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DRAFT WELL INSTALLATION COMPLETION REPORT

LOWER ISSAQUAH VALLEY
ISSAQUAH, WASHINGTON

Prepared for

The City of Issaquah
Issaquah, WA 98168

Prepared by

Geosyntec Consultants, Inc.
520 Pike Street, Suite 2600
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Project Number: PNG0989

January 2023

Draft

Well Installation Completion Report

Lower Issaquah Valley
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Prepared for

City of Issaquah, Washington
Issaquah, WA 98027

Prepared by

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Project Number: PNG0989

January 2023

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ACRONYMS AND ABBREVIATIONS

CSM	conceptual site model
DOT	Department of Transportation
DTW	depth to water
Ecology	Washington State Department of Ecology
EFR	Eastside Fire and Rescue
Farallon	Farallon Consultants
ft bgs	feet below ground surface
Geosyntec	Geosyntec Consultants, Inc.
HASP	Health & Safety Plan
Holt	Holt Drilling, Inc.
IAA	interagency agreement
IDW	investigation-derived waste
LG	licensed geologist
LIV	Lower Issaquah Valley
NTUs	nephelometric turbidity units
PFAS	per- and polyfluoroalkyl substances
PID	photoionization detector
PVC	polyvinylchloride
Qa	shallow alluvium
Qva	Vashon Advance Outwash
Qvi	ice contact/lake
Qvr	recessional outwash
Qw	discontinuous wetland
USCS	United Soil Classification System
VOCs	volatile organic compounds

1. INTRODUCTION

Geosyntec Consultants, Inc. (Geosyntec) prepared this Well Completion Report (Report) to document installation of one monitoring well (COI-MW08) completed under the interagency agreement (IAA[1]) between the City of Issaquah (City) and the Washington State Department of Ecology (Ecology). This Report summarizes the drilling and well installation activities and analytical testing results following the *Per-and Poly-Fluoroalkyl Substances Data Gaps Investigation Work Plan* (Farallon 2022) and the *Hydrogeological Characterization Work Plan Addendum # 1* (Geosyntec 2022a). The well was installed in the southeastern portion of the Salmon Run Nature Park at 5th Avenue NW and NW Juniper Street in Issaquah, Washington, and near existing monitoring wells COI-MW05, IES-MW07, and IES-MW12 (Figure 1; the "Site").

The objectives and scope of work included the following:

- Installation of one monitoring well to a depth of three-hundred (300) feet below ground surface (bgs). The rationale for the well location and conceptual site model (CSM) data gaps were described in the CSM Report (Geosyntec 2022b).
- Observation and sampling of the deeper portions of the A Zone Aquifer and Deep Aquitard (deep silt);
- Collection of grab-groundwater and grab-soil samples during drilling to characterize the vertical changes in PFAS concentrations in the deeper portion of the A Zone Aquifer and Deep Aquitard;
- Development of the newly installed monitoring well;
- Installation of a transducer and incorporation of the newly installed monitoring wells into the quarterly sampling schedule for the Lower Issaquah Valley (LIV) that is implemented by Farallon Consultants (Farallon) under a separate IAA with Eastside Fire and Rescue (EFR); and
- Coordination of investigation-derived waste (IDW) staging and characterization for eventual off-site disposal.

[1] IAA No. C2200183

2. PRE-FIELD ACTIVITIES

Before initiating the subsurface investigation, Geosyntec completed the following tasks:

- Conducted a site walk with representatives from the City to identify potential well locations. The well location was submitted to Ecology to share with the Tribes and the DAHP for their review of the proposed monitoring well location and general work area;
- Submitted a Washington State utility notification request (Ticket# 22500482) of the proposed drilling location. Coordinated with the City to identify private underground utilities and obtain concurrence on proposed drilling locations;
- Coordinated and identified with the analytical laboratory subcontractor, Eurofins of Sacramento, California, for the appropriate analytical methods, sample containers, reporting limits, and data reporting package;
- Arranged with the drilling subcontractor, Holt Services Inc (Holt) of Edgewood, Washington, the drilling schedule, staging, sequencing, and well construction specifications;
- Coordinated with the City to obtain relevant permitting and identify a temporary storage location for IDW during and after the investigation; and
- Reviewed and signed the site-specific health and safety plan (HASP) provided in the Work Plan.

