	ng/Kg-dry	930	1100	115	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0073	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310020
 Sample ID: SB-04-31 (10-10.5)
 Description: 07282020

Date Collected: 07/28/2020 11:50
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	81		% m/m	0.10		1			07/29/2020 15:42	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 15:19	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 15:19	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 15:19	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 15:19	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 15:19	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 15:19	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 15:19	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 15:19	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 15:19	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 15:19	JKP
PFBS	24		ng/Kg-dry	10	9.2	1			07/31/2020 15:19	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 15:19	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 15:19	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 15:19	JKP
PFHpA	23		ng/Kg-dry	20	16	1			07/31/2020 15:19	JKP
PFHpS	16		ng/Kg-dry	15	12	1			07/31/2020 15:19	JKP
PFHxA	51		ng/Kg-dry	10	7.5	1			07/31/2020 15:19	JKP
PFHxS	850		ng/Kg-dry	200	5.8	1			07/31/2020 15:19	JKP
PFNA	12		ng/Kg-dry	10	5.2	1			07/31/2020 15:19	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 15:19	JKP
PFOA	26		ng/Kg-dry	10	9.3	1			07/31/2020 15:19	JKP
PFOS	120		ng/Kg-dry	20	20	1			07/31/2020 15:19	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 15:19	JKP
PFPeA	<15		ng/Kg-dry	15	12	1			07/31/2020 15:19	JKP
PFPeS	50		ng/Kg-dry	15	15	1			07/31/2020 15:19	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 15:19	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 15:19	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 15:19	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9900	11000	113	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	990	1000	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	990	1300	129	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	990	1200	121	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	990	1100	115	70 - 130	
M2-8:2 FTS (S)	ng/Kg-dry	990	1800	180	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	990	900	91	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	990	730	74	70 - 130	
M3PFBS (S)	ng/Kg-dry	990	680	69	70 - 130	*

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	990	760	77	70 - 130	
M4PFBA (S)	ng/Kg-dry	990	820	83	70 - 130	
M4PFHpA (S)	ng/Kg-dry	990	1000	101	70 - 130	
M5PFHxA (S)	ng/Kg-dry	990	1000	102	70 - 130	
M5PFPeA (S)	ng/Kg-dry	990	760	77	70 - 130	
M6PFDA (S)	ng/Kg-dry	990	1300	128	70 - 130	
M7PFUnDA (S)	ng/Kg-dry	990	1100	115	70 - 130	
M8PFOA (S)	ng/Kg-dry	990	1000	103	70 - 130	
M8PFOS (S)	ng/Kg-dry	990	680	69	70 - 130	*
M8PFOSA (S)	ng/Kg-dry	990	620	63	70 - 130	*
M9PFNA (S)	ng/Kg-dry	990	780	79	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0067	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310021
 Sample ID: SB-04-31 (12.5-13)
 Description: 07282020

Date Collected: 07/28/2020 12:00
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	91		% m/m	0.10		1			07/29/2020 16:05	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 16:22	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 16:22	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 16:22	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 16:22	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 16:22	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 16:22	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 16:22	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 16:22	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 16:22	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 16:22	JKP
PFBS	65		ng/Kg-dry	10	9.2	1			07/31/2020 16:22	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 16:22	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 16:22	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 16:22	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 16:22	JKP
PFHpS	34		ng/Kg-dry	15	12	1			07/31/2020 16:22	JKP
PFHxA	21		ng/Kg-dry	10	7.5	1			07/31/2020 16:22	JKP
PFHxS	480		ng/Kg-dry	10	5.8	1			07/31/2020 16:22	JKP
PFNA	26		ng/Kg-dry	10	5.2	1			07/31/2020 16:22	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 16:22	JKP
PFOA	59		ng/Kg-dry	10	9.3	1			07/31/2020 16:22	JKP
PFOS	750		ng/Kg-dry	20	20	1			07/31/2020 16:22	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 16:22	JKP
PFPeA	19		ng/Kg-dry	15	12	1			07/31/2020 16:22	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 16:22	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 16:22	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 16:22	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 16:22	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8800	9700	111	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	880	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	880	1000	115	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	880	2200	248	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	880	2300	264	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	880	760	86	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	880	830	94	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	880	910	104	70 - 130	
M3PFBS (S)	ng/Kg-dry	880	760	86	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	880	680	77	70 - 130
M4PFBA (S)	ng/Kg-dry	880	820	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	880	1000	116	70 - 130
M5PFHxA (S)	ng/Kg-dry	880	970	110	70 - 130
M5PFPeA (S)	ng/Kg-dry	880	710	80	70 - 130
M6PFDA (S)	ng/Kg-dry	880	1100	129	70 - 130
M7PFUnDA (S)	ng/Kg-dry	880	1100	121	70 - 130
M8PFOA (S)	ng/Kg-dry	880	980	111	70 - 130
M8PFOS (S)	ng/Kg-dry	880	680	77	70 - 130
M8PFOSA (S)	ng/Kg-dry	880	850	97	70 - 130
M9PFNA (S)	ng/Kg-dry	880	920	104	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0021	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310022
 Sample ID: SB-04-31 (16.5-17)
 Description: 07282020

Date Collected: 07/28/2020 12:05
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	88		% m/m	0.10		1			07/29/2020 16:05	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 17:24	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 17:24	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 17:24	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 17:24	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 17:24	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 17:24	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 17:24	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 17:24	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 17:24	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 17:24	JKP
PFBS	56		ng/Kg-dry	10	9.2	1			07/31/2020 17:24	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 17:24	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 17:24	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 17:24	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 17:24	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/31/2020 17:24	JKP
PFHxA	35		ng/Kg-dry	10	7.5	1			07/31/2020 17:24	JKP
PFHxS	75		ng/Kg-dry	10	5.8	1			07/31/2020 17:24	JKP
PFNA	12		ng/Kg-dry	10	5.2	1			07/31/2020 17:24	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 17:24	JKP
PFOA	43		ng/Kg-dry	10	9.3	1			07/31/2020 17:24	JKP
PFOS	<20		ng/Kg-dry	20	20	1			07/31/2020 17:24	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 17:24	JKP
PFPeA	25		ng/Kg-dry	15	12	1			07/31/2020 17:24	JKP
PFPeS	35		ng/Kg-dry	15	15	1			07/31/2020 17:24	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 17:24	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 17:24	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 17:24	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9100	9300	102	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	910	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	910	1200	128	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	910	1700	190	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	910	1200	131	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	910	970	107	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	910	930	102	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	910	800	89	70 - 130	
M3PFBS (S)	ng/Kg-dry	910	810	89	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	910	600	66	70 - 130	*
M4PFBA (S)	ng/Kg-dry	910	850	94	70 - 130	
M4PFHpA (S)	ng/Kg-dry	910	1100	122	70 - 130	
M5PFHxA (S)	ng/Kg-dry	910	890	98	70 - 130	
M5PFPeA (S)	ng/Kg-dry	910	800	88	70 - 130	
M6PFDA (S)	ng/Kg-dry	910	1200	128	70 - 130	
M7PFUnDA (S)	ng/Kg-dry	910	1200	128	70 - 130	
M8PFOA (S)	ng/Kg-dry	910	900	100	70 - 130	
M8PFOS (S)	ng/Kg-dry	910	980	108	70 - 130	
M8PFOSA (S)	ng/Kg-dry	910	770	85	70 - 130	
M9PFNA (S)	ng/Kg-dry	910	1100	120	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0031	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310023
 Sample ID: SB-04-31 (18-18.5)
 Description: 07282020

Date Collected: 07/28/2020 12:08
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	91		% m/m	0.10		1			07/29/2020 16:05	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 18:26	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 18:26	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 18:26	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 18:26	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 18:26	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 18:26	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 18:26	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 18:26	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 18:26	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 18:26	JKP
PFBS	39		ng/Kg-dry	10	9.2	1			07/31/2020 18:26	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 18:26	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 18:26	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 18:26	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 18:26	JKP
PFHpS	15		ng/Kg-dry	15	12	1			07/31/2020 18:26	JKP
PFHxA	<10		ng/Kg-dry	10	7.5	1			07/31/2020 18:26	JKP
PFHxS	71		ng/Kg-dry	10	5.8	1			07/31/2020 18:26	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			07/31/2020 18:26	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 18:26	JKP
PFOA	<10		ng/Kg-dry	10	9.3	1			07/31/2020 18:26	JKP
PFOS	<20		ng/Kg-dry	20	20	1			07/31/2020 18:26	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 18:26	JKP
PFPeA	<15		ng/Kg-dry	15	12	1			07/31/2020 18:26	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 18:26	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 18:26	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 18:26	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 18:26	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8800	8300	95	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	880	1100	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	880	1100	126	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	880	1300	151	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	880	1600	179	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	880	880	100	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	880	750	86	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	880	750	85	70 - 130	
M3PFBS (S)	ng/Kg-dry	880	1100	124	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	880	600	68	70 - 130	*
M4PFBA (S)	ng/Kg-dry	880	800	91	70 - 130	
M4PFHpA (S)	ng/Kg-dry	880	1100	126	70 - 130	
M5PFHxA (S)	ng/Kg-dry	880	870	100	70 - 130	
M5PFPeA (S)	ng/Kg-dry	880	790	90	70 - 130	
M6PFDA (S)	ng/Kg-dry	880	1100	123	70 - 130	
M7PFUnDA (S)	ng/Kg-dry	880	960	109	70 - 130	
M8PFOA (S)	ng/Kg-dry	880	1000	119	70 - 130	
M8PFOS (S)	ng/Kg-dry	880	630	72	70 - 130	
M8PFOSA (S)	ng/Kg-dry	880	770	88	70 - 130	
M9PFNA (S)	ng/Kg-dry	880	860	98	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0084	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310024
 Sample ID: SB-04-31 (22-22.5)
 Description: 07282020

Date Collected: 07/28/2020 12:15
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	89		% m/m	0.10		1			07/29/2020 16:05	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 19:29	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 19:29	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 19:29	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 19:29	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 19:29	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 19:29	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 19:29	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 19:29	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 19:29	JKP
PFBA	31		ng/Kg-dry	25	20	1			07/31/2020 19:29	JKP
PFBS	34		ng/Kg-dry	10	9.2	1			07/31/2020 19:29	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/31/2020 19:29	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 19:29	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 19:29	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 19:29	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/31/2020 19:29	JKP
PFHxA	32		ng/Kg-dry	10	7.5	1			07/31/2020 19:29	JKP
PFHxS	220		ng/Kg-dry	10	5.8	1			07/31/2020 19:29	JKP
PFNA	11		ng/Kg-dry	10	5.2	1			07/31/2020 19:29	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 19:29	JKP
PFOA	29		ng/Kg-dry	10	9.3	1			07/31/2020 19:29	JKP
PFOS	260		ng/Kg-dry	20	20	1			07/31/2020 19:29	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 19:29	JKP
PFPeA	19		ng/Kg-dry	15	12	1			07/31/2020 19:29	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 19:29	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 19:29	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 19:29	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 19:29	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9000	9200	103	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	900	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	900	1100	120	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	900	1800	195	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	900	1800	197	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	900	1500	166	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	900	840	94	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	900	790	88	70 - 130	
M3PFBS (S)	ng/Kg-dry	900	860	96	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	900	740	83	70 - 130
M4PFBA (S)	ng/Kg-dry	900	750	84	70 - 130
M4PFHpA (S)	ng/Kg-dry	900	860	97	70 - 130
M5PFHxA (S)	ng/Kg-dry	900	850	95	70 - 130
M5PFPeA (S)	ng/Kg-dry	900	780	87	70 - 130
M6PFDA (S)	ng/Kg-dry	900	1100	117	70 - 130
M7PFUnDA (S)	ng/Kg-dry	900	1000	111	70 - 130
M8PFOA (S)	ng/Kg-dry	900	920	103	70 - 130
M8PFOS (S)	ng/Kg-dry	900	640	72	70 - 130
M8PFOSA (S)	ng/Kg-dry	900	860	96	70 - 130
M9PFNA (S)	ng/Kg-dry	900	920	103	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0013	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310025
 Sample ID: SB-04-31 (24.5-25)
 Description: 07282020

Date Collected: 07/28/2020 12:17
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	91		% m/m	0.10		1			07/29/2020 16:05	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 20:31	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 20:31	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 20:31	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 20:31	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 20:31	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 20:31	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 20:31	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/31/2020 20:31	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 20:31	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/31/2020 20:31	JKP
PFBS	47		ng/Kg-dry	10	9.2	1			07/31/2020 20:31	JKP
PFDA	22		ng/Kg-dry	15	14	1			07/31/2020 20:31	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/31/2020 20:31	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 20:31	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/31/2020 20:31	JKP
PFHpS	22		ng/Kg-dry	15	12	1			07/31/2020 20:31	JKP
PFHxA	27		ng/Kg-dry	10	7.5	1			07/31/2020 20:31	JKP
PFHxS	280		ng/Kg-dry	10	5.8	1			07/31/2020 20:31	JKP
PFNA	28		ng/Kg-dry	10	5.2	1			07/31/2020 20:31	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/31/2020 20:31	JKP
PFOA	18		ng/Kg-dry	10	9.3	1			07/31/2020 20:31	JKP
PFOS	930		ng/Kg-dry	400	20	1			07/31/2020 20:31	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/31/2020 20:31	JKP
PFPeA	28		ng/Kg-dry	15	12	1			07/31/2020 20:31	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/31/2020 20:31	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 20:31	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 20:31	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/31/2020 20:31	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8800	9000	102	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	880	1000	120	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	880	1200	140	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	880	1700	189	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	880	2200	252	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	880	2100	239	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	880	910	103	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	880	750	85	70 - 130	
M3PFBS (S)	ng/Kg-dry	880	690	78	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	880	850	96	70 - 130
M4PFBA (S)	ng/Kg-dry	880	770	87	70 - 130
M4PFHpA (S)	ng/Kg-dry	880	1000	115	70 - 130
M5PFHxA (S)	ng/Kg-dry	880	740	84	70 - 130
M5PFPeA (S)	ng/Kg-dry	880	720	82	70 - 130
M6PFDA (S)	ng/Kg-dry	880	990	112	70 - 130
M7PFUnDA (S)	ng/Kg-dry	880	1100	123	70 - 130
M8PFOA (S)	ng/Kg-dry	880	990	113	70 - 130
M8PFOS (S)	ng/Kg-dry	880	750	85	70 - 130
M8PFOSA (S)	ng/Kg-dry	880	850	96	70 - 130
M9PFNA (S)	ng/Kg-dry	880	860	98	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0051	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310026 **Date Collected:** 07/28/2020 14:25 **Matrix:** Soil
Sample ID: SB-04-32 (2-2.5) **Date Received:** 07/28/2020 16:55 **Collector:** KH
Description: 07282020

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	83		% m/m	0.10		1			07/29/2020 16:05	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 21:33	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 21:33	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 21:33	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 21:33	JKP
NEtFOSAA	740		ng/Kg-dry	100	57	1			07/31/2020 21:33	JKP
NMeFOSAA	520		ng/Kg-dry	200	190	1			07/31/2020 21:33	JKP
PFBA	230		ng/Kg-dry	25	20	1			07/31/2020 21:33	JKP
PFBS	270		ng/Kg-dry	10	9.2	1			07/31/2020 21:33	JKP
PFDA	28		ng/Kg-dry	15	14	1			07/31/2020 21:33	JKP
PFDS	100		ng/Kg-dry	15	15	1			07/31/2020 21:33	JKP
PFDODA	<20		ng/Kg-dry	20	17	1			07/31/2020 21:33	JKP
PFHpA	110		ng/Kg-dry	20	16	1			07/31/2020 21:33	JKP
PFHpS	620		ng/Kg-dry	15	12	1			07/31/2020 21:33	JKP
PFHxA	190		ng/Kg-dry	10	7.5	1			07/31/2020 21:33	JKP
PFHxS	4400		ng/Kg-dry	200	5.8	1			07/31/2020 21:33	JKP
PFNA	36		ng/Kg-dry	10	5.2	1			07/31/2020 21:33	JKP
PFNS	200		ng/Kg-dry	30	29	1			07/31/2020 21:33	JKP
PFOA	820		ng/Kg-dry	10	9.3	1			07/31/2020 21:33	JKP
PFOS	63000		ng/Kg-dry	4000	20	1			07/31/2020 21:33	JKP
PFOSA	84		ng/Kg-dry	15	10	1			07/31/2020 21:33	JKP
PFPeA	530		ng/Kg-dry	15	12	1			07/31/2020 21:33	JKP
PFPeS	320		ng/Kg-dry	15	15	1			07/31/2020 21:33	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 21:33	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 21:33	JKP
PFUnDA	14		ng/Kg-dry	10	8.7	1			07/31/2020 21:33	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9700	12000	124	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	970	2600	260	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	970	2000	209	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	970	2900	300	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	970	4100	422	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	970	3400	350	70 - 130	*
M2PFDODA (S)	ng/Kg-dry	970	1000	104	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	970	700	72	70 - 130	
M3PFBS (S)	ng/Kg-dry	970	1000	103	70 - 130	
M3PFHxS (S)	ng/Kg-dry	970	960	100	70 - 130	
M4PFBA (S)	ng/Kg-dry	970	840	87	70 - 130	
M4PFHpA (S)	ng/Kg-dry	970	1000	103	70 - 130	
M5PFHxA (S)	ng/Kg-dry	970	850	87	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M5PFPeA (S)	ng/Kg-dry	970	790	81	70 - 130
M6PFDA (S)	ng/Kg-dry	970	1100	110	70 - 130
M7PFUnDA (S)	ng/Kg-dry	970	1100	111	70 - 130
M8PFOA (S)	ng/Kg-dry	970	920	95	70 - 130
M8PFOS (S)	ng/Kg-dry	970	660	68	70 - 130
M8PFOSA (S)	ng/Kg-dry	970	1100	113	70 - 130
M9PFNA (S)	ng/Kg-dry	970	950	98	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0049	grams		1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310027
 Sample ID: SB-04-32 (5-5.5)
 Description: 07282020

Date Collected: 07/28/2020 14:45
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	81		% m/m	0.10		1			07/29/2020 16:05	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 22:35	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 22:35	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 22:35	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 22:35	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 22:35	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 22:35	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 22:35	JKP
NEtFOSAA	510		ng/Kg-dry	100	57	1			07/31/2020 22:35	JKP
NMeFOSAA	250		ng/Kg-dry	200	190	1			07/31/2020 22:35	JKP
PFBA	240		ng/Kg-dry	25	20	1			07/31/2020 22:35	JKP
PFBS	260		ng/Kg-dry	10	9.2	1			07/31/2020 22:35	JKP
PFDA	83		ng/Kg-dry	15	14	1			07/31/2020 22:35	JKP
PFDS	1500		ng/Kg-dry	300	15	1			07/31/2020 22:35	JKP
PFDoDA	200		ng/Kg-dry	20	17	1			07/31/2020 22:35	JKP
PFHpA	160		ng/Kg-dry	20	16	1			07/31/2020 22:35	JKP
PFHpS	270		ng/Kg-dry	15	12	1			07/31/2020 22:35	JKP
PFHxA	450		ng/Kg-dry	10	7.5	1			07/31/2020 22:35	JKP
PFHxS	4900		ng/Kg-dry	200	5.8	1			07/31/2020 22:35	JKP
PFNA	64		ng/Kg-dry	10	5.2	1			07/31/2020 22:35	JKP
PFNS	130		ng/Kg-dry	30	29	1			07/31/2020 22:35	JKP
PFOA	550		ng/Kg-dry	10	9.3	1			07/31/2020 22:35	JKP
PFOS	34000		ng/Kg-dry	4000	20	1			07/31/2020 22:35	JKP
PFOSA	110		ng/Kg-dry	15	10	1			07/31/2020 22:35	JKP
PFPeA	190		ng/Kg-dry	15	12	1			07/31/2020 22:35	JKP
PFPeS	250		ng/Kg-dry	15	15	1			07/31/2020 22:35	JKP
PFTeDA	48		ng/Kg-dry	25	23	1			07/31/2020 22:35	JKP
PFTrDA	21		ng/Kg-dry	20	10	1			07/31/2020 22:35	JKP
PFUnDA	68		ng/Kg-dry	10	8.7	1			07/31/2020 22:35	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9900	7600	77	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	990	1700	180	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	990	2200	223	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	990	2000	206	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	990	3200	326	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	990	3100	315	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	990	1100	108	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	990	740	75	70 - 130	
M3PFBS (S)	ng/Kg-dry	990	880	89	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	990	680	69	70 - 130	*
M4PFBA (S)	ng/Kg-dry	990	840	85	70 - 130	
M4PFHpA (S)	ng/Kg-dry	990	970	98	70 - 130	
M5PFHxA (S)	ng/Kg-dry	990	1000	100	70 - 130	
M5PFPeA (S)	ng/Kg-dry	990	800	81	70 - 130	
M6PFDA (S)	ng/Kg-dry	990	1100	108	70 - 130	
M7PFUnDA (S)	ng/Kg-dry	990	1200	123	70 - 130	
M8PFOA (S)	ng/Kg-dry	990	1000	101	70 - 130	
M8PFOS (S)	ng/Kg-dry	990	780	78	70 - 130	
M8PFOSA (S)	ng/Kg-dry	990	1100	113	70 - 130	
M9PFNA (S)	ng/Kg-dry	990	1100	116	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0092	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310028
 Sample ID: SB-04-32 (8-8.5)
 Description: 07282020