3. DRILLING, SAMPLING, AND MONITORING WELL INSTALLATION

3.1 Drilling

Drilling of one monitoring well, COI-MW08, commenced on 29 November 2022, and the well was completed on 21 December 2022. Geosyntec supervised the drilling and monitoring well installation performed by Holt using a track-mounted Sonic™ rig.

Geosyntec field personnel classified the soil cores using United Soil Classification System (USCS) visual-manual methods. Continuous soil core was obtained and field screened for volatile organic compounds (VOCs) using a photoionization detector (PID). Soil classification and field screening information were recorded on a field boring log, along with information from the driller (e.g., heaving sands, hard drilling conditions, etc.), and each core run was photographed.

Beginning 2 December 2022 at approximately 150 feet bgs, drilling progress slowed to approximately 20 feet or less per day due to excessive heaving up the casing. On 8 December 2022, after three days of little to no advancement and repeated cleanout due to heaving, water was used during drilling to stabilize the formation interval where heave was occurring. Water was intermittently used from 200 feet bgs to the target depth of 300 feet bgs.

Borehole logs are provided in Appendix A, and photographs of soil core taken during drilling are provided in Appendix B. A description of the drill core is provided in Section 4.1, below.

3.2 Groundwater and Soil Grab Sampling

Discrete depth grab groundwater samples were collected during drilling at depths of 150 and 170 feet bgs on 6 and 7 December 2022. Deeper groundwater samples were not collected as planned due to the use of water during drilling.

Holt personnel sampled the monitoring wells using a stainless-steel bailer. Several attempts using the temporary stainless steel well screen sampling method described in the work plan addendum were attempted, but very fine sediment silted up the screen, and the water sample was too turbid to flow. A second method was attempted using a sampling pump inserted directly into the drill casing; however, the water was too turbid to flow.

Soil grab samples were collected from the core between 2 and 7 December 2022 at depths of 134, 144, 152, 162, 167, 175, 185, and 195 feet bgs. Grab soil samples were collected directly from the drill core and placed into sample jars. Deeper samples were not collected due to the use of water during drilling.

Samples were collected in laboratory-supplied PFAS-free containers, labeled, placed into a cooler with ice, and shipped to the Eurofins laboratory using chain-of-custody procedures. The samples were submitted for PFAS analysis using EPA Method 537 Modified Client List (15 Analytes). Chains of custody and analytical laboratory reports are provided in Appendix C.

Soil samples were also selected for grain size analysis and submitted to AmTest Laboratory in Kirkland, Washington.

3.3 Monitoring Well Construction and Development

Monitoring well COI-MW08 was screened from 238 to 248 feet bgs. The well screen interval was determined based on field observations of a saturated, coarse-gravel unit, and in consultation with Ecology. The borehole was backfilled from 300 to 249 feet bgs using a bentonite grout slurry tremmied into the base of the borehole.

The monitoring well was constructed through the drill casing and consisted of four-inch diameter, schedule 40 polyvinyl chloride (PVC) casing, 10 feet of 10-slot (or 0.01-inch slotted) PVC screen, flush-threaded joints, and a flat-bottom cap. The monitoring well filter pack was constructed using 12/20 sized silica sand tremied to approximately 2.5 feet above the top of the well screen, followed by an annular seal of hydrated bentonite pellets up to 224 ft bgs. Following the placement of the annular seal, the annular space was filled with a bentonite grout slurry tremmied up to 7 ft bgs. The remainder of the borehole was filled with hydrated bentonite chips. The monitoring well was completed at the surface with a 12-inch diameter flush-mounted, traffic-rated monument and locking expandable gasket well cap. Monitoring well construction details are summarized in Table 1, and well construction logs and boring logs are provided in Appendix A.