Date Collected: 07/28/2020 15:00
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	88		% m/m	0.10		1			07/29/2020 16:05	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 23:39	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 23:39	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 23:39	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 23:39	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 23:39	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 23:39	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 23:39	JKP
NEtFOSAA	800		ng/Kg-dry	100	57	1			07/31/2020 23:39	JKP
NMeFOSAA	220		ng/Kg-dry	200	190	1			07/31/2020 23:39	JKP
PFBA	120		ng/Kg-dry	25	20	1			07/31/2020 23:39	JKP
PFBS	100		ng/Kg-dry	10	9.2	1			07/31/2020 23:39	JKP
PFDA	83		ng/Kg-dry	15	14	1			07/31/2020 23:39	JKP
PFDS	420		ng/Kg-dry	15	15	1			07/31/2020 23:39	JKP
PFDoDA	36		ng/Kg-dry	20	17	1			07/31/2020 23:39	JKP
PFHpA	92		ng/Kg-dry	20	16	1			07/31/2020 23:39	JKP
PFHpS	220		ng/Kg-dry	15	12	1			07/31/2020 23:39	JKP
PFHxA	210		ng/Kg-dry	10	7.5	1			07/31/2020 23:39	JKP
PFHxS	2400		ng/Kg-dry	200	5.8	1			07/31/2020 23:39	JKP
PFNA	36		ng/Kg-dry	10	5.2	1			07/31/2020 23:39	JKP
PFNS	36		ng/Kg-dry	30	29	1			07/31/2020 23:39	JKP
PFOA	260		ng/Kg-dry	10	9.3	1			07/31/2020 23:39	JKP
PFOS	30000		ng/Kg-dry	4000	20	1			07/31/2020 23:39	JKP
PFOSA	38		ng/Kg-dry	15	10	1			07/31/2020 23:39	JKP
PFPeA	53		ng/Kg-dry	15	12	1			07/31/2020 23:39	JKP
PFPeS	190		ng/Kg-dry	15	15	1			07/31/2020 23:39	JKP
PFTeDA	33		ng/Kg-dry	25	23	1			07/31/2020 23:39	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 23:39	JKP
PFUnDA	28		ng/Kg-dry	10	8.7	1			07/31/2020 23:39	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9100	8100	90	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	910	2000	220	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	910	1600	175	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	910	1900	212	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	910	3300	363	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	910	3200	351	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	910	920	102	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	910	860	95	70 - 130	
M3PFBS (S)	ng/Kg-dry	910	930	103	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310029
 Sample ID: SB-04-32 (11.5-12)
 Description: 07282020

Date Collected: 07/28/2020 15:03
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: KH

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	92		% m/m	0.10		1			07/29/2020 16:05	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/31/2020 00:41	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/31/2020 00:41	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/31/2020 00:41	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/31/2020 00:41	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			07/31/2020 00:41	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/31/2020 00:41	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/31/2020 00:41	JKP
NEtFOSAA	760		ng/Kg-dry	100	57	1			07/31/2020 00:41	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/31/2020 00:41	JKP
PFBA	47		ng/Kg-dry	25	20	1			07/31/2020 00:41	JKP
PFBS	160		ng/Kg-dry	10	9.2	1			07/31/2020 00:41	JKP
PFDA	49		ng/Kg-dry	15	14	1			07/31/2020 00:41	JKP
PFDS	490		ng/Kg-dry	15	15	1			07/31/2020 00:41	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			07/31/2020 00:41	JKP
PFHpA	39		ng/Kg-dry	20	16	1			07/31/2020 00:41	JKP
PFHpS	190		ng/Kg-dry	15	12	1			07/31/2020 00:41	JKP
PFHxA	73		ng/Kg-dry	10	7.5	1			07/31/2020 00:41	JKP
PFHxS	940		ng/Kg-dry	200	5.8	1			07/31/2020 00:41	JKP
PFNA	81		ng/Kg-dry	10	5.2	1			07/31/2020 00:41	JKP
PFNS	84		ng/Kg-dry	30	29	1			07/31/2020 00:41	JKP
PFOA	180		ng/Kg-dry	10	9.3	1			07/31/2020 00:41	JKP
PFOS	41000		ng/Kg-dry	4000	20	1			07/31/2020 00:41	JKP
PFOSA	33		ng/Kg-dry	15	10	1			07/31/2020 00:41	JKP
PFPeA	44		ng/Kg-dry	15	12	1			07/31/2020 00:41	JKP
PFPeS	58		ng/Kg-dry	15	15	1			07/31/2020 00:41	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/31/2020 00:41	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/31/2020 00:41	JKP
PFUnDA	23		ng/Kg-dry	10	8.7	1			07/31/2020 00:41	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8700	8000	92	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	870	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	870	1100	130	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	870	2600	298	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	870	2600	300	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	870	2200	249	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	870	660	76	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	870	290	33	70 - 130	*
M3PFBS (S)	ng/Kg-dry	870	710	82	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	870	760	87	70 - 130
M4PFBA (S)	ng/Kg-dry	870	810	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	870	1000	116	70 - 130
M5PFHxA (S)	ng/Kg-dry	870	750	87	70 - 130
M5PFPeA (S)	ng/Kg-dry	870	870	100	70 - 130
M6PFDA (S)	ng/Kg-dry	870	1000	120	70 - 130
M7PFUnDA (S)	ng/Kg-dry	870	950	110	70 - 130
M8PFOA (S)	ng/Kg-dry	870	910	105	70 - 130
M8PFOS (S)	ng/Kg-dry	870	540	62	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	870	1100	124	70 - 130
M9PFNA (S)	ng/Kg-dry	870	850	98	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0049	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310030
 Sample ID: SB-04-61 (2-2.5)
 Description: 072820

Date Collected: 07/28/2020 09:30
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	87		% m/m	0.10		1			07/29/2020 16:05	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/01/2020 20:18	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/01/2020 20:18	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/01/2020 20:18	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/01/2020 20:18	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/01/2020 20:18	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/01/2020 20:18	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/01/2020 20:18	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/01/2020 20:18	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/01/2020 20:18	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/01/2020 20:18	JKP
PFBS	36		ng/Kg-dry	10	9.2	1			08/01/2020 20:18	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/01/2020 20:18	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/01/2020 20:18	JKP
PFDoDA	25		ng/Kg-dry	20	17	1			08/01/2020 20:18	JKP
PFHpA	24		ng/Kg-dry	20	16	1			08/01/2020 20:18	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/01/2020 20:18	JKP
PFHxA	38		ng/Kg-dry	10	7.5	1			08/01/2020 20:18	JKP
PFHxS	840		ng/Kg-dry	10	5.8	1			08/01/2020 20:18	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/01/2020 20:18	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/01/2020 20:18	JKP
PFOA	130		ng/Kg-dry	10	9.3	1			08/01/2020 20:18	JKP
PFOS	220		ng/Kg-dry	20	20	1			08/01/2020 20:18	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/01/2020 20:18	JKP
PFPeA	54		ng/Kg-dry	15	12	1			08/01/2020 20:18	JKP
PFPeS	17		ng/Kg-dry	15	15	1			08/01/2020 20:18	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/01/2020 20:18	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/01/2020 20:18	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/01/2020 20:18	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9200	7600	82	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	920	970	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	920	1500	161	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	920	1600	172	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	920	2600	281	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	920	1400	157	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	920	1000	111	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	920	690	75	70 - 130	
M3PFBS (S)	ng/Kg-dry	920	770	83	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	920	740	81	70 - 130
M4PFBA (S)	ng/Kg-dry	920	790	85	70 - 130
M4PFHpA (S)	ng/Kg-dry	920	1100	125	70 - 130
M5PFHxA (S)	ng/Kg-dry	920	820	89	70 - 130
M5PFPeA (S)	ng/Kg-dry	920	740	80	70 - 130
M6PFDA (S)	ng/Kg-dry	920	860	93	70 - 130
M7PFUnDA (S)	ng/Kg-dry	920	1200	126	70 - 130
M8PFOA (S)	ng/Kg-dry	920	910	99	70 - 130
M8PFOS (S)	ng/Kg-dry	920	770	83	70 - 130
M8PFOSA (S)	ng/Kg-dry	920	660	72	70 - 130
M9PFNA (S)	ng/Kg-dry	920	1200	130	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0004	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310031
 Sample ID: SB-04-61 (4-4.5)
 Description: 072820

Date Collected: 07/28/2020 09:32
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	89		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/01/2020 21:41	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/01/2020 21:41	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/01/2020 21:41	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/01/2020 21:41	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/01/2020 21:41	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/01/2020 21:41	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/01/2020 21:41	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/01/2020 21:41	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/01/2020 21:41	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/01/2020 21:41	JKP
PFBS	35		ng/Kg-dry	10	9.2	1			08/01/2020 21:41	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/01/2020 21:41	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/01/2020 21:41	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/01/2020 21:41	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/01/2020 21:41	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/01/2020 21:41	JKP
PFHxA	14		ng/Kg-dry	10	7.5	1			08/01/2020 21:41	JKP
PFHxS	310		ng/Kg-dry	10	5.8	1			08/01/2020 21:41	JKP
PFNA	12		ng/Kg-dry	10	5.2	1			08/01/2020 21:41	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/01/2020 21:41	JKP
PFOA	72		ng/Kg-dry	10	9.3	1			08/01/2020 21:41	JKP
PFOS	110		ng/Kg-dry	20	20	1			08/01/2020 21:41	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/01/2020 21:41	JKP
PFPeA	17		ng/Kg-dry	15	12	1			08/01/2020 21:41	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			08/01/2020 21:41	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/01/2020 21:41	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/01/2020 21:41	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/01/2020 21:41	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9000	9500	105	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	900	1200	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	900	1000	113	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	900	1100	121	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	900	2300	252	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	900	1800	199	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	900	1000	112	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	900	710	79	70 - 130	
M3PFBS (S)	ng/Kg-dry	900	720	79	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	900	960	107	70 - 130
M4PFBA (S)	ng/Kg-dry	900	830	92	70 - 130
M4PFHpA (S)	ng/Kg-dry	900	940	105	70 - 130
M5PFHxA (S)	ng/Kg-dry	900	850	94	70 - 130
M5PFPeA (S)	ng/Kg-dry	900	760	84	70 - 130
M6PFDA (S)	ng/Kg-dry	900	1100	123	70 - 130
M7PFUnDA (S)	ng/Kg-dry	900	1000	114	70 - 130
M8PFOA (S)	ng/Kg-dry	900	920	102	70 - 130
M8PFOS (S)	ng/Kg-dry	900	620	69	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	900	970	108	70 - 130
M9PFNA (S)	ng/Kg-dry	900	890	99	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0082	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310032
 Sample ID: SB-04-61 (8-8.5)
 Description: 072820

Date Collected: 07/28/2020 09:34
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	88		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/01/2020 23:04	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/01/2020 23:04	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/01/2020 23:04	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/01/2020 23:04	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/01/2020 23:04	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/01/2020 23:04	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/01/2020 23:04	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/01/2020 23:04	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/01/2020 23:04	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/01/2020 23:04	JKP
PFBS	19		ng/Kg-dry	10	9.2	1			08/01/2020 23:04	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/01/2020 23:04	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/01/2020 23:04	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/01/2020 23:04	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/01/2020 23:04	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/01/2020 23:04	JKP
PFHxA	<10		ng/Kg-dry	10	7.5	1			08/01/2020 23:04	JKP
PFHxS	580		ng/Kg-dry	10	5.8	1			08/01/2020 23:04	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/01/2020 23:04	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/01/2020 23:04	JKP
PFOA	11		ng/Kg-dry	10	9.3	1			08/01/2020 23:04	JKP
PFOS	<20		ng/Kg-dry	20	20	1			08/01/2020 23:04	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/01/2020 23:04	JKP
PFPeA	34		ng/Kg-dry	15	12	1			08/01/2020 23:04	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			08/01/2020 23:04	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/01/2020 23:04	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/01/2020 23:04	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/01/2020 23:04	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9100	9100	100	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	910	1300	140	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	910	1000	113	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	910	1200	134	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	910	2300	255	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	910	2000	220	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	910	1300	143	70 - 130	*
M2PFTeDA (S)	ng/Kg-dry	910	680	75	70 - 130	
M3PFBS (S)	ng/Kg-dry	910	710	78	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	910	790	87	70 - 130
M4PFBA (S)	ng/Kg-dry	910	840	93	70 - 130
M4PFHpA (S)	ng/Kg-dry	910	860	95	70 - 130
M5PFHxA (S)	ng/Kg-dry	910	850	94	70 - 130
M5PFPeA (S)	ng/Kg-dry	910	730	80	70 - 130
M6PFDA (S)	ng/Kg-dry	910	1100	119	70 - 130
M7PFUnDA (S)	ng/Kg-dry	910	1100	124	70 - 130
M8PFOA (S)	ng/Kg-dry	910	970	107	70 - 130
M8PFOS (S)	ng/Kg-dry	910	820	90	70 - 130
M8PFOSA (S)	ng/Kg-dry	910	820	90	70 - 130
M9PFNA (S)	ng/Kg-dry	910	930	102	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0094	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310033
 Sample ID: SB-04-61 (18.5-19)
 Description: 072820

Date Collected: 07/28/2020 09:36
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	92		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 00:27	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 00:27	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 00:27	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 00:27	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 00:27	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 00:27	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 00:27	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 00:27	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 00:27	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 00:27	JKP
PFBS	17		ng/Kg-dry	10	9.2	1			08/02/2020 00:27	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 00:27	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 00:27	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 00:27	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/02/2020 00:27	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/02/2020 00:27	JKP
PFHxA	<10		ng/Kg-dry	10	7.5	1			08/02/2020 00:27	JKP
PFHxS	270		ng/Kg-dry	10	5.8	1			08/02/2020 00:27	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/02/2020 00:27	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 00:27	JKP
PFOA	23		ng/Kg-dry	10	9.3	1			08/02/2020 00:27	JKP
PFOS	<20		ng/Kg-dry	20	20	1			08/02/2020 00:27	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 00:27	JKP
PFPeA	17		ng/Kg-dry	15	12	1			08/02/2020 00:27	JKP
PFPeS	19		ng/Kg-dry	15	15	1			08/02/2020 00:27	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 00:27	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 00:27	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 00:27	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8700	7900	91	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	870	1100	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	870	940	108	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	870	1700	197	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	870	2600	299	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	870	1300	150	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	870	1100	126	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	870	650	75	70 - 130	
M3PFBS (S)	ng/Kg-dry	870	850	97	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	870	920	105	70 - 130
M4PFBA (S)	ng/Kg-dry	870	840	97	70 - 130
M4PFHpA (S)	ng/Kg-dry	870	940	108	70 - 130
M5PFHxA (S)	ng/Kg-dry	870	910	105	70 - 130
M5PFPeA (S)	ng/Kg-dry	870	710	82	70 - 130
M6PFDA (S)	ng/Kg-dry	870	1000	117	70 - 130
M7PFUnDA (S)	ng/Kg-dry	870	1000	120	70 - 130
M8PFOA (S)	ng/Kg-dry	870	850	97	70 - 130
M8PFOS (S)	ng/Kg-dry	870	590	68	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	870	860	98	70 - 130
M9PFNA (S)	ng/Kg-dry	870	960	110	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0027	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310034
 Sample ID: SB-04-61 (22-22.5)
 Description: 072820

Date Collected: 07/28/2020 09:38
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	93		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 01:50	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 01:50	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 01:50	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 01:50	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 01:50	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 01:50	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 01:50	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 01:50	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 01:50	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 01:50	JKP
PFBS	25		ng/Kg-dry	10	9.2	1			08/02/2020 01:50	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 01:50	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 01:50	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 01:50	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/02/2020 01:50	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/02/2020 01:50	JKP
PFHxA	23		ng/Kg-dry	10	7.5	1			08/02/2020 01:50	JKP
PFHxS	260		ng/Kg-dry	10	5.8	1			08/02/2020 01:50	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/02/2020 01:50	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 01:50	JKP
PFOA	19		ng/Kg-dry	10	9.3	1			08/02/2020 01:50	JKP
PFOS	<20		ng/Kg-dry	20	20	1			08/02/2020 01:50	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 01:50	JKP
PFPeA	29		ng/Kg-dry	15	12	1			08/02/2020 01:50	JKP
PFPeS	29		ng/Kg-dry	15	15	1			08/02/2020 01:50	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 01:50	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 01:50	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 01:50	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	9800	114	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	1100	130	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	860	1100	122	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	860	1100	123	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	860	2400	280	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	1300	155	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	860	1100	130	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	860	920	106	70 - 130	
M3PFBS (S)	ng/Kg-dry	860	890	103	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	870	101	70 - 130
M4PFBA (S)	ng/Kg-dry	860	790	91	70 - 130
M4PFHpA (S)	ng/Kg-dry	860	890	104	70 - 130
M5PFHxA (S)	ng/Kg-dry	860	850	98	70 - 130
M5PFPeA (S)	ng/Kg-dry	860	710	82	70 - 130
M6PFDA (S)	ng/Kg-dry	860	1100	130	70 - 130
M7PFUnDA (S)	ng/Kg-dry	860	1000	121	70 - 130
M8PFOA (S)	ng/Kg-dry	860	950	110	70 - 130
M8PFOS (S)	ng/Kg-dry	860	660	77	70 - 130
M8PFOSA (S)	ng/Kg-dry	860	860	99	70 - 130
M9PFNA (S)	ng/Kg-dry	860	850	99	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0081	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310035
 Sample ID: SB-04-61 (24.5-25)
 Description: 072820

Date Collected: 07/28/2020 09:40
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	93		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 03:13	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 03:13	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 03:13	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 03:13	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 03:13	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 03:13	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 03:13	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 03:13	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 03:13	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 03:13	JKP
PFBS	27		ng/Kg-dry	10	9.2	1			08/02/2020 03:13	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 03:13	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 03:13	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 03:13	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/02/2020 03:13	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/02/2020 03:13	JKP
PFHxA	15		ng/Kg-dry	10	7.5	1			08/02/2020 03:13	JKP
PFHxS	310		ng/Kg-dry	10	5.8	1			08/02/2020 03:13	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/02/2020 03:13	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 03:13	JKP
PFOA	<10		ng/Kg-dry	10	9.3	1			08/02/2020 03:13	JKP
PFOS	<20		ng/Kg-dry	20	20	1			08/02/2020 03:13	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 03:13	JKP
PFPeA	19		ng/Kg-dry	15	12	1			08/02/2020 03:13	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			08/02/2020 03:13	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 03:13	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 03:13	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 03:13	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	8100	94	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	950	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	860	1100	127	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	860	1400	161	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	860	2700	315	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	1600	187	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	860	910	105	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	860	700	82	70 - 130	
M3PFBS (S)	ng/Kg-dry	860	500	59	70 - 130	*