The monitoring well was developed on 19 and 21 December 2022 by Holt under the supervision of Geosyntec personnel. The purpose of the well development was to remove the fine-grained materials inside the filter pack and casing and to stabilize the filter pack around the well screen. On 19 December 2022, well development consisted of pumping out a proportionate water volume to that used during drilling using a high-volume pump. On 21 December 2022, a smaller volume, PFAS-free pump was used to complete well development, and groundwater quality parameters (i.e., temperature, pH, specific conductance, dissolved oxygen, oxidation-reduction potential, and turbidity) were measured during the final stage of development. The turbidity of the purge water during well development on 21 December 2022 also was measured, and pumping continued until low-turbidity conditions were measured (<50 nephelometric turbidity units [NTUs]) and at least one full well volume was purged from the well. Field personnel did not use Teflon® tubing, other equipment made of Teflon®, or other potentially PFAS-containing materials for well development, in accordance with the work plan.

A surveyor (APEX Engineering) surveyed the monitoring well on 11 January 2023, including the top of casing, top of monument (ground surface), and the latitude and longitude. Well measurement and location coordinates are summarized in Table 1.

3.4 Investigation-Derived Waste

IDW consisted of soil cuttings and groundwater from well installation drilling, water used during drilling, and purge water generated during development. Soil and water IDW were segregated by type (soil, water, and soil/water mix) and placed into Department of Transportation (DOT)-rated labeled 55-gallon drums. The IDW drums were moved to City property pending a waste

designation determination and eventual off-site disposal. IDW disposal receipts will be provided to Ecology once completed. Disposal receipts will be provided as Appendix D once received.

3.5 Site Restoration

Following well development, Geosyntec personnel oversaw restoration of the work site impacted by drill rig and bobcat operations. On 2 January 2023, two yards of 3-way soil and one yard of 5/8 crushed gravel were delivered to the Site by Better Buys Topsoil. Following installation of soil and gravel, Geosyntec personnel reinstalled the fence that had been removed to gain access to the property. Photos of the work site before and during the project, as well as after restoration, are provided in Appendix B.

3.6 Transducer Installation and Groundwater Monitoring

A pressure transducer (Van Essen micro-diver) was installed in COI-MW08 in January 2023 for continuous water level monitoring (three-minute frequency). The transducer was affixed to the well cap with a polypropylene tether and stainless steel weights. Monitoring wells equipped with pressure transducers are shown in Figure 1.

Sampling of monitoring well COI-MW08 will be completed by Farallon in January 2023 and will be incorporated after that into the regular quarterly sampling schedule for the LIV.

4. RESULTS

4.1 Geologic and Hydrogeologic Conditions

Brief descriptions of the four major geologic units present in the COI-MW08 borehole are provided in the following sections. The borehole log is provided in Appendix A. A photolog is provided in Appendix B.

For reference, site and vicinity geology and hydrogeology were described in the Conceptual Hydrogeologic Model Report dated 30 December 2022 (Geosyntec, 2022b). The stratigraphy described below uses the nomenclature presented in that report.

4.1.1 Shallow Alluvium (0 – 64.7 feet bgs)

The shallow alluvium consisted primarily of grey to brown, loosely consolidated, fine to coarse sand with sub-angular to sub-rounded fine- to coarse-sized gravel with some cobbles. A gray, fine to coarse gravelly sand with small to medium gravel and trace wood debris predominated the upper 20.4 ft bgs. A loose, brown, fine to coarse sand with fine to coarse gravel and cobbles was encountered from approximately 20.4 ft bgs to 54.4 ft bgs. These two units are interpreted to be shallow alluvium (Qa) deposits. A 2.5 ft unit of dense, lean clay and sandy silt with trace organics was encountered at 25.5 ft bgs. This unit is interpreted to be a discontinuous wetland (Qw) deposit. At 7 ft bgs, the sand transitions from dry-to-moist to predominantly wet and remains wet from 7 ft bgs to 64.7 feet bgs (this unit is the Shallow Aquifer). Between 54.4 ft bgs and 64.7 ft bgs, a series of interbedded gray and brown, dense silty sand with brown sandy small to large gravel was encountered. This unit may represent the transition from the alluvium deposits to recessional outwash (Qvr).

4.1.2 A Zone Aquifer (64.7 – 134 feet bgs)

The A zone aquifer consists of brown to grayish brown, loosely consolidated, sands and gravels, and gray, loosely consolidated, fine to coarse sand with silt. A brown to grayish-brown, fine to coarse, wet, sub-angular to sub-rounded gravel with sand predominated from 64.7 ft bgs to 83.6 ft bgs. A brown, fine to coarse sand with trace small to coarse subrounded gravel was encountered from 83.6 ft bgs to 106.2 ft bgs. A gray, medium dense, fine to medium sand with silt was encountered from 106.2 ft bgs to 134 ft bgs. These three units are interpreted to be advance outwash (Qva) or recessional outwash (Qvr) deposits.

At 80.8 ft bgs, the sand transitions from wet to dry and remains dry from 80.8 ft bgs to 90.0 ft bgs. From 90.0 ft bgs to 134 ft bgs, the core is predominantly moist.

During drilling at approximately 120 to 130 feet bgs, significant heaving was encountered, with very fine silt and sand pushing up into the drill casing. Heaving continued through the Deep Aquitard unit and into the B Zone Aquifer.

4.1.3 Deep Aquitard (134 – 144 feet bgs)

The aquitard consists of gray, dense, lean clay, silts, and sandy silts. A gray, dense, lean clay was encountered from 134 ft bgs to 136 ft bgs. From 136 ft bgs to 144 ft bgs, a series of gray, dense, silts and sandy silts predominated and were interbedded with thinner units of gray, poorly-graded, fine to coarse sands. From 134 ft bgs to 144 ft bgs, the sand transitions between dry and moist. The silt, clay, and sandy silts are interpreted to be part of the older glacial (Qpff or Qpog) lacustrine deposits.

4.1.4 B Zone Aquifer (144 – 300 feet bgs)

The B zone aquifer consists of gray, dense, fine to coarse sands with silt and sandy silts, with a prominent water-bearing, gray, loosely consolidated, small to large sub-angular gravel unit from approximately 240 ft bgs to 245 ft bgs. The well was screened across this water-bearing gravel from 238 ft bgs to 248 ft bgs.

A gray, dense, fine to coarse sand with silt predominated from 144 ft bgs to approximately 240 ft bgs. At 161.3 ft bgs, the sand transitions from moist to wet and remains wet until 170.7 ft bgs. Heaving conditions were particularly problematic from approximately 170 to 200 ft bgs, with a very fine sand and silt pushing up to 85’ into the casing. After 170 ft bgs, clean tap water was used during drilling to hold the hole open.

From 170.7 ft bgs to 200 ft bgs, the sand was dry before transitioning to dry to moist from 200 ft bgs to 240 bgs. The static depth to water (DTW) at a boring depth of 200 ft bgs was 57 ft bgs. This gray sand layer was interbedded with thinner units of gray, dense, sandy silt.

From approximately 240 ft bgs to 245 ft bgs, a water-bearing, gray, loosely consolidated, small to large sub-angular gravel was encountered. From 240 ft bgs to 245 ft bgs, the sand was wet before transitioning to moist at 245 ft bgs. At a boring depth of 240 ft bgs, the static DTW was 11.8 ft bgs.

From 245 ft bgs to 300 ft bgs, a gray, dense, poorly-graded, fine to medium sand with varying silt content predominated. At 249.6 ft bgs, the sand transitions from moist to dry-to-moist and remains dry to moist from 249.6 ft bgs to 300 ft bgs. At a boring depth of 300 ft bgs, the static DTW was 13.2 ft bgs. The units of the B zone aquifer are interpreted to be recessional to advance outwash, with the water-bearing gravel unit interpreted as channelized glacial (Qpog) deposits.

Two groundwater samples were collected in the B Zone during drilling when the casing was at 150 ft bgs and 170 ft bgs. Groundwater samples were collected before water was needed to stabilize the heaving conditions. The water sample at 150 ft bgs was collected from 120 ft bgs due to 30 ft of heave inside the casing; however, this sample was not analyzed due to uncertainty regarding the specific depth of the sample. The sample from 170 ft bgs was submitted for analytical testing, as described in Section 3.2 above.