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	850	99	70 - 130
M4PFBA (S)	ng/Kg-dry	860	790	92	70 - 130
M4PFHpA (S)	ng/Kg-dry	860	900	105	70 - 130
M5PFHxA (S)	ng/Kg-dry	860	810	94	70 - 130
M5PFPeA (S)	ng/Kg-dry	860	570	66	70 - 130
M6PFDA (S)	ng/Kg-dry	860	1100	124	70 - 130
M7PFUnDA (S)	ng/Kg-dry	860	1100	128	70 - 130
M8PFOA (S)	ng/Kg-dry	860	910	106	70 - 130
M8PFOS (S)	ng/Kg-dry	860	660	76	70 - 130
M8PFOSA (S)	ng/Kg-dry	860	810	94	70 - 130
M9PFNA (S)	ng/Kg-dry	860	950	110	70 - 130

*

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS 2.0027 grams 1 07/29/2020 15:00 JKP

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310036
 Sample ID: SB-04-33 (1-1.5)
 Description: 072820

Date Collected: 07/28/2020 11:00
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	96		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 04:36	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 04:36	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 04:36	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 04:36	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 04:36	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 04:36	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 04:36	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 04:36	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 04:36	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 04:36	JKP
PFBS	24		ng/Kg-dry	10	9.2	1			08/02/2020 04:36	JKP
PFDA	52		ng/Kg-dry	15	14	1			08/02/2020 04:36	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 04:36	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 04:36	JKP
PFHpA	28		ng/Kg-dry	20	16	1			08/02/2020 04:36	JKP
PFHpS	840		ng/Kg-dry	15	12	1			08/02/2020 04:36	JKP
PFHxA	160		ng/Kg-dry	10	7.5	1			08/02/2020 04:36	JKP
PFHxS	2300		ng/Kg-dry	200	5.8	1			08/02/2020 04:36	JKP
PFNA	550		ng/Kg-dry	10	5.2	1			08/02/2020 04:36	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 04:36	JKP
PFOA	560		ng/Kg-dry	10	9.3	1			08/02/2020 04:36	JKP
PFOS	180000		ng/Kg-dry	4000	20	1			08/02/2020 04:36	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 04:36	JKP
PFPeA	42		ng/Kg-dry	15	12	1			08/02/2020 04:36	JKP
PFPeS	59		ng/Kg-dry	15	15	1			08/02/2020 04:36	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 04:36	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 04:36	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 04:36	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8400	8500	101	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	840	660	80	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	840	770	92	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	840	1400	166	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	840	2300	278	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	840	1000	122	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	840	1000	120	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	840	740	89	70 - 130	
M3PFBS (S)	ng/Kg-dry	840	800	96	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	840	750	90	70 - 130
M4PFBA (S)	ng/Kg-dry	840	750	90	70 - 130
M4PFHpA (S)	ng/Kg-dry	840	980	117	70 - 130
M5PFHxA (S)	ng/Kg-dry	840	900	108	70 - 130
M5PFPeA (S)	ng/Kg-dry	840	640	76	70 - 130
M6PFDA (S)	ng/Kg-dry	840	840	101	70 - 130
M7PFUnDA (S)	ng/Kg-dry	840	920	110	70 - 130
M8PFOA (S)	ng/Kg-dry	840	970	117	70 - 130
M8PFOS (S)	ng/Kg-dry	840	360	43	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	840	690	83	70 - 130
M9PFNA (S)	ng/Kg-dry	840	850	102	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0081	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310037
 Sample ID: SB-04-33 (4-4.5)
 Description: 072820

Date Collected: 07/28/2020 11:05
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	92		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 05:59	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 05:59	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 05:59	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 05:59	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 05:59	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 05:59	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 05:59	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 05:59	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 05:59	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 05:59	JKP
PFBS	39		ng/Kg-dry	10	9.2	1			08/02/2020 05:59	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 05:59	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 05:59	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 05:59	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/02/2020 05:59	JKP
PFHpS	490		ng/Kg-dry	15	12	1			08/02/2020 05:59	JKP
PFHxA	130		ng/Kg-dry	10	7.5	1			08/02/2020 05:59	JKP
PFHxS	1400		ng/Kg-dry	200	5.8	1			08/02/2020 05:59	JKP
PFNA	2100		ng/Kg-dry	200	5.2	1			08/02/2020 05:59	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 05:59	JKP
PFOA	440		ng/Kg-dry	10	9.3	1			08/02/2020 05:59	JKP
PFOS	10000		ng/Kg-dry	400	20	1			08/02/2020 05:59	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 05:59	JKP
PFPeA	26		ng/Kg-dry	15	12	1			08/02/2020 05:59	JKP
PFPeS	75		ng/Kg-dry	15	15	1			08/02/2020 05:59	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 05:59	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 05:59	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 05:59	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8700	9900	113	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	870	980	110	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	870	1200	134	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	870	1200	140	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	870	2300	261	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	870	1500	171	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	870	1000	118	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	870	880	101	70 - 130	
M3PFBS (S)	ng/Kg-dry	870	720	83	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	870	760	87	70 - 130
M4PFBA (S)	ng/Kg-dry	870	910	104	70 - 130
M4PFHpA (S)	ng/Kg-dry	870	1100	127	70 - 130
M5PFHxA (S)	ng/Kg-dry	870	950	109	70 - 130
M5PFPeA (S)	ng/Kg-dry	870	770	88	70 - 130
M6PFDA (S)	ng/Kg-dry	870	910	105	70 - 130
M7PFUnDA (S)	ng/Kg-dry	870	1000	119	70 - 130
M8PFOA (S)	ng/Kg-dry	870	1100	130	70 - 130
M8PFOS (S)	ng/Kg-dry	870	680	78	70 - 130
M8PFOSA (S)	ng/Kg-dry	870	660	76	70 - 130
M9PFNA (S)	ng/Kg-dry	870	1100	125	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0075	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310038
 Sample ID: SB-04-33 (8-8.5)
 Description: 072820

Date Collected: 07/28/2020 11:10
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	90		% m/m	0.10		1			07/29/2020 16:26	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 07:22	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 07:22	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 07:22	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 07:22	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 07:22	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 07:22	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 07:22	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 07:22	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 07:22	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 07:22	JKP
PFBS	74		ng/Kg-dry	10	9.2	1			08/02/2020 07:22	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 07:22	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 07:22	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 07:22	JKP
PFHpA	52		ng/Kg-dry	20	16	1			08/02/2020 07:22	JKP
PFHpS	75		ng/Kg-dry	15	12	1			08/02/2020 07:22	JKP
PFHxA	120		ng/Kg-dry	10	7.5	1			08/02/2020 07:22	JKP
PFHxS	1600		ng/Kg-dry	200	5.8	1			08/02/2020 07:22	JKP
PFNA	81		ng/Kg-dry	10	5.2	1			08/02/2020 07:22	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 07:22	JKP
PFOA	190		ng/Kg-dry	10	9.3	1			08/02/2020 07:22	JKP
PFOS	1500		ng/Kg-dry	400	20	1			08/02/2020 07:22	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 07:22	JKP
PFPeA	40		ng/Kg-dry	15	12	1			08/02/2020 07:22	JKP
PFPeS	100		ng/Kg-dry	15	15	1			08/02/2020 07:22	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 07:22	JKP
PFTTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 07:22	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 07:22	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8900	7600	85	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	890	1100	120	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	890	1100	121	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	890	1100	127	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	890	2500	275	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	890	2200	243	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	890	960	108	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	890	820	92	70 - 130	
M3PFBS (S)	ng/Kg-dry	890	750	84	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	890	870	98	70 - 130
M4PFBA (S)	ng/Kg-dry	890	800	90	70 - 130
M4PFHpA (S)	ng/Kg-dry	890	830	93	70 - 130
M5PFHxA (S)	ng/Kg-dry	890	820	92	70 - 130
M5PFPeA (S)	ng/Kg-dry	890	760	85	70 - 130
M6PFDA (S)	ng/Kg-dry	890	1100	121	70 - 130
M7PFUnDA (S)	ng/Kg-dry	890	940	106	70 - 130
M8PFOA (S)	ng/Kg-dry	890	940	105	70 - 130
M8PFOS (S)	ng/Kg-dry	890	760	85	70 - 130
M8PFOSA (S)	ng/Kg-dry	890	740	83	70 - 130
M9PFNA (S)	ng/Kg-dry	890	960	108	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0066	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310039
 Sample ID: SB-04-33 (12.5-13)
 Description: 072820

Date Collected: 07/28/2020 11:15
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	89		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 08:45	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 08:45	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 08:45	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 08:45	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 08:45	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 08:45	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 08:45	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 08:45	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 08:45	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 08:45	JKP
PFBS	640		ng/Kg-dry	10	9.2	1			08/02/2020 08:45	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 08:45	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 08:45	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 08:45	JKP
PFHpA	240		ng/Kg-dry	20	16	1			08/02/2020 08:45	JKP
PFHpS	180		ng/Kg-dry	15	12	1			08/02/2020 08:45	JKP
PFHxA	400		ng/Kg-dry	10	7.5	1			08/02/2020 08:45	JKP
PFHxS	4700		ng/Kg-dry	200	5.8	1			08/02/2020 08:45	JKP
PFNA	74		ng/Kg-dry	10	5.2	1			08/02/2020 08:45	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 08:45	JKP
PFOA	350		ng/Kg-dry	10	9.3	1			08/02/2020 08:45	JKP
PFOS	3300		ng/Kg-dry	400	20	1			08/02/2020 08:45	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 08:45	JKP
PFPeA	72		ng/Kg-dry	15	12	1			08/02/2020 08:45	JKP
PFPeS	790		ng/Kg-dry	15	15	1			08/02/2020 08:45	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 08:45	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 08:45	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 08:45	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	9000	9300	103	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	900	1300	140	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	900	1000	112	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	900	1700	189	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	900	3500	391	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	900	2100	229	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	900	1100	122	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	900	1000	113	70 - 130	
M3PFBS (S)	ng/Kg-dry	900	630	70	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	900	840	93	70 - 130
M4PFBA (S)	ng/Kg-dry	900	780	87	70 - 130
M4PFHpA (S)	ng/Kg-dry	900	1100	119	70 - 130
M5PFHxA (S)	ng/Kg-dry	900	980	108	70 - 130
M5PFPeA (S)	ng/Kg-dry	900	880	97	70 - 130
M6PFDA (S)	ng/Kg-dry	900	1100	118	70 - 130
M7PFUnDA (S)	ng/Kg-dry	900	1100	126	70 - 130
M8PFOA (S)	ng/Kg-dry	900	980	109	70 - 130
M8PFOS (S)	ng/Kg-dry	900	720	80	70 - 130
M8PFOSA (S)	ng/Kg-dry	900	890	99	70 - 130
M9PFNA (S)	ng/Kg-dry	900	1100	118	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0002	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310040
 Sample ID: SB-04-33 (16.5-17)
 Description: 072820

Date Collected: 07/28/2020 11:25
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	94		% m/m	0.10		1			07/29/2020 16:26	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 10:29	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 10:29	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 10:29	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 10:29	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 10:29	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 10:29	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 10:29	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 10:29	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 10:29	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 10:29	JKP
PFBS	250		ng/Kg-dry	10	9.2	1			08/02/2020 10:29	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 10:29	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 10:29	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 10:29	JKP
PFHpA	87		ng/Kg-dry	20	16	1			08/02/2020 10:29	JKP
PFHpS	120		ng/Kg-dry	15	12	1			08/02/2020 10:29	JKP
PFHxA	290		ng/Kg-dry	10	7.5	1			08/02/2020 10:29	JKP
PFHxS	3500		ng/Kg-dry	200	5.8	1			08/02/2020 10:29	JKP
PFNA	58		ng/Kg-dry	10	5.2	1			08/02/2020 10:29	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 10:29	JKP
PFOA	290		ng/Kg-dry	10	9.3	1			08/02/2020 10:29	JKP
PFOS	1200		ng/Kg-dry	400	20	1			08/02/2020 10:29	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 10:29	JKP
PFPeA	38		ng/Kg-dry	15	12	1			08/02/2020 10:29	JKP
PFPeS	380		ng/Kg-dry	15	15	1			08/02/2020 10:29	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 10:29	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 10:29	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 10:29	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8500	8300	97	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	850	1300	150	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	850	1100	123	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	850	1400	167	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	850	2800	328	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	850	1600	190	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	850	1100	126	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	850	800	94	70 - 130	
M3PFBS (S)	ng/Kg-dry	850	620	73	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	850	810	95	70 - 130
M4PFBA (S)	ng/Kg-dry	850	780	91	70 - 130
M4PFHpA (S)	ng/Kg-dry	850	820	96	70 - 130
M5PFHxA (S)	ng/Kg-dry	850	870	102	70 - 130
M5PFPeA (S)	ng/Kg-dry	850	820	96	70 - 130
M6PFDA (S)	ng/Kg-dry	850	1200	137	70 - 130
M7PFUnDA (S)	ng/Kg-dry	850	1100	128	70 - 130
M8PFOA (S)	ng/Kg-dry	850	960	113	70 - 130
M8PFOS (S)	ng/Kg-dry	850	710	83	70 - 130
M8PFOSA (S)	ng/Kg-dry	850	780	92	70 - 130
M9PFNA (S)	ng/Kg-dry	850	1000	122	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0039	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3632310041
 Sample ID: SB-04-33 (18.5-19)
 Description: 072820

Date Collected: 07/28/2020 11:30
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	91		% m/m	0.10		1			07/30/2020 17:28	JPL

Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 11:52	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 11:52	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 11:52	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 11:52	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 11:52	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 11:52	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 11:52	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 11:52	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 11:52	JKP
PFBA	48		ng/Kg-dry	25	20	1			08/02/2020 11:52	JKP
PFBS	170		ng/Kg-dry	10	9.2	1			08/02/2020 11:52	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 11:52	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 11:52	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 11:52	JKP
PFHpA	46		ng/Kg-dry	20	16	1			08/02/2020 11:52	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/02/2020 11:52	JKP
PFHxA	160		ng/Kg-dry	10	7.5	1			08/02/2020 11:52	JKP
PFHxS	2300		ng/Kg-dry	200	5.8	1			08/02/2020 11:52	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/02/2020 11:52	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 11:52	JKP
PFOA	180		ng/Kg-dry	10	9.3	1			08/02/2020 11:52	JKP
PFOS	49		ng/Kg-dry	20	20	1			08/02/2020 11:52	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 11:52	JKP
PFPeA	37		ng/Kg-dry	15	12	1			08/02/2020 11:52	JKP
PFPeS	120		ng/Kg-dry	15	15	1			08/02/2020 11:52	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 11:52	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 11:52	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 11:52	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8800	8100	92	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	880	1100	120	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	880	1100	121	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	880	1600	180	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	880	2800	322	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	880	2100	237	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	880	1000	119	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	880	700	80	70 - 130	
M3PFBS (S)	ng/Kg-dry	880	880	101	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	880	870	99	70 - 130
M4PFBA (S)	ng/Kg-dry	880	840	96	70 - 130
M4PFHpA (S)	ng/Kg-dry	880	880	100	70 - 130
M5PFHxA (S)	ng/Kg-dry	880	920	105	70 - 130
M5PFPeA (S)	ng/Kg-dry	880	750	86	70 - 130
M6PFDA (S)	ng/Kg-dry	880	1100	126	70 - 130
M7PFUnDA (S)	ng/Kg-dry	880	1100	124	70 - 130
M8PFOA (S)	ng/Kg-dry	880	960	109	70 - 130
M8PFOS (S)	ng/Kg-dry	880	580	66	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	880	780	89	70 - 130
M9PFNA (S)	ng/Kg-dry	880	900	102	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0057	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310042
 Sample ID: SB-04-33 (24.5-25)
 Description: 072820

Date Collected: 07/28/2020 11:35
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	93		% m/m	0.10		1			07/30/2020 17:28	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 13:15	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 13:15	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 13:15	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 13:15	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 13:15	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 13:15	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 13:15	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 13:15	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 13:15	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/02/2020 13:15	JKP
PFBS	380		ng/Kg-dry	10	9.2	1			08/02/2020 13:15	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 13:15	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 13:15	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 13:15	JKP
PFHpA	88		ng/Kg-dry	20	16	1			08/02/2020 13:15	JKP
PFHpS	100		ng/Kg-dry	15	12	1			08/02/2020 13:15	JKP
PFHxA	380		ng/Kg-dry	10	7.5	1			08/02/2020 13:15	JKP
PFHxS	2700		ng/Kg-dry	200	5.8	1			08/02/2020 13:15	JKP
PFNA	62		ng/Kg-dry	10	5.2	1			08/02/2020 13:15	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 13:15	JKP
PFOA	380		ng/Kg-dry	10	9.3	1			08/02/2020 13:15	JKP
PFOS	2800		ng/Kg-dry	400	20	1			08/02/2020 13:15	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 13:15	JKP
PFPeA	110		ng/Kg-dry	15	12	1			08/02/2020 13:15	JKP
PFPeS	450		ng/Kg-dry	15	15	1			08/02/2020 13:15	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 13:15	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 13:15	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 13:15	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	9600	112	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	860	100	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	860	1100	122	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	860	1000	120	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	860	2000	231	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	1600	182	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	860	1000	122	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	860	960	112	70 - 130	
M3PFBS (S)	ng/Kg-dry	860	580	67	70 - 130	*

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	650	75	70 - 130
M4PFBA (S)	ng/Kg-dry	860	810	94	70 - 130
M4PFHpA (S)	ng/Kg-dry	860	1000	116	70 - 130
M5PFHxA (S)	ng/Kg-dry	860	930	107	70 - 130
M5PFPeA (S)	ng/Kg-dry	860	650	75	70 - 130
M6PFDA (S)	ng/Kg-dry	860	900	105	70 - 130
M7PFUnDA (S)	ng/Kg-dry	860	1100	128	70 - 130
M8PFOA (S)	ng/Kg-dry	860	1000	120	70 - 130
M8PFOS (S)	ng/Kg-dry	860	760	88	70 - 130
M8PFOSA (S)	ng/Kg-dry	860	840	98	70 - 130
M9PFNA (S)	ng/Kg-dry	860	1000	118	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.003	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310043
 Sample ID: SB-04-34 (1.5-2.5)
 Description: 072820

Date Collected: 07/28/2020 14:05
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	93		% m/m	0.10		1			07/30/2020 17:28	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 14:38	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 14:38	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 14:38	JKP
8:2 FTSA	150		ng/Kg-dry	100	50	1			08/02/2020 14:38	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 14:38	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 14:38	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 14:38	JKP
NEtFOSAA	210		ng/Kg-dry	100	57	1			08/02/2020 14:38	JKP
NMeFOSAA	2100		ng/Kg-dry	200	190	1			08/02/2020 14:38	JKP
PFBA	3300		ng/Kg-dry	500	20	1			08/02/2020 14:38	JKP
PFBS	11000		ng/Kg-dry	200	9.2	1			08/02/2020 14:38	JKP
PFDA	1100		ng/Kg-dry	15	14	1			08/02/2020 14:38	JKP
PFDS	4900		ng/Kg-dry	300	15	1			08/02/2020 14:38	JKP
PFDoDA	250		ng/Kg-dry	20	17	1			08/02/2020 14:38	JKP
PFHpA	6700		ng/Kg-dry	20	16	1			08/02/2020 14:38	JKP
PFHpS	29000		ng/Kg-dry	3000	12	1			08/02/2020 14:38	JKP
PFHxA	33000		ng/Kg-dry	2000	7.5	1			08/02/2020 14:38	JKP
PFHxS	120000		ng/Kg-dry	10000	5.8	1			08/02/2020 14:38	JKP
PFNA	270		ng/Kg-dry	10	5.2	1			08/02/2020 14:38	JKP
PFNS	110000		ng/Kg-dry	6000	29	1			08/02/2020 14:38	JKP
PFOA	27000		ng/Kg-dry	2000	9.3	1			08/02/2020 14:38	JKP
PFOS	1300000		ng/Kg-dry	40000	20	1			08/02/2020 14:38	JKP
PFOSA	16000		ng/Kg-dry	300	10	1			08/02/2020 14:38	JKP
PFPeA	3500		ng/Kg-dry	300	12	1			08/02/2020 14:38	JKP
PFPeS	22000		ng/Kg-dry	3000	15	1			08/02/2020 14:38	JKP
PFTeDA	43		ng/Kg-dry	25	23	1			08/02/2020 14:38	JKP
PFTTrDA	190		ng/Kg-dry	20	10	1			08/02/2020 14:38	JKP
PFUnDA	520		ng/Kg-dry	10	8.7	1			08/02/2020 14:38	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8600	7500	87	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	860	560	65	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	860	330	38	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	860	1600	183	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	860	3300	384	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	860	2000	235	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	860	1000	115	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	860	700	81	70 - 130	
M3PFBS (S)	ng/Kg-dry	860	700	81	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	860	340	40	70 - 130	*
M4PFBA (S)	ng/Kg-dry	860	760	88	70 - 130	
M4PFHpA (S)	ng/Kg-dry	860	1000	118	70 - 130	
M5PFHxA (S)	ng/Kg-dry	860	900	104	70 - 130	
M5PFPeA (S)	ng/Kg-dry	860	740	86	70 - 130	
M6PFDA (S)	ng/Kg-dry	860	550	64	70 - 130	*
M7PFUnDA (S)	ng/Kg-dry	860	990	115	70 - 130	
M8PFOA (S)	ng/Kg-dry	860	690	80	70 - 130	
M8PFOS (S)	ng/Kg-dry	860	190	22	70 - 130	*
M8PFOSA (S)	ng/Kg-dry	860	790	91	70 - 130	
M9PFNA (S)	ng/Kg-dry	860	1100	130	70 - 130	