4.2 Analytical Results

The analytical results from groundwater and soil sampling conducted during drilling are summarized in Tables 2 and 3 and are discussed below. Analytical laboratory reports are provided in Appendix C.

4.2.1 Groundwater

One groundwater sample was collected during drilling at 170 ft bgs and submitted for analysis of PFAS. PFAS were detected in the sample including perfluorohexanoic acid (PFHxA), perfluoroheptanoic acid (PFHpA), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorobutanesulfonic acid (PFBS), perfluorohexanesulfonic acid (PFHxS), and perfluorooctanesulfonic acid (PFOS). PFOS and PFHxS were the highest concentrations, and the results are summarized in Table 2.

4.2.2 Soil

PFAS compounds were not detected in the core samples obtained during drilling (Table 3). Core samples were collected in both the aquifer and aquitard materials.

Grain size results are pending (Table 4), and the laboratory report will be provided in Appendix C.

5. REFERENCES

Farallon Consulting, L.L.C. (Farallon), 2022. Per- And Poly-Fluoroalkyl Substances Data Gap Investigation Work Plan, Lower Issaquah Valley, 175 Newport Way Northwest, Issaquah, Washington, 15 July.

Geosyntec, 2022a. Data Gaps Investigation Work Plan Addendum 1 – Hydrogeological Characterization Well Installation, Lower Issaquah Valley, Issaquah, Washington. 22 November.

Geosyntec, 2022b. Regional Conceptual Hydrogeological Model Report. 30 December.

TABLES

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Table 1
Monitoring Well Construction Details
Issaquah, WA

Well ID	Previous Monitoring Well ID	Well Owner	Ground Surface Elevation (feet NAVD88)	Top of Casing Elevation (feet NAVD88)	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Screened Length (feet)	Screen Top Elevation (feet NAVD88)	Screen Bottom Elevation (feet NAVD88)	Latitude	Longitude	Aquifer Designation
Lower Issaquah Valley Regional Wells												
COI-MW08	MW08	City of Issaquah	70.22	69.85	238	248	10	-167.78	-177.78	199103.08	1341385.51	B Zone Aquifer

NOTES:

bgs = below ground surface

NAVD88 = vertical datum

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Table 2
Summary of PFAS Concentrations in Groundwater
Issaquah, WA

Sample Location	Sample Date	Sample Identification	Sample Depth (ft bgs)	Analytical Results (ng/L)[1]						
				Perfluoro-hexanoic acid (PFHxA)	Perfluoro-heptanoic acid (PFHpA)	Perfluoro-octanoic acid (PFOA)	Perfluoro-nonanoic acid (PFNA)	Perfluoro-butane-sulfonic acid (PFBS)	Perfluoro-hexane-sulfonic acid (PFHxS)	Perfluoro-octane-sulfonic acid (PFOS)
COI-MW08	12/6/2022	MW-08-170-120622	170	16	6.9	6.3	8.5	19	51	98
	12/7/2022	Trip Blank-1	--	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
	12/7/2022	EB-120722	--	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
WA Department of Health State Action Levels[2]				**--**	**--**	**10**	**9**	**345**	**65**	**15**

Notes:

ng/L = nanograms per liter

< = compound not detected above the laboratory reporting limit (RL) shown.

[1]Analyzed by U.S. Environmental Protection (USEPA) Agency Method 537 Modified.

[2] Washington State Department of Health State Action Levels (SALs) for Drinking Water as finalized in Washington State Administrative Code (WAC) Chapter 246-290-315.