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0015	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310044
 Sample ID: SB-04-34 (9.5-10)
 Description: 072820

Date Collected: 07/28/2020 14:10
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	90		% m/m	0.10		1			07/30/2020 17:28	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 16:01	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 16:01	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 16:01	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 16:01	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 16:01	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 16:01	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 16:01	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 16:01	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 16:01	JKP
PFBA	730		ng/Kg-dry	25	20	1			08/02/2020 16:01	JKP
PFBS	1500		ng/Kg-dry	200	9.2	1			08/02/2020 16:01	JKP
PFDA	40		ng/Kg-dry	15	14	1			08/02/2020 16:01	JKP
PFDS	20		ng/Kg-dry	15	15	1			08/02/2020 16:01	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 16:01	JKP
PFHpA	780		ng/Kg-dry	20	16	1			08/02/2020 16:01	JKP
PFHpS	7200		ng/Kg-dry	300	12	1			08/02/2020 16:01	JKP
PFHxA	11000		ng/Kg-dry	200	7.5	1			08/02/2020 16:01	JKP
PFHxS	76000		ng/Kg-dry	2000	5.8	1			08/02/2020 16:01	JKP
PFNA	65		ng/Kg-dry	10	5.2	1			08/02/2020 16:01	JKP
PFNS	4800		ng/Kg-dry	600	29	1			08/02/2020 16:01	JKP
PFOA	5400		ng/Kg-dry	10	9.3	1			08/02/2020 16:01	JKP
PFOS	270000		ng/Kg-dry	20000	20	1			08/02/2020 16:01	JKP
PFOSA	1800		ng/Kg-dry	300	10	1			08/02/2020 16:01	JKP
PFPeA	1200		ng/Kg-dry	300	12	1			08/02/2020 16:01	JKP
PFPeS	3400		ng/Kg-dry	300	15	1			08/02/2020 16:01	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 16:01	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 16:01	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 16:01	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8900	9500	107	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	890	780	88	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	890	570	64	70 - 130	*
M2-4:2 FTS (S)	ng/Kg-dry	890	1400	159	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	890	1900	209	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	890	730	81	70 - 130	
M2PFDoDA (S)	ng/Kg-dry	890	1000	116	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	890	940	105	70 - 130	
M3PFBS (S)	ng/Kg-dry	890	820	92	70 - 130	

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ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	890	830	93	70 - 130
M4PFBA (S)	ng/Kg-dry	890	810	91	70 - 130
M4PFHpA (S)	ng/Kg-dry	890	1000	117	70 - 130
M5PFHxA (S)	ng/Kg-dry	890	1100	120	70 - 130
M5PFPeA (S)	ng/Kg-dry	890	790	89	70 - 130
M6PFDA (S)	ng/Kg-dry	890	990	111	70 - 130
M7PFUnDA (S)	ng/Kg-dry	890	1100	125	70 - 130
M8PFOA (S)	ng/Kg-dry	890	950	106	70 - 130
M8PFOS (S)	ng/Kg-dry	890	300	33	70 - 130 *
M8PFOSA (S)	ng/Kg-dry	890	890	99	70 - 130
M9PFNA (S)	ng/Kg-dry	890	1100	128	70 - 130

SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0066	grams	1	07/29/2020 15:00	JKP
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ANALYTICAL RESULTS

Lab ID: 3632310045
 Sample ID: SB-04-34 (24.5-25)
 Description: 072820

Date Collected: 07/28/2020 14:15
 Date Received: 07/28/2020 16:55

Matrix: Soil
 Collector: MO/SJ

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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Individual Parameters by SM 2540 G

Percent Total Solids	94		% m/m	0.10		1			07/30/2020 17:28	JPL
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Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.

11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/02/2020 17:25	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/02/2020 17:25	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/02/2020 17:25	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/02/2020 17:25	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/02/2020 17:25	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/02/2020 17:25	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/02/2020 17:25	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/02/2020 17:25	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/02/2020 17:25	JKP
PFBA	370		ng/Kg-dry	25	20	1			08/02/2020 17:25	JKP
PFBS	1100		ng/Kg-dry	200	9.2	1			08/02/2020 17:25	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/02/2020 17:25	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/02/2020 17:25	JKP
PFDoDA	<20		ng/Kg-dry	20	17	1			08/02/2020 17:25	JKP
PFHpA	310		ng/Kg-dry	20	16	1			08/02/2020 17:25	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/02/2020 17:25	JKP
PFHxA	1600		ng/Kg-dry	200	7.5	1			08/02/2020 17:25	JKP
PFHxS	1200		ng/Kg-dry	200	5.8	1			08/02/2020 17:25	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/02/2020 17:25	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/02/2020 17:25	JKP
PFOA	130		ng/Kg-dry	10	9.3	1			08/02/2020 17:25	JKP
PFOS	200		ng/Kg-dry	20	20	1			08/02/2020 17:25	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/02/2020 17:25	JKP
PFPeA	310		ng/Kg-dry	15	12	1			08/02/2020 17:25	JKP
PFPeS	1000		ng/Kg-dry	15	15	1			08/02/2020 17:25	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/02/2020 17:25	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			08/02/2020 17:25	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/02/2020 17:25	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8300	7700	93	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	830	960	120	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	830	920	111	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	830	1300	153	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	830	2800	334	70 - 130	*
M2-8:2 FTS (S)	ng/Kg-dry	830	1800	221	70 - 130	*
M2PFDoDA (S)	ng/Kg-dry	830	1000	126	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	830	660	79	70 - 130	
M3PFBS (S)	ng/Kg-dry	830	740	89	70 - 130	

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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

M3PFHxS (S)	ng/Kg-dry	830	800	96	70 - 130
M4PFBA (S)	ng/Kg-dry	830	740	89	70 - 130
M4PFHpA (S)	ng/Kg-dry	830	930	112	70 - 130
M5PFHxA (S)	ng/Kg-dry	830	780	94	70 - 130
M5PFPeA (S)	ng/Kg-dry	830	720	86	70 - 130
M6PFDA (S)	ng/Kg-dry	830	1100	138	70 - 130
M7PFUnDA (S)	ng/Kg-dry	830	1100	129	70 - 130
M8PFOA (S)	ng/Kg-dry	830	870	105	70 - 130
M8PFOS (S)	ng/Kg-dry	830	650	79	70 - 130
M8PFOSA (S)	ng/Kg-dry	830	720	87	70 - 130
M9PFNA (S)	ng/Kg-dry	830	950	114	70 - 130

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SPE Extraction, PFAS by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0007	grams	1	07/29/2020 15:00	JKP
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FINAL LABORATORY REPORT



Wednesday, September 16, 2020

Joey Barker
Arcadis - Novi
28550 Cabot Drive
Ste 500
Novi, MI 48377

Workorder: 363803
Project Name: Buick City
Purchase Order: 30043300.03100
Revision of Report ID: 363803 - 0904201509

Joey Barker,
Paragon Laboratories, Inc. received the samples associated with the workorder listed above for the analyses presented in the following report. The analyses pertain only to the aliquot of sample received.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number below.

Please note that any unused portion of the sample(s) will be discarded 40 days after sample receipt, unless requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact me at 734-469-5625.

Sincerely,

Margaret Snyder
Account Coordinator

SAMPLE SUMMARY

Lab ID	Sample ID	Sample Description	Matrix	Date Collected	Date Received	Collector
3638030001	SB-04-29(4-4.5)Neutral		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030002	SB-04-29(4-4.5)SiteGW		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030003	SB-04-29(4-4.5)SPLP		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030004	SB-04-29(18.5-19)Neutral		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030005	SB-04-29(18.5-19)SiteGW		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030006	SB-04-29(18.5-19)SPLP		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030007	SB-04-30(3.5-4)Neutral		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030008	SB-04-30(3.5-4)SiteGW		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030009	SB-04-30(3.5-4)SPLP		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030010	SB-04-30(12.5-13)Neutral		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030011	SB-04-30(12.5-13)SiteGW		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030012	SB-04-30(12.5-13)SPLP		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030013	SB-04-30(24.5-25)Neutral		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030014	SB-04-30(24.5-25)SiteGW		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030015	SB-04-30(24.5-25)SPLP		AL	07/27/2020 00:00	08/19/2020 08:00	
3638030016	SB-04-31(1-1.5)Neutral		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030017	SB-04-31(1-1.5)SiteGW		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030018	SB-04-31(1-1.5)SPLP		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030019	SB-04-31(10-10.5)Neutral		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030020	SB-04-31(10-10.5)SiteGW		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030021	SB-04-31(10-10.5)SPLP		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030022	SB-04-33(8-8.5)Neutral		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030023	SB-04-33(8-8.5)SiteGW		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030024	SB-04-33(8-8.5)SPLP		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030025	SB-04-33(12.5-13)Neutral		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030026	SB-04-33(12.5-13)SiteGW		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030027	SB-04-33(12.5-13)SPLP		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030028	SB-04-34(1.5-2.5)Neutral		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030029	SB-04-34(1.5-2.5)SiteGW		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030030	SB-04-34(1.5-2.5)SPLP		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030031	SB-04-34(9.5-10)Neutral		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030032	SB-04-34(9.5-10)SiteGW		AL	07/28/2020 00:00	08/19/2020 08:00	
3638030033	SB-04-34(9.5-10)SPLP		AL	07/28/2020 00:00	08/19/2020 08:00	

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WORKORDER SUMMARY

Accreditations

Paragon Laboratories, Inc. is certified by the Michigan Department of Environment, Great Lakes, and Energy to analyze Drinking Water. (EGLE Lab No. 9901 Expires 2/25/2023)

Workorder Narrative

General Comment:

Report revised to update Sample ID, per client request.

Surrogate Results Narrative

3638030016 - SB-04-31(1-1.5)Neutral - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030017 - SB-04-31(1-1.5)SiteGW - 13C-HFPO-DA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030017 - SB-04-31(1-1.5)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030018 - SB-04-31(1-1.5)SPLP - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030018 - SB-04-31(1-1.5)SPLP - M9PFNA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030019 - SB-04-31(10-10.5)Neutral - M2PFDoDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030021 - SB-04-31(10-10.5)SPLP - 13C-HFPO-DA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030023 - SB-04-33(8-8.5)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030024 - SB-04-33(8-8.5)SPLP - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030024 - SB-04-33(8-8.5)SPLP - M2PFTeDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030024 - SB-04-33(8-8.5)SPLP - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030025 - SB-04-33(12.5-13)Neutral - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030026 - SB-04-33(12.5-13)SiteGW - M2-8:2 FTS

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030027 - SB-04-33(12.5-13)SPLP - M3PFBS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030027 - SB-04-33(12.5-13)SPLP - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030028 - SB-04-34(1.5-2.5)Neutral - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030028 - SB-04-34(1.5-2.5)Neutral - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030029 - SB-04-34(1.5-2.5)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030029 - SB-04-34(1.5-2.5)SiteGW - M3PFHxS

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030029 - SB-04-34(1.5-2.5)SiteGW - M8PFOS

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030029 - SB-04-34(1.5-2.5)SiteGW - d5-NEtFOSAA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030030 - SB-04-34(1.5-2.5)SPLP - M7PFUnDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030030 - SB-04-34(1.5-2.5)SPLP - M8PFOS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030031 - SB-04-34(9.5-10)Neutral - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030031 - SB-04-34(9.5-10)Neutral - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030031 - SB-04-34(9.5-10)Neutral - M2PFDoDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030031 - SB-04-34(9.5-10)Neutral - M2PFTeDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030031 - SB-04-34(9.5-10)Neutral - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030032 - SB-04-34(9.5-10)SiteGW - 13C-HFPO-DA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

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WORKORDER SUMMARY

Surrogate Results Narrative

3638030032 - SB-04-34(9.5-10)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030033 - SB-04-34(9.5-10)SPLP - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030033 - SB-04-34(9.5-10)SPLP - M2PFDoDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030033 - SB-04-34(9.5-10)SPLP - M3PFBS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030033 - SB-04-34(9.5-10)SPLP - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030001 - SB-04-29(4-4.5)Neutral - M2PFDoDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030002 - SB-04-29(4-4.5)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030002 - SB-04-29(4-4.5)SiteGW - M3PFHxS

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030002 - SB-04-29(4-4.5)SiteGW - M6PFDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030003 - SB-04-29(4-4.5)SPLP - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030004 - SB-04-29(18.5-19)Neutral - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3638030004 - SB-04-29(18.5-19)Neutral - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3638030004 - SB-04-29(18.5-19)Neutral - M4PFHpA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3638030004 - SB-04-29(18.5-19)Neutral - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3638030004 - SB-04-29(18.5-19)Neutral - M7PFUnDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interference.

3638030005 - SB-04-29(18.5-19)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030006 - SB-04-29(18.5-19)SPLP - M2PFTeDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030007 - SB-04-30(3.5-4)Neutral - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030007 - SB-04-30(3.5-4)Neutral - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030007 - SB-04-30(3.5-4)Neutral - M7PFUnDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030008 - SB-04-30(3.5-4)SiteGW - M6PFDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030008 - SB-04-30(3.5-4)SiteGW - M7PFUnDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030008 - SB-04-30(3.5-4)SiteGW - 13C-HFPO-DA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030008 - SB-04-30(3.5-4)SiteGW - M2PFTeDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030009 - SB-04-30(3.5-4)SPLP - 13C-HFPO-DA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030011 - SB-04-30(12.5-13)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030011 - SB-04-30(12.5-13)SiteGW - M3PFBS

Surrogate recovery outside of acceptance limits due to possible matrix interference.

3638030012 - SB-04-30(12.5-13)SPLP - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030012 - SB-04-30(12.5-13)SPLP - M7PFUnDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030013 - SB-04-30(24.5-25)Neutral - M2-6:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030013 - SB-04-30(24.5-25)Neutral - M2-8:2 FTS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030013 - SB-04-30(24.5-25)Neutral - M3PFHxS

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030013 - SB-04-30(24.5-25)Neutral - M6PFDA

Surrogate recovery is outside acceptance criteria possibly due to matrix interferences.

3638030014 - SB-04-30(24.5-25)SiteGW - M2PFDoDA

Surrogate recovery outside of acceptance limits due to possible matrix interference.

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ANALYTICAL RESULTS

Lab ID: 3638030001 **Date Collected:** 07/27/2020 00:00 **Matrix:** Aqueous Liquid
Sample ID: SB-04-29(4-4.5)Neutral **Date Received:** 08/19/2020 08:00 **Collector:**

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 15:06	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 15:06	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 15:06	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 15:06	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 15:06	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 15:06	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 15:06	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 15:06	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 15:06	JKP
PFBA	11		ng/L	2.0	0.90	1			09/01/2020 15:06	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 15:06	JKP
PFDA	19		ng/L	5.0	1.8	1			09/01/2020 15:06	JKP
PFDS	11		ng/L	10	5.6	1			09/01/2020 15:06	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/01/2020 15:06	JKP
PFHpA	6.9		ng/L	5.0	1.9	1			09/01/2020 15:06	JKP
PFHpS	23		ng/L	10	4.8	1			09/01/2020 15:06	JKP
PFHxA	17		ng/L	5.0	2.3	1			09/01/2020 15:06	JKP
PFHxS	54		ng/L	5.0	2.6	1			09/01/2020 15:06	JKP
PFNA	7.7		ng/L	5.0	1.3	1			09/01/2020 15:06	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 15:06	JKP
PFOA	20		ng/L	2.0	0.80	1			09/01/2020 15:06	JKP
PFOS	1000		ng/L	40	0.80	1			09/01/2020 15:06	JKP
PFOSA	11		ng/L	5.0	2.4	1			09/01/2020 15:06	JKP
PFPeA	15		ng/L	5.0	2.3	1			09/01/2020 15:06	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 15:06	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 15:06	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 15:06	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 15:06	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3638030002
 Sample ID: SB-04-29(4-4.5)SiteGW

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 16:18	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 16:18	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 16:18	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 16:18	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 16:18	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 16:18	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 16:18	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 16:18	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 16:18	JKP
PFBA	20		ng/L	2.0	0.90	1			08/29/2020 16:18	JKP
PFBS	5.0		ng/L	5.0	2.7	1			08/29/2020 16:18	JKP
PFDA	19		ng/L	5.0	1.8	1			08/29/2020 16:18	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 16:18	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/29/2020 16:18	JKP
PFHpA	5.0		ng/L	5.0	1.9	1			08/29/2020 16:18	JKP
PFHpS	23		ng/L	10	4.8	1			08/29/2020 16:18	JKP
PFHxA	13		ng/L	5.0	2.3	1			08/29/2020 16:18	JKP
PFHxS	93		ng/L	5.0	2.6	1			08/29/2020 16:18	JKP
PFNA	10		ng/L	5.0	1.3	1			08/29/2020 16:18	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 16:18	JKP
PFOA	26		ng/L	2.0	0.80	1			08/29/2020 16:18	JKP
PFOS	1100		ng/L	2.0	0.80	1			08/29/2020 16:18	JKP
PFOSA	13		ng/L	5.0	2.4	1			08/29/2020 16:18	JKP
PFPeA	35		ng/L	5.0	2.3	1			08/29/2020 16:18	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 16:18	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 16:18	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 16:18	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 16:18	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030003
 Sample ID: SB-04-29(4-4.5)SPLP

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/31/2020 23:32	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/31/2020 23:32	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/31/2020 23:32	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/31/2020 23:32	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/31/2020 23:32	JKP
ADONA	<50		ng/L	50	24	1			08/31/2020 23:32	JKP
HFPO-DA	<100		ng/L	100	63	1			08/31/2020 23:32	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/31/2020 23:32	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/31/2020 23:32	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			08/31/2020 23:32	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			08/31/2020 23:32	JKP
PFDA	26		ng/L	5.0	1.8	1			08/31/2020 23:32	JKP
PFDS	<10		ng/L	10	5.6	1			08/31/2020 23:32	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/31/2020 23:32	JKP
PFHpA	7.5		ng/L	5.0	1.9	1			08/31/2020 23:32	JKP
PFHpS	27		ng/L	10	4.8	1			08/31/2020 23:32	JKP
PFHxA	9.3		ng/L	5.0	2.3	1			08/31/2020 23:32	JKP
PFHxS	80		ng/L	5.0	2.6	1			08/31/2020 23:32	JKP
PFNA	15		ng/L	5.0	1.3	1			08/31/2020 23:32	JKP
PFNS	<10		ng/L	10	5.2	1			08/31/2020 23:32	JKP
PFOA	24		ng/L	2.0	0.80	1			08/31/2020 23:32	JKP
PFOS	1400		ng/L	40	0.80	1			08/31/2020 23:32	JKP
PFOSA	10		ng/L	5.0	2.4	1			08/31/2020 23:32	JKP
PFPeA	14		ng/L	5.0	2.3	1			08/31/2020 23:32	JKP
PFPeS	<10		ng/L	10	4.5	1			08/31/2020 23:32	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/31/2020 23:32	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/31/2020 23:32	JKP
PFUnDA	6.0		ng/L	5.0	1.8	1			08/31/2020 23:32	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3638030004
 Sample ID: SB-04-29(18.5-19)Neutral

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 13:43	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 13:43	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 13:43	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 13:43	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 13:43	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 13:43	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 13:43	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 13:43	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 13:43	JKP
PFBA	5.9		ng/L	2.0	0.90	1			09/01/2020 13:43	JKP
PFBS	27		ng/L	5.0	2.7	1			09/01/2020 13:43	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 13:43	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 13:43	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 13:43	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 13:43	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 13:43	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/01/2020 13:43	JKP
PFHxS	<5.0		ng/L	5.0	2.6	1			09/01/2020 13:43	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 13:43	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 13:43	JKP
PFOA	7.6		ng/L	2.0	0.80	1			09/01/2020 13:43	JKP
PFOS	<2.0		ng/L	2.0	0.80	1			09/01/2020 13:43	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 13:43	JKP
PFPeA	9.1		ng/L	5.0	2.3	1			09/01/2020 13:43	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 13:43	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 13:43	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 13:43	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 13:43	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030005
 Sample ID: SB-04-29(18.5-19)SiteGW

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 14:54	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 14:54	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 14:54	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 14:54	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 14:54	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 14:54	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 14:54	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 14:54	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 14:54	JKP
PFBA	9.9		ng/L	2.0	0.90	1			08/29/2020 14:54	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			08/29/2020 14:54	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 14:54	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 14:54	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/29/2020 14:54	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/29/2020 14:54	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 14:54	JKP
PFHxA	6.8		ng/L	5.0	2.3	1			08/29/2020 14:54	JKP
PFHxS	13		ng/L	5.0	2.6	1			08/29/2020 14:54	JKP
PFNA	5.8		ng/L	5.0	1.3	1			08/29/2020 14:54	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 14:54	JKP
PFOA	8.3		ng/L	2.0	0.80	1			08/29/2020 14:54	JKP
PFOS	15		ng/L	2.0	0.80	1			08/29/2020 14:54	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 14:54	JKP
PFPeA	5.1		ng/L	5.0	2.3	1			08/29/2020 14:54	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 14:54	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 14:54	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 14:54	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 14:54	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030006
 Sample ID: SB-04-29(18.5-19)SPLP

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/31/2020 22:09	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/31/2020 22:09	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/31/2020 22:09	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/31/2020 22:09	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/31/2020 22:09	JKP
ADONA	<50		ng/L	50	24	1			08/31/2020 22:09	JKP
HFPO-DA	<100		ng/L	100	63	1			08/31/2020 22:09	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/31/2020 22:09	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/31/2020 22:09	JKP
PFBA	72		ng/L	2.0	0.90	1			08/31/2020 22:09	JKP
PFBS	14		ng/L	5.0	2.7	1			08/31/2020 22:09	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/31/2020 22:09	JKP
PFDS	<10		ng/L	10	5.6	1			08/31/2020 22:09	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/31/2020 22:09	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/31/2020 22:09	JKP
PFHpS	<10		ng/L	10	4.8	1			08/31/2020 22:09	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			08/31/2020 22:09	JKP
PFHxS	8.2		ng/L	5.0	2.6	1			08/31/2020 22:09	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/31/2020 22:09	JKP
PFNS	<10		ng/L	10	5.2	1			08/31/2020 22:09	JKP
PFOA	2.7		ng/L	2.0	0.80	1			08/31/2020 22:09	JKP
PFOS	9.5		ng/L	2.0	0.80	1			08/31/2020 22:09	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/31/2020 22:09	JKP
PFPeA	17		ng/L	5.0	2.3	1			08/31/2020 22:09	JKP
PFPeS	<10		ng/L	10	4.5	1			08/31/2020 22:09	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/31/2020 22:09	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/31/2020 22:09	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/31/2020 22:09	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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ANALYTICAL RESULTS

Lab ID: 3638030007
 Sample ID: SB-04-30(3.5-4)Neutral

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 16:09	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 16:09	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 16:09	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 16:09	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 16:09	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 16:09	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 16:09	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 16:09	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 16:09	JKP
PFBA	110		ng/L	2.0	0.90	1			09/01/2020 16:09	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 16:09	JKP
PFDA	8.2		ng/L	5.0	1.8	1			09/01/2020 16:09	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 16:09	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 16:09	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 16:09	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 16:09	JKP
PFHxA	7.8		ng/L	5.0	2.3	1			09/01/2020 16:09	JKP
PFHxS	28		ng/L	5.0	2.6	1			09/01/2020 16:09	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 16:09	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 16:09	JKP
PFOA	6.8		ng/L	2.0	0.80	1			09/01/2020 16:09	JKP
PFOS	250		ng/L	2.0	0.80	1			09/01/2020 16:09	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 16:09	JKP
PFPeA	17		ng/L	5.0	2.3	1			09/01/2020 16:09	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 16:09	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 16:09	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 16:09	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 16:09	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030008
 Sample ID: SB-04-30(3.5-4)SiteGW

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 17:20	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 17:20	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 17:20	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 17:20	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 17:20	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 17:20	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 17:20	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 17:20	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 17:20	JKP
PFBA	57		ng/L	2.0	0.90	1			08/29/2020 17:20	JKP
PFBS	8.0		ng/L	5.0	2.7	1			08/29/2020 17:20	JKP
PFDA	8.4		ng/L	5.0	1.8	1			08/29/2020 17:20	JKP
PFDS	34		ng/L	10	5.6	1			08/29/2020 17:20	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			08/29/2020 17:20	JKP
PFHpA	7.3		ng/L	5.0	1.9	1			08/29/2020 17:20	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 17:20	JKP
PFHxA	14		ng/L	5.0	2.3	1			08/29/2020 17:20	JKP
PFHxS	28		ng/L	5.0	2.6	1			08/29/2020 17:20	JKP
PFNA	11		ng/L	5.0	1.3	1			08/29/2020 17:20	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 17:20	JKP
PFOA	26		ng/L	2.0	0.80	1			08/29/2020 17:20	JKP
PFOS	350		ng/L	2.0	0.80	1			08/29/2020 17:20	JKP
PFOSA	15		ng/L	5.0	2.4	1			08/29/2020 17:20	JKP
PFPeA	47		ng/L	5.0	2.3	1			08/29/2020 17:20	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 17:20	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 17:20	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 17:20	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 17:20	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030009
 Sample ID: SB-04-30(3.5-4)SPLP

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 00:34	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 00:34	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 00:34	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 00:34	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 00:34	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 00:34	JKP
PFBA	25		ng/L	2.0	0.90	1			09/01/2020 00:34	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 00:34	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 00:34	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 00:34	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/01/2020 00:34	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 00:34	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 00:34	JKP
PFHxA	5.5		ng/L	5.0	2.3	1			09/01/2020 00:34	JKP
PFHxS	24		ng/L	5.0	2.6	1			09/01/2020 00:34	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 00:34	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 00:34	JKP
PFOA	11		ng/L	2.0	0.80	1			09/01/2020 00:34	JKP
PFOS	210		ng/L	2.0	0.80	1			09/01/2020 00:34	JKP
PFOSA	8.8		ng/L	5.0	2.4	1			09/01/2020 00:34	JKP
PFPeA	12		ng/L	5.0	2.3	1			09/01/2020 00:34	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 00:34	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 00:34	JKP
PFTrDA	<10		ng/L	10	4.4	1			09/01/2020 00:34	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 00:34	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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ANALYTICAL RESULTS

Lab ID: 3638030010
 Sample ID: SB-04-30(12.5-13)Neutral

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 16:50	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 16:50	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 16:50	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 16:50	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 16:50	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 16:50	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 16:50	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 16:50	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 16:50	JKP
PFBA	79		ng/L	2.0	0.90	1			09/01/2020 16:50	JKP
PFBS	5.2		ng/L	5.0	2.7	1			09/01/2020 16:50	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 16:50	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 16:50	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 16:50	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 16:50	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 16:50	JKP
PFHxA	16		ng/L	5.0	2.3	1			09/01/2020 16:50	JKP
PFHxS	23		ng/L	5.0	2.6	1			09/01/2020 16:50	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 16:50	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 16:50	JKP
PFOA	2.5		ng/L	2.0	0.80	1			09/01/2020 16:50	JKP
PFOS	940		ng/L	40	0.80	1			09/01/2020 16:50	JKP
PFOSA	5.6		ng/L	5.0	2.4	1			09/01/2020 16:50	JKP
PFPeA	11		ng/L	5.0	2.3	1			09/01/2020 16:50	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 16:50	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 16:50	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 16:50	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 16:50	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030011
 Sample ID: SB-04-30(12.5-13)SiteGW

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 18:01	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 18:01	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 18:01	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 18:01	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 18:01	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 18:01	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 18:01	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 18:01	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 18:01	JKP
PFBA	9.1		ng/L	2.0	0.90	1			08/29/2020 18:01	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			08/29/2020 18:01	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 18:01	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 18:01	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			08/29/2020 18:01	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/29/2020 18:01	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 18:01	JKP
PFHxA	13		ng/L	5.0	2.3	1			08/29/2020 18:01	JKP
PFHxS	40		ng/L	5.0	2.6	1			08/29/2020 18:01	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/29/2020 18:01	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 18:01	JKP
PFOA	6.6		ng/L	2.0	0.80	1			08/29/2020 18:01	JKP
PFOS	1200		ng/L	2.0	0.80	1			08/29/2020 18:01	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 18:01	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			08/29/2020 18:01	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 18:01	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 18:01	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 18:01	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 18:01	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030012
 Sample ID: SB-04-30(12.5-13)SPLP

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 01:16	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 01:16	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 01:16	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 01:16	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 01:16	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 01:16	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 01:16	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 01:16	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 01:16	JKP
PFBA	23		ng/L	2.0	0.90	1			09/01/2020 01:16	JKP
PFBS	9.4		ng/L	5.0	2.7	1			09/01/2020 01:16	JKP
PFDA	5.4		ng/L	5.0	1.8	1			09/01/2020 01:16	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 01:16	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 01:16	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 01:16	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 01:16	JKP
PFHxA	16		ng/L	5.0	2.3	1			09/01/2020 01:16	JKP
PFHxS	47		ng/L	5.0	2.6	1			09/01/2020 01:16	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 01:16	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 01:16	JKP
PFOA	3.1		ng/L	2.0	0.80	1			09/01/2020 01:16	JKP
PFOS	1300		ng/L	40	0.80	1			09/01/2020 01:16	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 01:16	JKP
PFPeA	13		ng/L	5.0	2.3	1			09/01/2020 01:16	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 01:16	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 01:16	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 01:16	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 01:16	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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ANALYTICAL RESULTS

Lab ID: 3638030013
 Sample ID: SB-04-30(24.5-25)Neutral

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 17:32	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 17:32	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 17:32	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 17:32	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 17:32	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 17:32	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 17:32	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 17:32	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 17:32	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			09/01/2020 17:32	JKP
PFBS	16		ng/L	5.0	2.7	1			09/01/2020 17:32	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 17:32	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 17:32	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 17:32	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 17:32	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 17:32	JKP
PFHxA	10		ng/L	5.0	2.3	1			09/01/2020 17:32	JKP
PFHxS	20		ng/L	5.0	2.6	1			09/01/2020 17:32	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 17:32	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 17:32	JKP
PFOA	3.2		ng/L	2.0	0.80	1			09/01/2020 17:32	JKP
PFOS	17		ng/L	2.0	0.80	1			09/01/2020 17:32	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 17:32	JKP
PFPeA	7.9		ng/L	5.0	2.3	1			09/01/2020 17:32	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 17:32	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 17:32	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 17:32	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 17:32	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030014
 Sample ID: SB-04-30(24.5-25)SiteGW

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 18:43	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 18:43	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 18:43	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 18:43	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 18:43	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 18:43	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 18:43	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 18:43	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 18:43	JKP
PFBA	10		ng/L	2.0	0.90	1			08/29/2020 18:43	JKP
PFBS	5.2		ng/L	5.0	2.7	1			08/29/2020 18:43	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 18:43	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 18:43	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			08/29/2020 18:43	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/29/2020 18:43	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 18:43	JKP
PFHxA	15		ng/L	5.0	2.3	1			08/29/2020 18:43	JKP
PFHxS	24		ng/L	5.0	2.6	1			08/29/2020 18:43	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/29/2020 18:43	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 18:43	JKP
PFOA	14		ng/L	2.0	0.80	1			08/29/2020 18:43	JKP
PFOS	19		ng/L	2.0	0.80	1			08/29/2020 18:43	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 18:43	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			08/29/2020 18:43	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 18:43	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 18:43	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 18:43	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 18:43	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030015
 Sample ID: SB-04-30(24.5-25)SPLP

Date Collected: 07/27/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 01:57	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 01:57	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 01:57	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 01:57	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 01:57	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 01:57	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 01:57	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 01:57	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 01:57	JKP
PFBA	7.7		ng/L	2.0	0.90	1			09/01/2020 01:57	JKP
PFBS	13		ng/L	5.0	2.7	1			09/01/2020 01:57	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 01:57	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 01:57	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 01:57	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 01:57	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 01:57	JKP
PFHxA	10		ng/L	5.0	2.3	1			09/01/2020 01:57	JKP
PFHxS	18		ng/L	5.0	2.6	1			09/01/2020 01:57	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 01:57	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 01:57	JKP
PFOA	9.1		ng/L	2.0	0.80	1			09/01/2020 01:57	JKP
PFOS	29		ng/L	2.0	0.80	1			09/01/2020 01:57	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 01:57	JKP
PFPeA	7.0		ng/L	5.0	2.3	1			09/01/2020 01:57	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 01:57	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 01:57	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 01:57	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 01:57	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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FINAL LABORATORY REPORT

ANALYTICAL RESULTS

Lab ID: 3638030016
 Sample ID: SB-04-31(1-1.5)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 18:13	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 18:13	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 18:13	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 18:13	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 18:13	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 18:13	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 18:13	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 18:13	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 18:13	JKP
PFBA	91		ng/L	2.0	0.90	1			09/01/2020 18:13	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 18:13	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 18:13	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 18:13	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 18:13	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 18:13	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 18:13	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/01/2020 18:13	JKP
PFHxS	<5.0		ng/L	5.0	2.6	1			09/01/2020 18:13	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 18:13	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 18:13	JKP
PFOA	2.8		ng/L	2.0	0.80	1			09/01/2020 18:13	JKP
PFOS	9.0		ng/L	2.0	0.80	1			09/01/2020 18:13	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 18:13	JKP
PFPeA	11		ng/L	5.0	2.3	1			09/01/2020 18:13	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 18:13	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 18:13	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 18:13	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 18:13	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030017
 Sample ID: SB-04-31(1-1.5)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 19:24	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 19:24	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 19:24	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 19:24	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 19:24	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 19:24	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 19:24	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 19:24	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 19:24	JKP
PFBA	7.8		ng/L	2.0	0.90	1			08/29/2020 19:24	JKP
PFBS	8.9		ng/L	5.0	2.7	1			08/29/2020 19:24	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 19:24	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 19:24	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			08/29/2020 19:24	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/29/2020 19:24	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 19:24	JKP
PFHxA	10		ng/L	5.0	2.3	1			08/29/2020 19:24	JKP
PFHxS	6.3		ng/L	5.0	2.6	1			08/29/2020 19:24	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/29/2020 19:24	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 19:24	JKP
PFOA	9.0		ng/L	2.0	0.80	1			08/29/2020 19:24	JKP
PFOS	8.3		ng/L	2.0	0.80	1			08/29/2020 19:24	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 19:24	JKP
PFPeA	7.6		ng/L	5.0	2.3	1			08/29/2020 19:24	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 19:24	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 19:24	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 19:24	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 19:24	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030018
 Sample ID: SB-04-31(1-1.5)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 02:39	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 02:39	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 02:39	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 02:39	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 02:39	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 02:39	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 02:39	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 02:39	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 02:39	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			09/01/2020 02:39	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 02:39	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 02:39	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 02:39	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/01/2020 02:39	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 02:39	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 02:39	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/01/2020 02:39	JKP
PFHxS	<5.0		ng/L	5.0	2.6	1			09/01/2020 02:39	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 02:39	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 02:39	JKP
PFOA	4.0		ng/L	2.0	0.80	1			09/01/2020 02:39	JKP
PFOS	12		ng/L	2.0	0.80	1			09/01/2020 02:39	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 02:39	JKP
PFPeA	11		ng/L	5.0	2.3	1			09/01/2020 02:39	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 02:39	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 02:39	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 02:39	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 02:39	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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ANALYTICAL RESULTS

Lab ID: 3638030019
 Sample ID: SB-04-31(10-10.5)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 18:55	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 18:55	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 18:55	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 18:55	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 18:55	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 18:55	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 18:55	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 18:55	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 18:55	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			09/01/2020 18:55	JKP
PFBS	8.0		ng/L	5.0	2.7	1			09/01/2020 18:55	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 18:55	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 18:55	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/01/2020 18:55	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 18:55	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 18:55	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/01/2020 18:55	JKP
PFHxS	8.2		ng/L	5.0	2.6	1			09/01/2020 18:55	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 18:55	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 18:55	JKP
PFOA	<2.0		ng/L	2.0	0.80	1			09/01/2020 18:55	JKP
PFOS	<2.0		ng/L	2.0	0.80	1			09/01/2020 18:55	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 18:55	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/01/2020 18:55	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 18:55	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 18:55	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 18:55	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 18:55	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030020
 Sample ID: SB-04-31(10-10.5)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 20:06	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 20:06	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 20:06	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 20:06	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 20:06	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 20:06	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 20:06	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 20:06	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 20:06	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			08/29/2020 20:06	JKP
PFBS	8.2		ng/L	5.0	2.7	1			08/29/2020 20:06	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 20:06	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 20:06	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/29/2020 20:06	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/29/2020 20:06	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 20:06	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			08/29/2020 20:06	JKP
PFHxS	9.5		ng/L	5.0	2.6	1			08/29/2020 20:06	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/29/2020 20:06	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 20:06	JKP
PFOA	5.3		ng/L	2.0	0.80	1			08/29/2020 20:06	JKP
PFOS	6.1		ng/L	2.0	0.80	1			08/29/2020 20:06	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 20:06	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			08/29/2020 20:06	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 20:06	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 20:06	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 20:06	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 20:06	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030021
 Sample ID: SB-04-31(10-10.5)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 03:20	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 03:20	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 03:20	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 03:20	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 03:20	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 03:20	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 03:20	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 03:20	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 03:20	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			09/01/2020 03:20	JKP
PFBS	6.6		ng/L	5.0	2.7	1			09/01/2020 03:20	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 03:20	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 03:20	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 03:20	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 03:20	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 03:20	JKP
PFHxA	5.5		ng/L	5.0	2.3	1			09/01/2020 03:20	JKP
PFHxS	5.6		ng/L	5.0	2.6	1			09/01/2020 03:20	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 03:20	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 03:20	JKP
PFOA	3.6		ng/L	2.0	0.80	1			09/01/2020 03:20	JKP
PFOS	<2.0		ng/L	2.0	0.80	1			09/01/2020 03:20	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 03:20	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/01/2020 03:20	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 03:20	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 03:20	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 03:20	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 03:20	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS Complete 1 08/27/2020 16:20 JKP