0.1 Highlighted results denote concentrations exceeding Washington State SALs for Drinking Water.

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Table 3
Summary of PFAS Concentrations in Soil
Issaquah, WA

Sample Location	Sample Date	Sample Identification	Sample Depth (ft bgs)	Analytical Results (µg/kg)[1]						
				Perfluoro-hexanoic acid (PFHxA)	Perfluoro-heptanoic acid (PFHpA)	Perfluoro-octanoic acid (PFOA)	Perfluoro-nonanoic acid (PFNA)	Perfluoro-butane-sulfonic acid (PFBS)	Perfluoro-hexane-sulfonic acid (PFHxS)	Perfluoro-octane-sulfonic acid (PFOS)
COI-MW08	12/2/2022	MW-08-134	134	<0.27	<0.27	<0.40	<0.27	<0.27	<0.27	<0.40
	12/2/2022	MW-08-144	144	<0.23	<0.23	<0.35	<0.23	<0.23	<0.23	<0.35
	12/2/2022	MW-08-152	152	<0.24	<0.24	<0.36	<0.24	<0.24	<0.24	<0.36
	12/6/2022	MW-08-162	162	<0.23	<0.23	<0.34	<0.23	<0.23	<0.23	<0.34
	12/6/2022	MW-08-167	167	<0.26	<0.26	<0.39	<0.26	<0.26	<0.26	<0.39
	12/6/2022	MW-08-175	175	<0.25	<0.25	<0.38	<0.25	<0.25	<0.25	<0.38
	12/6/2022	MW-08-185	185	<0.23	<0.23	<0.35	<0.23	<0.23	<0.23	<0.35
	12/7/2022	MW-08-195	195	<0.23	<0.23	<0.34	<0.23	<0.23	<0.23	<0.34

Notes:
µg/kg = micrograms per kilogram
< = compound not detected above the laboratory reporting limit (RL) shown.
[1]Analyzed by U.S. Environmental Protection (USEPA) Agency Method 537 Modified.

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Table 4
Summary of Grain Size Analysis in Soil
Issaquah, WA

Sample Location	Sample Date	Sample Identification	Sample Depth (ft bgs)	Analytical Results			
				Gravel % (2.0-4.75 mm)	Sand % (0.063-1.00 mm)	Silt % (0.004-0.032 mm)	Clay % (<0.001-0.002 mm)
COI-MW08	12/7/2022	ML-137-139	137-139	0	44.3	36.1	19.6
	12/7/2022	SP-146-148	146-148	3.9	90.8	3.5	1.8
	12/7/2022	ML-165-167	165-167	0	20.1	74.8	5.2
	12/7/2022	SM-172-174	172-174	0	92	4.3	3.9

Notes:

ft bgs = feet below ground surface

mm = millimeter

FIGURES

Legend

Well Type

- Shallow Zone Monitoring Well
- A Zone Monitoring Well
- B Zone Monitoring Well
- Temporary Well
- Piezometer
- A Zone Production Well
- B Zone Production Well
- C Zone Production Well
- Stream Gauging Station
- AFFF Training Area
- Issaquah Creek

Locations of Transducers

N

1 inch = 1000 feet

0 2,000 Feet

COI-MW08 Well Installation Location

Issaquah, Washington

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Seattle, Washington | January 2023

Figure 1

P:\CAD_GIS\Projects\PNG0714 - Issaquah\Projects\06_CSM Memo\Figure 1 COI-MW08 Well Installation LocationV2.mxd 1/13/2023 10:08:06 AM

APPENDIX A
Draft Boring Log and Well Completion Diagram

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PROJECT City of Issaquah
PROJECT LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

KEY SHEET - CLASSIFICATIONS AND SYMBOLS

GS FORM: KEY 09/99

EMPIRICAL CORRELATIONS WITH STANDARD PENETRATION RESISTANCE N VALUES *

	N VALUE * (BLOWS/FT)	CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TONS/SQ FT)
FINE GRAINED SOILS	0 - 2	VERY SOFT	<0.25
	3 - 4	SOFT	0.25 - 0.50
	5 - 8	FIRM	0.50 - 1.00
	9 - 15	STIFF	1.00 - 2.00
	16 - 30	VERY STIFF	2.00 - 4.00
	31 - 50	HARD	>4.00
	>50	VERY HARD	

	N VALUE * (BLOWS/FT)	RELATIVE DENSITY
COARSE GRAINED SOILS	0 - 4	VERY LOOSE
	5 - 10	LOOSE
	11 - 30	MEDIUM DENSE
	31 - 50	DENSE
	>50	VERY DENSE