Sample Preparation by EPA 1312

SPLP Tumble for Organics Complete 1 08/19/2020 17:15 RLC

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ANALYTICAL RESULTS

Lab ID: 3638030022
 Sample ID: SB-04-33(8-8.5)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 19:36	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 19:36	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 19:36	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 19:36	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 19:36	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 19:36	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 19:36	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 19:36	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 19:36	JKP
PFBA	3.1		ng/L	2.0	0.90	1			09/01/2020 19:36	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 19:36	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 19:36	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 19:36	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 19:36	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 19:36	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 19:36	JKP
PFHxA	5.5		ng/L	5.0	2.3	1			09/01/2020 19:36	JKP
PFHxS	18		ng/L	5.0	2.6	1			09/01/2020 19:36	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 19:36	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 19:36	JKP
PFOA	2.9		ng/L	2.0	0.80	1			09/01/2020 19:36	JKP
PFOS	27		ng/L	2.0	0.80	1			09/01/2020 19:36	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 19:36	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/01/2020 19:36	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 19:36	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 19:36	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 19:36	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 19:36	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030023
 Sample ID: SB-04-33(8-8.5)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 20:47	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 20:47	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 20:47	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 20:47	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 20:47	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 20:47	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 20:47	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 20:47	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 20:47	JKP
PFBA	16		ng/L	2.0	0.90	1			08/29/2020 20:47	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			08/29/2020 20:47	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 20:47	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 20:47	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/29/2020 20:47	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			08/29/2020 20:47	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 20:47	JKP
PFHxA	8.1		ng/L	5.0	2.3	1			08/29/2020 20:47	JKP
PFHxS	25		ng/L	5.0	2.6	1			08/29/2020 20:47	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/29/2020 20:47	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 20:47	JKP
PFOA	9.8		ng/L	2.0	0.80	1			08/29/2020 20:47	JKP
PFOS	42		ng/L	2.0	0.80	1			08/29/2020 20:47	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 20:47	JKP
PFPeA	9.4		ng/L	5.0	2.3	1			08/29/2020 20:47	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 20:47	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 20:47	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/29/2020 20:47	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 20:47	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030024
 Sample ID: SB-04-33(8-8.5)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 04:02	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 04:02	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 04:02	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 04:02	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 04:02	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 04:02	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 04:02	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 04:02	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 04:02	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			09/01/2020 04:02	JKP
PFBS	<5.0		ng/L	5.0	2.7	1			09/01/2020 04:02	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 04:02	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 04:02	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 04:02	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 04:02	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 04:02	JKP
PFHxA	<5.0		ng/L	5.0	2.3	1			09/01/2020 04:02	JKP
PFHxS	27		ng/L	5.0	2.6	1			09/01/2020 04:02	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 04:02	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 04:02	JKP
PFOA	9.2		ng/L	2.0	0.80	1			09/01/2020 04:02	JKP
PFOS	25		ng/L	2.0	0.80	1			09/01/2020 04:02	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 04:02	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/01/2020 04:02	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 04:02	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 04:02	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 04:02	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 04:02	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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ANALYTICAL RESULTS

Lab ID: 3638030025
 Sample ID: SB-04-33(12.5-13)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 20:18	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 20:18	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 20:18	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 20:18	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 20:18	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 20:18	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 20:18	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 20:18	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 20:18	JKP
PFBA	<2.0		ng/L	2.0	0.90	1			09/01/2020 20:18	JKP
PFBS	16		ng/L	5.0	2.7	1			09/01/2020 20:18	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 20:18	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 20:18	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 20:18	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 20:18	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 20:18	JKP
PFHxA	16		ng/L	5.0	2.3	1			09/01/2020 20:18	JKP
PFHxS	52		ng/L	5.0	2.6	1			09/01/2020 20:18	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 20:18	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 20:18	JKP
PFOA	5.9		ng/L	2.0	0.80	1			09/01/2020 20:18	JKP
PFOS	59		ng/L	2.0	0.80	1			09/01/2020 20:18	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 20:18	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/01/2020 20:18	JKP
PFPeS	11		ng/L	10	4.5	1			09/01/2020 20:18	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 20:18	JKP
PFTrDA	<10		ng/L	10	4.4	1			09/01/2020 20:18	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 20:18	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030026
 Sample ID: SB-04-33(12.5-13)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 21:29	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 21:29	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 21:29	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 21:29	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 21:29	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 21:29	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 21:29	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 21:29	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 21:29	JKP
PFBA	11		ng/L	2.0	0.90	1			08/29/2020 21:29	JKP
PFBS	11		ng/L	5.0	2.7	1			08/29/2020 21:29	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 21:29	JKP
PFDS	<10		ng/L	10	5.6	1			08/29/2020 21:29	JKP
PFDoDA	6.2		ng/L	5.0	2.1	1			08/29/2020 21:29	JKP
PFHpA	5.7		ng/L	5.0	1.9	1			08/29/2020 21:29	JKP
PFHpS	<10		ng/L	10	4.8	1			08/29/2020 21:29	JKP
PFHxA	16		ng/L	5.0	2.3	1			08/29/2020 21:29	JKP
PFHxS	41		ng/L	5.0	2.6	1			08/29/2020 21:29	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/29/2020 21:29	JKP
PFNS	<10		ng/L	10	5.2	1			08/29/2020 21:29	JKP
PFOA	7.9		ng/L	2.0	0.80	1			08/29/2020 21:29	JKP
PFOS	42		ng/L	2.0	0.80	1			08/29/2020 21:29	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			08/29/2020 21:29	JKP
PFPeA	10		ng/L	5.0	2.3	1			08/29/2020 21:29	JKP
PFPeS	<10		ng/L	10	4.5	1			08/29/2020 21:29	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 21:29	JKP
PFTrDA	<10		ng/L	10	4.4	1			08/29/2020 21:29	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 21:29	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030027
 Sample ID: SB-04-33(12.5-13)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 04:43	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 04:43	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 04:43	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 04:43	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 04:43	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 04:43	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 04:43	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 04:43	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 04:43	JKP
PFBA	3.3		ng/L	2.0	0.90	1			09/01/2020 04:43	JKP
PFBS	8.4		ng/L	5.0	2.7	1			09/01/2020 04:43	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 04:43	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 04:43	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 04:43	JKP
PFHpA	<5.0		ng/L	5.0	1.9	1			09/01/2020 04:43	JKP
PFHpS	<10		ng/L	10	4.8	1			09/01/2020 04:43	JKP
PFHxA	11		ng/L	5.0	2.3	1			09/01/2020 04:43	JKP
PFHxS	47		ng/L	5.0	2.6	1			09/01/2020 04:43	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 04:43	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 04:43	JKP
PFOA	12		ng/L	2.0	0.80	1			09/01/2020 04:43	JKP
PFOS	74		ng/L	2.0	0.80	1			09/01/2020 04:43	JKP
PFOSA	<5.0		ng/L	5.0	2.4	1			09/01/2020 04:43	JKP
PFPeA	<5.0		ng/L	5.0	2.3	1			09/01/2020 04:43	JKP
PFPeS	<10		ng/L	10	4.5	1			09/01/2020 04:43	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 04:43	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 04:43	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 04:43	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS Complete 1 08/27/2020 16:20 JKP

Sample Preparation by EPA 1312

SPLP Tumble for Organics Complete 1 08/19/2020 17:15 RLC

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ANALYTICAL RESULTS

Lab ID: 3638030028
 Sample ID: SB-04-34(1.5-2.5)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 21:00	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 21:00	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 21:00	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 21:00	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 21:00	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 21:00	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 21:00	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 21:00	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 21:00	JKP
PFBA	80		ng/L	2.0	0.90	1			09/01/2020 21:00	JKP
PFBS	440		ng/L	100	2.7	1			09/01/2020 21:00	JKP
PFDA	28		ng/L	5.0	1.8	1			09/01/2020 21:00	JKP
PFDS	16		ng/L	10	5.6	1			09/01/2020 21:00	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 21:00	JKP
PFHpA	260		ng/L	100	1.9	1			09/01/2020 21:00	JKP
PFHpS	950		ng/L	200	4.8	1			09/01/2020 21:00	JKP
PFHxA	1200		ng/L	100	2.3	1			09/01/2020 21:00	JKP
PFHxS	11000		ng/L	1000	2.6	1			09/01/2020 21:00	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 21:00	JKP
PFNS	85		ng/L	10	5.2	1			09/01/2020 21:00	JKP
PFOA	1200		ng/L	40	0.80	1			09/01/2020 21:00	JKP
PFOS	110000		ng/L	2000	0.80	1			09/01/2020 21:00	JKP
PFOSA	610		ng/L	100	2.4	1			09/01/2020 21:00	JKP
PFPeA	150		ng/L	5.0	2.3	1			09/01/2020 21:00	JKP
PFPeS	760		ng/L	200	4.5	1			09/01/2020 21:00	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 21:00	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 21:00	JKP
PFUnDA	5.5		ng/L	5.0	1.8	1			09/01/2020 21:00	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030029
 Sample ID: SB-04-34(1.5-2.5)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/29/2020 22:11	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/29/2020 22:11	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/29/2020 22:11	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/29/2020 22:11	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/29/2020 22:11	JKP
ADONA	<50		ng/L	50	24	1			08/29/2020 22:11	JKP
HFPO-DA	<100		ng/L	100	63	1			08/29/2020 22:11	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/29/2020 22:11	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/29/2020 22:11	JKP
PFBA	110		ng/L	2.0	0.90	1			08/29/2020 22:11	JKP
PFBS	320		ng/L	5.0	2.7	1			08/29/2020 22:11	JKP
PFDA	33		ng/L	5.0	1.8	1			08/29/2020 22:11	JKP
PFDS	20		ng/L	10	5.6	1			08/29/2020 22:11	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			08/29/2020 22:11	JKP
PFHpA	380		ng/L	5.0	1.9	1			08/29/2020 22:11	JKP
PFHpS	830		ng/L	10	4.8	1			08/29/2020 22:11	JKP
PFHxA	1800		ng/L	5.0	2.3	1			08/29/2020 22:11	JKP
PFHxS	10000		ng/L	5.0	2.6	1			08/29/2020 22:11	JKP
PFNA	6.9		ng/L	5.0	1.3	1			08/29/2020 22:11	JKP
PFNS	96		ng/L	10	5.2	1			08/29/2020 22:11	JKP
PFOA	1700		ng/L	2.0	0.80	1			08/29/2020 22:11	JKP
PFOS	110000		ng/L	2.0	0.80	1			08/29/2020 22:11	JKP
PFOSA	370		ng/L	5.0	2.4	1			08/29/2020 22:11	JKP
PFPeA	170		ng/L	5.0	2.3	1			08/29/2020 22:11	JKP
PFPeS	1200		ng/L	10	4.5	1			08/29/2020 22:11	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/29/2020 22:11	JKP
PFTrDA	<10		ng/L	10	4.4	1			08/29/2020 22:11	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/29/2020 22:11	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030030
 Sample ID: SB-04-34(1.5-2.5)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 05:25	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 05:25	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 05:25	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 05:25	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 05:25	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 05:25	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 05:25	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 05:25	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 05:25	JKP
PFBA	98		ng/L	2.0	0.90	1			09/01/2020 05:25	JKP
PFBS	340		ng/L	5.0	2.7	1			09/01/2020 05:25	JKP
PFDA	27		ng/L	5.0	1.8	1			09/01/2020 05:25	JKP
PFDS	23		ng/L	10	5.6	1			09/01/2020 05:25	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 05:25	JKP
PFHpA	340		ng/L	5.0	1.9	1			09/01/2020 05:25	JKP
PFHpS	870		ng/L	200	4.8	1			09/01/2020 05:25	JKP
PFHxA	1400		ng/L	100	2.3	1			09/01/2020 05:25	JKP
PFHxS	11000		ng/L	1000	2.6	1			09/01/2020 05:25	JKP
PFNA	5.1		ng/L	5.0	1.3	1			09/01/2020 05:25	JKP
PFNS	96		ng/L	10	5.2	1			09/01/2020 05:25	JKP
PFOA	1300		ng/L	40	0.80	1			09/01/2020 05:25	JKP
PFOS	120000		ng/L	2000	0.80	1			09/01/2020 05:25	JKP
PFOSA	540		ng/L	100	2.4	1			09/01/2020 05:25	JKP
PFPeA	170		ng/L	5.0	2.3	1			09/01/2020 05:25	JKP
PFPeS	840		ng/L	200	4.5	1			09/01/2020 05:25	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 05:25	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 05:25	JKP
PFUnDA	5.5		ng/L	5.0	1.8	1			09/01/2020 05:25	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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ANALYTICAL RESULTS

Lab ID: 3638030031
 Sample ID: SB-04-34(9.5-10)Neutral

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 23:04	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 23:04	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 23:04	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 23:04	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 23:04	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 23:04	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 23:04	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 23:04	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 23:04	JKP
PFBA	140		ng/L	2.0	0.90	1			09/01/2020 23:04	JKP
PFBS	38		ng/L	5.0	2.7	1			09/01/2020 23:04	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 23:04	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 23:04	JKP
PFDoDA	<5.0		ng/L	5.0	2.1	1			09/01/2020 23:04	JKP
PFHpA	19		ng/L	5.0	1.9	1			09/01/2020 23:04	JKP
PFHpS	120		ng/L	10	4.8	1			09/01/2020 23:04	JKP
PFHxA	510		ng/L	100	2.3	1			09/01/2020 23:04	JKP
PFHxS	1600		ng/L	100	2.6	1			09/01/2020 23:04	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 23:04	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 23:04	JKP
PFOA	120		ng/L	2.0	0.80	1			09/01/2020 23:04	JKP
PFOS	9900		ng/L	400	0.80	1			09/01/2020 23:04	JKP
PFOSA	11		ng/L	5.0	2.4	1			09/01/2020 23:04	JKP
PFPeA	86		ng/L	5.0	2.3	1			09/01/2020 23:04	JKP
PFPeS	79		ng/L	10	4.5	1			09/01/2020 23:04	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 23:04	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 23:04	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 23:04	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030032
 Sample ID: SB-04-34(9.5-10)SiteGW

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			08/30/2020 00:15	JKP
4:2 FTSA	<50		ng/L	50	29	1			08/30/2020 00:15	JKP
6:2 FTSA	<50		ng/L	50	13	1			08/30/2020 00:15	JKP
8:2 FTSA	<50		ng/L	50	24	1			08/30/2020 00:15	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			08/30/2020 00:15	JKP
ADONA	<50		ng/L	50	24	1			08/30/2020 00:15	JKP
HFPO-DA	<100		ng/L	100	63	1			08/30/2020 00:15	JKP
NEtFOSAA	<50		ng/L	50	25	1			08/30/2020 00:15	JKP
NMeFOSAA	<50		ng/L	50	15	1			08/30/2020 00:15	JKP
PFBA	79		ng/L	2.0	0.90	1			08/30/2020 00:15	JKP
PFBS	37		ng/L	5.0	2.7	1			08/30/2020 00:15	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			08/30/2020 00:15	JKP
PFDS	<10		ng/L	10	5.6	1			08/30/2020 00:15	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			08/30/2020 00:15	JKP
PFHpA	17		ng/L	5.0	1.9	1			08/30/2020 00:15	JKP
PFHpS	110		ng/L	10	4.8	1			08/30/2020 00:15	JKP
PFHxA	460		ng/L	5.0	2.3	1			08/30/2020 00:15	JKP
PFHxS	1500		ng/L	5.0	2.6	1			08/30/2020 00:15	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			08/30/2020 00:15	JKP
PFNS	<10		ng/L	10	5.2	1			08/30/2020 00:15	JKP
PFOA	100		ng/L	2.0	0.80	1			08/30/2020 00:15	JKP
PFOS	7400		ng/L	2.0	0.80	1			08/30/2020 00:15	JKP
PFOSA	11		ng/L	5.0	2.4	1			08/30/2020 00:15	JKP
PFPeA	82		ng/L	5.0	2.3	1			08/30/2020 00:15	JKP
PFPeS	65		ng/L	10	4.5	1			08/30/2020 00:15	JKP
PFTeDA	<10		ng/L	10	4.8	1			08/30/2020 00:15	JKP
PFTTrDA	<10		ng/L	10	4.4	1			08/30/2020 00:15	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			08/30/2020 00:15	JKP

Sample Preparation by ASTM D3987

Neutral Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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ANALYTICAL RESULTS

Lab ID: 3638030033
 Sample ID: SB-04-34(9.5-10)SPLP

Date Collected: 07/28/2020 00:00
 Date Received: 08/19/2020 08:00

Matrix: Aqueous Liquid
 Collector:

Description:

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7979 Mod.										
11CI-PF3OUdS	<50		ng/L	50	18	1			09/01/2020 07:30	JKP
4:2 FTSA	<50		ng/L	50	29	1			09/01/2020 07:30	JKP
6:2 FTSA	<50		ng/L	50	13	1			09/01/2020 07:30	JKP
8:2 FTSA	<50		ng/L	50	24	1			09/01/2020 07:30	JKP
9CI-PF3ONS	<50		ng/L	50	21	1			09/01/2020 07:30	JKP
ADONA	<50		ng/L	50	24	1			09/01/2020 07:30	JKP
HFPO-DA	<100		ng/L	100	63	1			09/01/2020 07:30	JKP
NEtFOSAA	<50		ng/L	50	25	1			09/01/2020 07:30	JKP
NMeFOSAA	<50		ng/L	50	15	1			09/01/2020 07:30	JKP
PFBA	110		ng/L	2.0	0.90	1			09/01/2020 07:30	JKP
PFBS	28		ng/L	5.0	2.7	1			09/01/2020 07:30	JKP
PFDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 07:30	JKP
PFDS	<10		ng/L	10	5.6	1			09/01/2020 07:30	JKP
PFDODA	<5.0		ng/L	5.0	2.1	1			09/01/2020 07:30	JKP
PFHpA	18		ng/L	5.0	1.9	1			09/01/2020 07:30	JKP
PFHpS	130		ng/L	10	4.8	1			09/01/2020 07:30	JKP
PFHxA	430		ng/L	100	2.3	1			09/01/2020 07:30	JKP
PFHxS	2200		ng/L	100	2.6	1			09/01/2020 07:30	JKP
PFNA	<5.0		ng/L	5.0	1.3	1			09/01/2020 07:30	JKP
PFNS	<10		ng/L	10	5.2	1			09/01/2020 07:30	JKP
PFOA	130		ng/L	2.0	0.80	1			09/01/2020 07:30	JKP
PFOS	4100		ng/L	2000	0.80	1			09/01/2020 07:30	JKP
PFOSA	26		ng/L	5.0	2.4	1			09/01/2020 07:30	JKP
PFPeA	70		ng/L	5.0	2.3	1			09/01/2020 07:30	JKP
PFPeS	70		ng/L	10	4.5	1			09/01/2020 07:30	JKP
PFTeDA	<10		ng/L	10	4.8	1			09/01/2020 07:30	JKP
PFTTrDA	<10		ng/L	10	4.4	1			09/01/2020 07:30	JKP
PFUnDA	<5.0		ng/L	5.0	1.8	1			09/01/2020 07:30	JKP

Sample Preparation by ASTM D7979 Mod.

Shake Extraction for PFAS	Complete					1			08/27/2020 16:20	JKP
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Sample Preparation by EPA 1312

SPLP Tumble for Organics	Complete					1			08/19/2020 17:15	RLC
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Appendix B

Kd Calculations

Estimation of Kd Using SPLP Data and Total Soil Concentrations

Site Racer - Buick City, Flint, Michigan
 Chemical of concern PFBS

Calculated by: Peter Tsai
 Checked by: Chris Shepherd
 Date: 2/21/2024

	Kd	TOC
Count	10	7
Minimum	5.0	9560.0
Geomean	19.1	37701.6
Median	19.74	37700.0
Average	23.2	54337.1
Std Dev	15.2	44974.5
Max	56.2	119000.0
No. C _s <0	21	

$$K_d = \frac{C_s \left(\frac{mg}{kg}\right)}{C_l \left(\frac{mg}{L}\right)}$$

$$C_{sorbed} = \frac{C_l \left(\frac{ug}{kg}\right) \times M_{soil}(kg) - C_l \left(\frac{ug}{L}\right) \times V_{splp}(L)}{M_{soil}(kg)}$$

Negative=21

Kd Estimate n/a Basis: Insufficient number & ratio of positive Kds

Sample ID ^{1,2,3}	Depth (ft bgs)	Leach Method	C _t (ug/Kg)	C _{SPLP} (ng/L)	C _{SPLP} (ug/L)	M _{sample} ⁴ (Kg)	V _{SPLP} ⁴ (L)	M _{soil} (ug)	M _{SPLP} (ug)	*M _{sorbed} (ug)	C _{sorbed} (ug/Kg)	Kd ⁵ (L/Kg)	TOC (mg/kg)
1	SB-04-29	4.5-5	A	0.097			0.1	2	0.0097	--	--	--	119,000
2	SB-04-29	18.5 - 19	A	0.2	27	0.027	0.1	2	0.02	0.054	-0.034	-0.34	--
3	SB-04-30	3.5 - 4	A	0.033			0.1	2	0.0033	--	--	--	23,200.00
4	SB-04-30	12.5 - 13	A	0.063	5.2	0.005	0.1	2	0.0063	0.0104	-0.0041	-0.04	37,700.00
5	SB-04-30	22 - 22.5	A	0.13	19	0.019	0.1	2	0.013	0.038	-0.025	-0.25	--
6	SB-04-30	24.5-25	A	0.17	16	0.016	0.1	2	0.017	0.032	-0.015	-0.15	--
7	SB-04-31	1 - 1.5	A	0.02			0.1	2	0.002	--	--	--	9,560.00
8	SB-04-31	4.5 - 5	A	0.041	9.5	0.010	0.1	2	0.0041	0.019	-0.0149	-0.15	14,900.00
9	SB-04-31	10 - 10.5	A	0.024	8	0.008	0.1	2	0.0024	0.016	-0.0136	-0.14	--
10	SB-04-31	12.5 - 13	A	0.024	8.5	0.009	0.1	2	0.0024	0.017	-0.0146	-0.15	--
11	SB-04-33	8 - 8.5	A	0.074			0.1	2	0.0074	--	--	--	--
12	SB-04-33	12.5 - 13	A	0.64	16	0.016	0.1	2	0.064	0.032	0.032	0.32	20.00
13	SB-04-34	1.5 - 2.5	A	11	440	0.440	0.1	2	1.1	0.88	0.22	2.20	5.00
14	SB-04-34	9.5 - 10	A	1.5	38	0.038	0.1	2	0.15	0.076	0.074	0.74	19.47
15	SB-04-29	4.5-5	B	0.097	5	0.005	0.1	2	0.0097	0.01	-0.0003	0.00	0.01
16	SB-04-29	18.5 - 19	B	0.2	14	0.014	0.1	2	0.02	0.028	-0.008	-0.08	0.01
17	SB-04-30	3.5 - 4	B	0.033			0.1	2	0.0033	--	--	--	--
18	SB-04-30	12.5 - 13	B	0.063	9.4	0.009	0.1	2	0.0063	0.0188	-0.0125	-0.13	--
19	SB-04-30	22 - 22.5	B	0.13	12	0.012	0.1	2	0.013	0.024	-0.011	-0.11	--
20	SB-04-30	24.5-25	B	0.17	13	0.013	0.1	2	0.017	0.026	-0.009	-0.09	--
21	SB-04-31	1 - 1.5	B	0.02			0.1	2	0.002	--	--	--	--
22	SB-04-31	4.5 - 5	B	0.041	14	0.014	0.1	2	0.0041	0.028	-0.0239	-0.24	--
23	SB-04-31	10 - 10.5	B	0.024	6.6	0.007	0.1	2	0.0024	0.0132	-0.0108	-0.11	--
24	SB-04-31	12.5 - 13	B	0.024	7.8	0.008	0.1	2	0.0024	0.0156	-0.0132	-0.13	--
25	SB-04-33	8 - 8.5	B	0.074			0.1	2	0.0074	--	--	--	--
26	SB-04-33	12.5 - 13	B	0.64	8.4	0.008	0.1	2	0.064	0.0168	0.0472	0.47	56.19
27	SB-04-34	1.5 - 2.5	B	11	340	0.340	0.1	2	1.1	0.68	0.42	4.20	12.35
28	SB-04-34	9.5 - 10	B	1.5	28	0.028	0.1	2	0.15	0.056	0.094	0.94	33.57
29	SB-04-29	4.5-5	C	0.097	5	0.005	0.1	2	0.0097	0.01	-0.0003	0.00	0.01
30	SB-04-29	18.5 - 19	C	0.2			0.1	2	0.02	--	--	--	--
31	SB-04-30	3.5 - 4	C	0.033	8	0.008	0.1	2	0.0033	0.016	-0.0127	-0.13	--
32	SB-04-30	12.5 - 13	C	0.063			0.1	2	0.0063	--	--	--	--
33	SB-04-30	22 - 22.5	C	0.13	19	0.019	0.1	2	0.013	0.038	-0.025	-0.25	--
34	SB-04-30	24.5-25	C	0.17	5.2	0.005	0.1	2	0.017	0.0104	0.0066	0.07	12.69
35	SB-04-31	1 - 1.5	C	0.02	8.9	0.009	0.1	2	0.002	0.0178	-0.0158	-0.16	--
36	SB-04-31	4.5 - 5	C	0.041			0.1	2	0.0041	--	--	--	--
37	SB-04-31	10 - 10.5	C	0.024	8.2	0.008	0.1	2	0.0024	0.0164	-0.014	-0.14	--
38	SB-04-31	12.5 - 13	C	0.024	14	0.014	0.1	2	0.0024	0.028	-0.0256	-0.26	--
39	SB-04-33	8 - 8.5	C	0.074			0.1	2	0.0074	--	--	--	--
40	SB-04-33	12.5 - 13	C	0.64	11	0.011	0.1	2	0.064	0.022	0.042	0.42	38.18
41	SB-04-34	1.5 - 2.5	C	11	320	0.320	0.1	2	1.1	0.64	0.46	4.60	14.38
42	SB-04-34	9.5 - 10	C	1.5	37	0.037	0.1	2	0.15	0.074	0.076	0.76	20.54

Notes:

- 1 Ignored duplicates A ASTM neutral leachate bgs = below ground surface ng = nanogram
 - 2 Ignored non-detects B SPLP ft = feet SPLP = soil synthetic leaching
 - 3 standard test mass and volume C ASTM groundwater leachate Kg = kilogram procedure
 - 4 Kds were treated as 0.01 if the calculated Kd was <0 and ignored if >40% more mass leached than available (see text) L = liter TOC = total concentration data
- mg = milligram ug = microgram
 n/a =not applicable

Referenced
 Calculated

References:

ADEQ 2010. Memorandum RE: Methodology for Calculating Groundwater Protection Levels for Nitrate, Nitrite, Total Nitrogen, and other "Salts" for Clean Closure at Non-Recharge Sites. November 4, 2010.
 New Jersey Department of Environmental Protection. 2013. Guidance Document – Development of Impact to Ground Water Soil Remediation Standards Using the Soil-Water Partition Equation. Version 2. November.

Estimation of Kd Using SPLP Data and Total Soil Concentrations

Site Racer - Buick City, Flint, Michigan
 Chemical of concern PFHxS

Calculated by: Peter Tsai
 Checked by: Chris Shepherd
 Date: 2/21/2024

	Kd	TOC
Count	39	7
Minimum	0.0	9560.0
Geomean	12.3	37701.6
Median	25.1	37700.0
Average	38.2	54337.1
Std Dev	35.0	44974.5
Max	131.8	119000.0
No. Cs < 0	7	

$$K_d = \frac{C_s (\frac{mg}{kg})}{C_l (\frac{mg}{L})}$$

$$C_{sorbed} = \frac{[C_t (\frac{ug}{kg}) \times M_{soil} (kg) - C_l (\frac{ug}{L}) \times V_{spt} (L)]}{M_{soil} (kg)}$$

Kd Estimate 25 Basis: Median

Sample ID ^{1,2,3}	Depth (ft bgs)	Leach Method	C _t (ug/Kg)	C _{SPLP} (ng/L)	C _{SPLP} (ug/L)	M _{sample} ⁴ (Kg)	V _{SPLP} ⁴ (L)	M _{soil} (ug)	M _{SPLP} (ug)	M _{sorbed} (ug)	C _{sorbed} (ug/Kg)	Kd ⁵	TOC
												(L/Kg)	mg/kg
1 SB-04-29	4.5-5	A	2.1	54	0.054	0.1	2	0.21	0.108	0.102	1.02	18.89	119,000
2 SB-04-29	18.5 - 19	A	0.37		0.000	0.1	2	0.037	0	0.037	0.37	--	
3 SB-04-30	3.5 - 4	A	2.3	28	0.028	0.1	2	0.23	0.056	0.174	1.74	62.14	23,200
4 SB-04-30	12.5 - 13	A	1.4	23	0.023	0.1	2	0.14	0.046	0.094	0.94	40.87	37,700
5 SB-04-30	22 - 22.5	A	1.8	40	0.040	0.1	2	0.18	0.08	0.1	1.00	25.00	
6 SB-04-30	24.5-25	A	0.68	20	0.020	0.1	2	0.068	0.04	0.028	0.28	14.00	
7 SB-04-31	1 - 1.5	A	0.12		0.000	0.1	2	0.012	0	0.012	0.12	--	9,560
8 SB-04-31	4.5 - 5	A	0.13		0.000	0.1	2	0.013	0	0.013	0.13	--	14,900
9 SB-04-31	10 - 10.5	A	0.85	8.2	0.008	0.1	2	0.085	0.0164	0.0686	0.69	83.66	
10 SB-04-31	12.5 - 13	A	0.85	14	0.014	0.1	2	0.085	0.028	0.057	0.57	40.71	
11 SB-04-33	8 - 8.5	A	1.6	18	0.018	0.1	2	0.16	0.036	0.124	1.24	68.89	
12 SB-04-33	12.5 - 13	A	4.7	52	0.052	0.1	2	0.47	0.104	0.366	3.66	70.38	67,000
13 SB-04-34	1.5 - 2.5	A	120	11000	11.000	0.1	2	12	22	-10	-100.00		109,000
14 SB-04-34	9.5 - 10	A	76	1600	1.600	0.1	2	7.6	3.2	4.4	44.00	27.50	
15 SB-LAG-06	3-5	A		2.5	0.003	0.1	2	0	0.005	-0.005	-0.05	0.01	
16 SB-LAG-06	8-10	A	0.11	3.3	0.003	0.1	2	0.011	0.0066	0.0044	0.04	13.33	
17 SB-LAG-07	8-10	A	0.24	14	0.014	0.1	2	0.024	0.028	-0.004	-0.04	0.01	
18 SB-LAG-08	0-2	A			0.000	0.1	2	0	0	0	0.00	--	
19 SB-LAG-09	8-10	A	0.2	9.4	0.009	0.1	2	0.02	0.0188	0.0012	0.01	1.28	
20 SB-LAG-09	15-17	A	0.34	11	0.011	0.1	2	0.034	0.022	0.012	0.12	10.91	
21 SB-04-29	4.5-5	B	2.1	80	0.080	0.1	2	0.21	0.16	0.05	0.50	6.25	
22 SB-04-29	18.5 - 19	B	0.37	8.2	0.008	0.1	2	0.037	0.0164	0.0206	0.21	25.12	
23 SB-04-30	3.5 - 4	B	2.3	24	0.024	0.1	2	0.23	0.048	0.182	1.82	75.83	
24 SB-04-30	12.5 - 13	B	1.4	47	0.047	0.1	2	0.14	0.094	0.046	0.46	9.79	
25 SB-04-30	22 - 22.5	B	1.8	26	0.026	0.1	2	0.18	0.052	0.128	1.28	49.23	
26 SB-04-30	24.5-25	B	0.68	18	0.018	0.1	2	0.068	0.036	0.032	0.32	17.78	
27 SB-04-31	1 - 1.5	B	0.12		0.000	0.1	2	0.012	0	0.012	0.12	--	
28 SB-04-31	4.5 - 5	B	0.13		0.000	0.1	2	0.013	0	0.013	0.13	--	
29 SB-04-31	10 - 10.5	B	0.85	5.6	0.006	0.1	2	0.085	0.0112	0.0738	0.74	131.79	
30 SB-04-31	12.5 - 13	B	0.85	21	0.021	0.1	2	0.085	0.042	0.043	0.43	20.48	
31 SB-04-33	8 - 8.5	B	1.6	27	0.027	0.1	2	0.16	0.054	0.106	1.06	39.26	
32 SB-04-33	12.5 - 13	B	4.7	47	0.047	0.1	2	0.47	0.094	0.376	3.76	80.00	
33 SB-04-34	1.5 - 2.5	B	120	11000	11.000	0.1	2	12	22	-10	-100.00		
34 SB-04-34	9.5 - 10	B	76	2200	2.200	0.1	2	7.6	4.4	3.2	32.00	14.55	
35 SB-04-29	4.5-5	C	2.1	93	0.093	0.1	2	0.21	0.186	0.024	0.24	2.58	
36 SB-04-29	18.5 - 19	C	0.37	13	0.013	0.1	2	0.037	0.026	0.011	0.11	8.46	
37 SB-04-30	3.5 - 4	C	2.3	28	0.028	0.1	2	0.23	0.056	0.174	1.74	62.14	
38 SB-04-30	12.5 - 13	C	1.4	40	0.040	0.1	2	0.14	0.08	0.06	0.60	15.00	
39 SB-04-30	22 - 22.5	C	1.8	15	0.015	0.1	2	0.18	0.03	0.15	1.50	100.00	
40 SB-04-30	24.5-25	C	0.68	24	0.024	0.1	2	0.068	0.048	0.02	0.20	8.33	
41 SB-04-31	1 - 1.5	C	0.12	6.3	0.006	0.1	2	0.012	0.0126	-0.0006	-0.01	0.01	
42 SB-04-31	4.5 - 5	C	0.13	8.4	0.008	0.1	2	0.013	0.0168	-0.0038	-0.04	0.01	
43 SB-04-31	10 - 10.5	C	0.85	9.5	0.010	0.1	2	0.085	0.019	0.066	0.66	69.47	
44 SB-04-31	12.5 - 13	C	0.85	6.8	0.007	0.1	2	0.085	0.0136	0.0714	0.71	105.00	
45 SB-04-33	8 - 8.5	C	1.6	25	0.025	0.1	2	0.16	0.05	0.11	1.10	44.00	
46 SB-04-33	12.5 - 13	C	4.7	41	0.041	0.1	2	0.47	0.082	0.388	3.88	94.63	
47 SB-04-34	1.5 - 2.5	C	120	10000	10.000	0.1	2	12	20	-8	-80.00		
48 SB-04-34	9.5 - 10	C	76	1500	1.500	0.1	2	7.6	3	4.6	46.00	30.67	

Notes:

- 1 Ignored duplicates
 - 2 Ignored non-detects
 - 3 standard test mass and volume
 - 4 Kds were treated as 0.01 if the calculated Kd was <0 and ignored if >40% more mass leached than available (see text)
- A ASTM neutral leachate
 B SPLP
 C ASTM groundwater leachate
- bgs = below ground surface
 ft = feet
 Kg = kilogram
 L = liter
 mg = milligram
 n/a = not applicable
- ng = nanogram
 SPLP = soil synthetic leaching procedure
 TOC = total concentration data
 ug = microgram
- Referenced
 Calculated

References:

ADEQ 2010. Memorandum RE: Methodology for Calculating Groundwater Protection Levels for Nitrate, Nitrite, Total Nitrogen, and other "Salts" for Clean Closure at Non-Recharge Sites. November 4, 2010.
 New Jersey Department of Environmental Protection. 2013. Guidance Document – Development of Impact to Ground Water Soil Remediation Standards Using the Soil-Water Partition Equation. Version 2. November.

Estimation of Kd Using SPLP Data and Total Soil Concentrations

Site: Racer - Buick City, Flint, Michigan
 Chemical of concern: PFNA

Checked by: Peter Tsai
 Checked by: Chris Shepherd
 Date: 2/21/2024

	Kd	TOC
Count	5	7
Minimum	9.3	9560.0
Geomean	22.1	37701.6
Median	24.0	37700.0
Average	24.5	54337.1
Std Dev	11.1	44974.5
Max	37.1	119000.0

$$K_d = \frac{C_s (\frac{mg}{kg})}{C_l (\frac{mg}{l})}$$

$$C_{sorbed} = \frac{C_l (\frac{ug}{kg}) \times M_{soil} (kg) - C_l (\frac{ug}{l}) \times V_{splp} (l)}{M_{soil} (kg)}$$

Kd Estimate: Averages: n/a Basis: Insufficient number & ratio of positive Kds No. C_s<0 3

0.08 8 0.008 0.01 0.02 0.01 0.08 24.51

Sample ID ^{1,2,3}	Depth (ft bgs)	Leach Method	C _t (ug/Kg)	C _{SPLP} (ng/L)	C _{SPLP} (ug/L)	M _{sample} ⁴ (Kg)	V _{SPLP} ⁴ (L)	M _{soil} (ug)	M _{SPLP} (ug)	M _{soil} (ug)	C _{soil} (ug/Kg)	Kd ⁵ (L/Kg)	TOC mg/kg	
1	SB-04-29	4.5-5	A	0.44	7.7	0.008	0.1	2	0.044	0.0154	0.0286	0.29	37.14	119,000
2	SB-04-29	18.5-19	A	0.012			0.1	2	0.0012	--	--	--	--	--
3	SB-04-30	3.5-4	A	0.079			0.1	2	0.0079	--	--	--	--	23,200.00
4	SB-04-30	12.5-13	A	0.047			0.1	2	0.0047	--	--	--	--	37,700.00
5	SB-04-30	22-22.5	A	0.033			0.1	2	0.0033	--	--	--	--	--
6	SB-04-30	24.5-25	A	0.013			0.1	2	0.0013	--	--	--	--	--
7	SB-04-31	1-1.5	A	0.021			0.1	2	0.0021	--	--	--	--	9,560.00
8	SB-04-31	4.5-5	A	0.023	5.2	0.005	0.1	2	0.0023	0.0104	-0.0081	-0.08	--	14,900.00
9	SB-04-31	10-10.5	A	0.012			0.1	2	0.0012	--	--	--	--	--
10	SB-04-31	12.5-13	A	0.012			0.1	2	0.0012	--	--	--	--	--
11	SB-04-33	8-8.5	A	0.081			0.1	2	0.0081	--	--	--	--	--
12	SB-04-33	12.5-13	A	0.074			0.1	2	0.0074	--	--	--	--	67,000.00
13	SB-04-34	1.5-2.5	A	0.27			0.1	2	0.027	--	--	--	--	109,000.00
14	SB-04-34	9.5-10	A	0.065			0.1	2	0.0065	--	--	--	--	--
15	SB-04-29	4.5-5	B	0.44	15	0.015	0.1	2	0.044	0.03	0.014	0.14	9.33	--
16	SB-04-29	18.5-19	B	0.012			0.1	2	0.0012	--	--	--	--	--
17	SB-04-30	3.5-4	B	0.079			0.1	2	0.0079	--	--	--	--	--
18	SB-04-30	12.5-13	B	0.047			0.1	2	0.0047	--	--	--	--	--
19	SB-04-30	22-22.5	B	0.033			0.1	2	0.0033	--	--	--	--	--
20	SB-04-30	24.5-25	B	0.013			0.1	2	0.0013	--	--	--	--	--
21	SB-04-31	1-1.5	B	0.021			0.1	2	0.0021	--	--	--	--	--
22	SB-04-31	4.5-5	B	0.023			0.1	2	0.0023	--	--	--	--	--
23	SB-04-31	10-10.5	B	0.012			0.1	2	0.0012	--	--	--	--	--
24	SB-04-31	12.5-13	B	0.012			0.1	2	0.0012	--	--	--	--	--
25	SB-04-33	8-8.5	B	0.081			0.1	2	0.0081	--	--	--	--	--
26	SB-04-33	12.5-13	B	0.074			0.1	2	0.0074	--	--	--	--	--
27	SB-04-34	1.5-2.5	B	0.27	5.1	0.005	0.1	2	0.027	0.0102	0.0168	0.17	32.94	--
28	SB-04-34	9.5-10	B	0.065			0.1	2	0.0065	--	--	--	--	--
29	SB-04-29	4.5-5	C	0.44	10	0.010	0.1	2	0.044	0.02	0.024	0.24	24.00	--
30	SB-04-29	18.5-19	C	0.012	5.8	0.006	0.1	2	0.0012	0.0116	-0.0104	-0.10	--	--
31	SB-04-30	3.5-4	C	0.079	11	0.011	0.1	2	0.0079	0.022	-0.0141	-0.14	--	--
32	SB-04-30	12.5-13	C	0.047			0.1	2	0.0047	--	--	--	--	--
33	SB-04-30	22-22.5	C	0.033			0.1	2	0.0033	--	--	--	--	--
34	SB-04-30	24.5-25	C	0.013			0.1	2	0.0013	--	--	--	--	--
35	SB-04-31	1-1.5	C	0.021			0.1	2	0.0021	--	--	--	--	--
36	SB-04-31	4.5-5	C	0.023			0.1	2	0.0023	--	--	--	--	--
37	SB-04-31	10-10.5	C	0.012			0.1	2	0.0012	--	--	--	--	--
38	SB-04-31	12.5-13	C	0.012			0.1	2	0.0012	--	--	--	--	--
39	SB-04-33	8-8.5	C	0.081			0.1	2	0.0081	--	--	--	--	--
40	SB-04-33	12.5-13	C	0.074			0.1	2	0.0074	--	--	--	--	--
41	SB-04-34	1.5-2.5	C	0.27	6.9	0.007	0.1	2	0.027	0.0138	0.0132	0.13	19.13	--
42	SB-04-34	9.5-10	C	0.065			0.1	2	0.0065	--	--	--	--	--

Notes:

- 1 Ignored duplicates
 - 2 Ignored non-detects
 - 3 standard test mass and volume
 - 4 Kds were treated as 0.01 if the calculated Kd was <0 and ignored if >40% more mass leached than available (see text)
- A ASTM neutral leachate
 B SPLP
 C ASTM groundwater leachate
- bgs = below ground surface
 ft = feet
 Kg = kilogram
 L = liter
 mg = milligram
 n/a = not applicable
- ng = nanogram
 SPLP = soil synthetic leaching procedure
 TOC = total concentration data
 ug = microgram
- Referenced
 Calculated

References:

ADEQ 2010. Memorandum RE: Methodology for Calculating Groundwater Protection Levels for Nitrate, Nitrite, Total Nitrogen, and other "Salts" for Clean Closure at Non-Recharge Sites. November 4, 2010.
 New Jersey Department of Environmental Protection. 2013. Guidance Document – Development of Impact to Ground Water Soil Remediation Standards Using the Soil-Water Partition Equation. Version 2. November.

Estimation of Kd Using SPLP Data and Total Soil Concentrations

Site Racer - Buick City, Flint, Michigan
 Chemical of concern PFOA

Calculated by: Peter Tsai
 Checked by: Chris Shepherd
 Date: 2/21/2024

	Kd	TOC
Count	23	7
Minimum	0.7	9,560
Geomean	12.1	37,702
Median	17.5	37,700
Average	19.7	54,337
Std Dev	16.0	44,975
Max	56.9	119,000
No. C _s <0	18	

$$K_d = \frac{C_s(\frac{mg}{kg})}{C_l(\frac{mg}{l})}$$

$$C_{sorbed} = \frac{[C_l(\frac{ug}{kg}) \times M_{Soil}(kg) - C_l(\frac{ug}{l}) \times V_{SPLP}(l)]}{M_{Soil}(kg)}$$

Kd Estimated Mean 17.5 Basis: Median

Sample ID ^{1,2,3}	Depth (ft bgs)	Leach Method	C _t (ug/Kg)	C _{SPLP} (ng/L)	C _{SPLP} (ug/L)	M _{sample} ⁴ (Kg)	V _{SPLP} ⁴ (L)	M _{Soil} (ug)	M _{SPLP} (ug)	M _{sorbed} (ug)	C _{sorbed} (ug/Kg)	Kd ⁵ (L/Kg)	TOC mg/kg	
1	SB-04-29	4.5-5	A	0.73	20	0.020	0.1	2	0.073	0.04	0.033	0.33	16.50	119,000
2	SB-04-29	18.5 - 19	A	0.11	7.6	0.008	0.1	2	0.011	0.0152	-0.0042	-0.04	0.01	
3	SB-04-30	3.5 - 4	A	0.18	6.8	0.007	0.1	2	0.018	0.0136	0.0044	0.04	6.47	23,200.00
4	SB-04-30	12.5 - 13	A	0.16	2.5	0.003	0.1	2	0.016	0.005	0.011	0.11	44.00	37,700.00
5	SB-04-30	22 - 22.5	A	0.2	4.7	0.005	0.1	2	0.02	0.0094	0.0106	0.11	22.55	
6	SB-04-30	24.5-25	A	0.12	3.2	0.003	0.1	2	0.012	0.0064	0.0056	0.06	17.50	
7	SB-04-31	1 - 1.5	A	0.053	2.8	0.003	0.1	2	0.0053	0.0056	-0.0003	0.00	0.01	9,560.00
8	SB-04-31	4.5 - 5	A	0.049		0.000	0.1	2	0.0049	0	0.0049	0.05	--	14,900.00
9	SB-04-31	10 - 10.5	A	0.026		0.000	0.1	2	0.0026	0	0.0026	0.03	--	
10	SB-04-31	12.5 - 13	A	0.026		0.000	0.1	2	0.0026	0	0.0026	0.03	--	
11	SB-04-33	8 - 8.5	A	0.19	2.9	0.003	0.1	2	0.019	0.0058	0.0132	0.13	45.52	
12	SB-04-33	12.5 - 13	A	0.35	5.9	0.006	0.1	2	0.035	0.0118	0.0232	0.23	39.32	67,000.00
13	SB-04-34	1.5 - 2.5	A	27	1200	1.200	0.1	2	2.7	2.4	0.3	3.00	2.50	109,000.00
14	SB-04-34	9.5 - 10	A	5.4	120	0.120	0.1	2	0.54	0.24	0.3	3.00	25.00	
15	SB-LAG-06	3-5	A	0.089	4.5	0.005	0.1	2	0.0089	0.009	-1E-04	0.00	0.01	
16	SB-LAG-06	8-10	A			0.000	0.1	2	0	0	0	0.00	--	
17	SB-LAG-07	8-10	A	0.13	5.1	0.005	0.1	2	0.013	0.0102	0.0028	0.03	5.49	
18	SB-LAG-08	0-2	A		2.3	0.002	0.1	2	0	0.0046	-0.0046	-0.05	--	
19	SB-LAG-09	8-10	A		2.1	0.002	0.1	2	0	0.0042	-0.0042	-0.04	--	
20	SB-LAG-09	15-17	A			0.000	0.1	2	0	0	0	0.00	--	
21	SB-04-29	4.5-5	B	0.73	24	0.024	0.1	2	0.073	0.048	0.025	0.25	10.42	
22	SB-04-29	18.5 - 19	B	0.11	2.7	0.003	0.1	2	0.011	0.0054	0.0056	0.06	20.74	
23	SB-04-30	3.5 - 4	B	0.18	11	0.011	0.1	2	0.018	0.022	-0.004	-0.04	0.01	
24	SB-04-30	12.5 - 13	B	0.16	3.1	0.003	0.1	2	0.016	0.0062	0.0098	0.10	31.61	
25	SB-04-30	22 - 22.5	B	0.2	2.6	0.003	0.1	2	0.02	0.0052	0.0148	0.15	56.92	
26	SB-04-30	24.5-25	B	0.12	9.1	0.009	0.1	2	0.012	0.0182	-0.0062	-0.06	--	
27	SB-04-31	1 - 1.5	B	0.053	4	0.004	0.1	2	0.0053	0.008	-0.0027	-0.03	--	
28	SB-04-31	4.5 - 5	B	0.049		0.000	0.1	2	0.0049	0	0.0049	0.05	--	
29	SB-04-31	10 - 10.5	B	0.026	3.6	0.004	0.1	2	0.0026	0.0072	-0.0046	-0.05	--	
30	SB-04-31	12.5 - 13	B	0.026		0.000	0.1	2	0.0026	0	0.0026	0.03	--	
31	SB-04-33	8 - 8.5	B	0.19	9.2	0.009	0.1	2	0.019	0.0184	0.0006	0.01	0.65	
32	SB-04-33	12.5 - 13	B	0.35	12	0.012	0.1	2	0.035	0.024	0.011	0.11	9.17	
33	SB-04-34	1.5 - 2.5	B	27	1300	1.300	0.1	2	2.7	2.6	0.1	1.00	0.77	
34	SB-04-34	9.5 - 10	B	5.4	130	0.130	0.1	2	0.54	0.26	0.28	2.80	21.54	
35	SB-04-29	4.5-5	C	0.73	26	0.026	0.1	2	0.073	0.052	0.021	0.21	8.08	
36	SB-04-29	18.5 - 19	C	0.11	8.3	0.008	0.1	2	0.011	0.0166	-0.0056	-0.06	--	
37	SB-04-30	3.5 - 4	C	0.18	26	0.026	0.1	2	0.018	0.052	-0.034	-0.34	--	
38	SB-04-30	12.5 - 13	C	0.16	6.6	0.007	0.1	2	0.016	0.0132	0.0028	0.03	4.24	
39	SB-04-30	22 - 22.5	C	0.2	7.7	0.008	0.1	2	0.02	0.0154	0.0046	0.05	5.97	
40	SB-04-30	24.5-25	C	0.12	14	0.014	0.1	2	0.012	0.028	-0.016	-0.16	--	
41	SB-04-31	1 - 1.5	C	0.053	9	0.009	0.1	2	0.0053	0.018	-0.0127	-0.13	--	
42	SB-04-31	4.5 - 5	C	0.049	9.3	0.009	0.1	2	0.0049	0.0186	-0.0137	-0.14	--	
43	SB-04-31	10 - 10.5	C	0.026	5.3	0.005	0.1	2	0.0026	0.0106	-0.008	-0.08	--	
44	SB-04-31	12.5 - 13	C	0.026	4.7	0.005	0.1	2	0.0026	0.0094	-0.0068	-0.07	--	
45	SB-04-33	8 - 8.5	C	0.19	9.8	0.010	0.1	2	0.019	0.0196	-0.0006	-0.01	0.01	
46	SB-04-33	12.5 - 13	C	0.35	7.9	0.008	0.1	2	0.035	0.0158	0.0192	0.19	24.30	
47	SB-04-34	1.5 - 2.5	C	27	1700	1.700	0.1	2	2.7	3.4	-0.7	-7.00	0.01	
48	SB-04-34	9.5 - 10	C	5.4	100	0.100	0.1	2	0.54	0.2	0.34	3.40	34.00	

Notes:

- 1 Ignored duplicates
 - 2 Ignored non-detects
 - 3 standard test mass and volume
 - 4 Kds were treated as 0.01 if the calculated Kd was <0 and ignored if >40% more mass leached than available (see text)
- A ASTM neutral leachate
 B SPLP
 C ASTM groundwater leachate
- bgs = below ground surface
 ft = feet
 Kg = kilogram
 L = liter
 mg = milligram
 n/a =not applicable
- ng = nanogram
 SPLP = soil synthetic leaching procedure
 TOC = total concentration data
 ug = microgram
- Referenced
 Calculated

References:

ADEQ 2010. Memorandum RE: Methodology for Calculating Groundwater Protection Levels for Nitrate, Nitrite, Total Nitrogen, and other "Salts" for Clean Closure at Non-Recharge Sites. November 4, 2010.
 New Jersey Department of Environmental Protection. 2013. Guidance Document – Development of Impact to Ground Water Soil Remediation Standards Using the Soil-Water Partition Equation. Version 2. November.

Estimation of Kd Using Paired Leaching and Total Soil Concentration Data

Site: Racer - Buick City, Flint, Michigan
 Chemical of concern: PFOS

Calculated by: Peter Tsai
 Checked by: Chris Shepherd
 Date: 2/21/2024

	Kd	TOC
Count	38	7
Minimum	4.0	9560.0
Geomean	25.9	37701.6
Median	26.7	37700.0
Average	33.5	54337.1
Std Dev	23.2	44974.5
Max	93.3	119000
No. Cs<0	5	

$$K_d = \frac{C_s(\frac{ug}{kg})}{C_l(\frac{ug}{l})}$$

$$C_{sorbed} = \frac{[C_l(\frac{ug}{kg}) \times M_{soil}(kg) - C_l(\frac{ug}{l}) \times V_{SPLP}(l)]}{M_{soil}(kg)}$$

Sample ID ^{1,2,3}	Depth (ft bgs)	Leach Method	C _t (ug/Kg)	C _{SPLP} (ng/L)	C _{SPLP} (ug/L)	M _{sample} ⁴ (Kg)	V _{SPLP} ⁴ (L)	M _{soil} (ug)	M _{SPLP} (ug)	M _{sorbed} (ug)	C _{sorbed} (ug/Kg)	Kd ⁴ (L/Kg)	TOC mg/kg	
														Basis: Median
1	SB-04-29	4.5-5	A	67	1000	1.000	0.1	2	6.7	2	4.7	47.00	47.00	119,000
2	SB-04-29	18.5 - 19	A	0.97		0.000	0.1	2	0.097	0	0.097	0.97	--	
3	SB-04-30	3.5 - 4	A	6.3	250	0.250	0.1	2	0.63	0.5	0.13	1.30	5.20	23,200
4	SB-04-30	12.5 - 13	A	52	940	0.940	0.1	2	5.2	1.88	3.32	33.20	35.32	37,700
5	SB-04-30	22 - 22.5	A	0.55	12	0.012	0.1	2	0.055	0.024	0.031	0.31	25.83	
6	SB-04-30	24.5-25	A	1.3	17	0.017	0.1	2	0.13	0.034	0.096	0.96	56.47	
7	SB-04-31	1 - 1.5	A	0.94	9	0.009	0.1	2	0.094	0.018	0.076	0.76	84.44	9,560
8	SB-04-31	4.5 - 5	A	2.6	71	0.071	0.1	2	0.26	0.142	0.118	1.18	16.62	14,900
9	SB-04-31	10 - 10.5	A	0.12		0.000	0.1	2	0.012	0	0.012	0.12	--	
10	SB-04-31	12.5 - 13	A	0.12	5	0.005	0.1	2	0.012	0.01	0.002	0.02	4.00	
11	SB-04-33	8 - 8.5	A	1.5	27	0.027	0.1	2	0.15	0.054	0.096	0.96	35.56	
12	SB-04-33	12.5 - 13	A	3.3	59	0.059	0.1	2	0.33	0.118	0.212	2.12	35.93	67,000
13	SB-04-34	1.5 - 2.5	A	1300	110000	110.000	0.1	2	130	220	-90	-900.00	--	109,000
14	SB-04-34	9.5 - 10	A	270	9900	9.900	0.1	2	27	19.8	7.2	72.00	7.27	
15	SB-LAG-06	3-5	A	1.1	38	0.038	0.1	2	0.11	0.076	0.034	0.34	8.95	
16	SB-LAG-06	8-10	A	1.6	32	0.032	0.1	2	0.16	0.064	0.096	0.96	30.00	
17	SB-LAG-07	8-10	A	4.7	110	0.110	0.1	2	0.47	0.22	0.25	2.50	22.73	
18	SB-LAG-08	0-2	A	2.1	53	0.053	0.1	2	0.21	0.106	0.104	1.04	19.62	
19	SB-LAG-09	8-10	A	1.7	51	0.051	0.1	2	0.17	0.102	0.068	0.68	13.33	
20	SB-LAG-09	15-17	A	1	21	0.021	0.1	2	0.1	0.042	0.058	0.58	27.62	
21	SB-04-29	4.5-5	B	67	1400	1.400	0.1	2	6.7	2.8	3.9	39.00	27.86	
22	SB-04-29	18.5 - 19	B	0.97	9.5	0.010	0.1	2	0.097	0.019	0.078	0.78	82.11	
23	SB-04-30	3.5 - 4	B	6.3	210	0.210	0.1	2	0.63	0.42	0.21	2.10	10.00	
24	SB-04-30	12.5 - 13	B	52	1300	1.300	0.1	2	5.2	2.6	2.6	26.00	20.00	
25	SB-04-30	22 - 22.5	B	0.55	5.6	0.006	0.1	2	0.055	0.0112	0.0438	0.44	78.21	
26	SB-04-30	24.5-25	B	1.3	29	0.029	0.1	2	0.13	0.058	0.072	0.72	24.83	
27	SB-04-31	1 - 1.5	B	0.94	12	0.012	0.1	2	0.094	0.024	0.07	0.70	58.33	
28	SB-04-31	4.5 - 5	B	2.6	59	0.059	0.1	2	0.26	0.118	0.142	1.42	24.07	
29	SB-04-31	10 - 10.5	B	0.12		0.000	0.1	2	0.012	0	0.012	0.12	--	
30	SB-04-31	12.5 - 13	B	0.12		0.000	0.1	2	0.012	0	0.012	0.12	--	
31	SB-04-33	8 - 8.5	B	1.5	25	0.025	0.1	2	0.15	0.05	0.1	1.00	40.00	
32	SB-04-33	12.5 - 13	B	3.3	74	0.074	0.1	2	0.33	0.148	0.182	1.82	24.59	
33	SB-04-34	1.5 - 2.5	B	1300	120000	120.000	0.1	2	130	240	-110	-1100.00	--	
34	SB-04-34	9.5 - 10	B	270	4100	4.100	0.1	2	27	8.2	18.8	188.00	45.85	
35	SB-04-29	4.5-5	C	67	1100	1.100	0.1	2	6.7	2.2	4.5	45.00	40.91	
36	SB-04-29	18.5 - 19	C	0.97	15	0.015	0.1	2	0.097	0.03	0.067	0.67	44.67	
37	SB-04-30	3.5 - 4	C	6.3	350	0.350	0.1	2	0.63	0.7	-0.07	-0.70	0.01	
38	SB-04-30	12.5 - 13	C	52	1200	1.200	0.1	2	5.2	2.4	2.8	28.00	23.33	
39	SB-04-30	22 - 22.5	C	0.55		0.000	0.1	2	0.055	0	0.055	0.55	--	
40	SB-04-30	24.5-25	C	1.3	19	0.019	0.1	2	0.13	0.038	0.092	0.92	48.42	
41	SB-04-31	1 - 1.5	C	0.94	8.3	0.008	0.1	2	0.094	0.0166	0.0774	0.77	93.25	
42	SB-04-31	4.5 - 5	C	2.6	85	0.085	0.1	2	0.26	0.17	0.09	0.90	10.59	
43	SB-04-31	10 - 10.5	C	0.12	6.1	0.006	0.1	2	0.012	0.0122	-0.0002	0.00	0.01	
44	SB-04-31	12.5 - 13	C	0.12	4	0.004	0.1	2	0.012	0.008	0.004	0.04	10.00	
45	SB-04-33	8 - 8.5	C	1.5	42	0.042	0.1	2	0.15	0.084	0.066	0.66	15.71	
46	SB-04-33	12.5 - 13	C	3.3	42	0.042	0.1	2	0.33	0.084	0.246	2.46	58.57	
47	SB-04-34	1.5 - 2.5	C	1300	110000	110.000	0.1	2	130	220	-90	-900.00	--	
48	SB-04-34	9.5 - 10	C	270	7400	7.400	0.1	2	27	14.8	12.2	122.00	16.49	

Notes:

- 1 Ignored duplicates A ASTM neutral leachate bgs = below ground surface ng = nanogram
- 2 Ignored non-detects B SPLP ft = feet SPLP = soil synthetic leaching
- 3 standard test mass and volume C ASTM groundwater leachate Kg = kilogram procedure
- 4 Kds were treated as 0.01 if the calculated Kd was <0 and ignored if >40% more mass leached than available (see text) L = liter TOC = total concentration data mg = milligram ug = microgram n/a = not applicable

Referenced
 Calculated

References:

- ADEQ 2010. Memorandum RE: Methodology for Calculating Groundwater Protection Levels for Nitrate, Nitrite, Total Nitrogen, and other "Salts" for Clean Closure at Non-Recharge Sites. November 4, 2010.
- New Jersey Department of Environmental Protection. 2013. Guidance Document - Development of Impact to Ground Water Soil Remediation Standards Using the Soil-Water Partition Equation. Version 2. November.