* ASTM D 1586; NUMBER OF BLOWS OF 140 POUND HAMMER FALLING 30 INCHES TO DRIVE A 2 IN. O.D., 1.4 IN. I.D. SAMPLER ONE FOOT.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

MAJOR DIVISIONS			SYMBOLS	DESCRIPTIONS
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL COARSER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO.4 SIEVE	CLEAN GRAVELS — LITTLE OR NO FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES — APPRECIABLE AMOUNT OF FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO.4 SIEVE	CLEAN SANDS — LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES — APPRECIABLE AMOUNT OF FINES	SM	SILTY SANDS, SAND-SILT MIXTURES
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL FINER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILT
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT

NOTE: DUAL SYMBOLS USED FOR BORDERLINE CLASSIFICATIONS

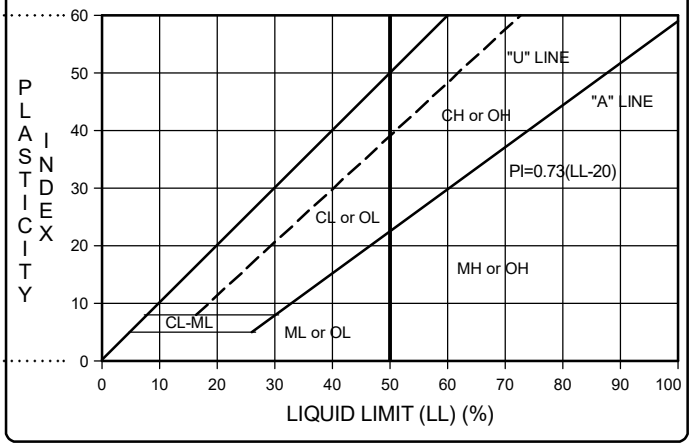
PARTICLE SIZE IDENTIFICATION

BOULDERS	>300 mm
COBBLES	75 - 300 mm
GRAVEL: COARSE	19.0 - 75 mm
GRAVEL: FINE	4.75 - 19 mm
SAND: COARSE	2.00 - 4.75 mm
SAND: MEDIUM	0.425 - 2.00 mm
SAND: FINE	0.075 - 0.425 mm
SILT	0.075 - 0.002 mm
CLAY	<0.002 mm

WELL GRADED - HAVING WIDE RANGE OF GRAIN SIZES AND APPRECIABLE AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES

POORLY GRADED - PREDOMINANTLY ONE GRAIN SIZE, OR HAVING A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING

PLASTICITY CHART



OTHER MATERIAL SYMBOLS

- Siltstone
- Sandstone
- Siltstone/Claystone
- Claystone
- Shale
- Siltstone/Sandstone
- Conglomerate
- Granitic
- Sand
- Silt
- Silty Sand
- Alluvium
- Artificial Fill
- Debris Fill
- Asphalt
- Cement

WELL SYMBOLS

- Concrete
- Grout
- Hydrated Bentonite
- Filter Sand
- Well Screen
- Well Sump
- Native / Slough
- Centralizer

SAMPLER AND OTHER SYMBOLS

- Auger
- Core
- Drive Point
- Grab Sample
- Core Loss
- Rock Core

- Water Level at Time Drilling, or as Shown
- Static Water Level
- MSL: Mean Sea Level
- AGS: Above Ground Surface
- BGS: Below Ground Surface
- PID: Photoionization Detector
- ppm: Parts per Million

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 1 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	Dry, loose, dark grayish brown (10YR 4/2), TOPSOIL; with organics.		TOPSOIL		0-3 ft bgs: cement.				0	
	Moist, loose, dark grayish brown (10YR 4/2), silty, subrounded GRAVEL; with well graded fine to medium sand and trace organics.		GM				100		0	
	@2 ft, becomes dry.									
	Dry, loose, dark grayish brown (10YR 4/2), well graded fine to medium, SAND.		SM							
5	Dry, loose, dark grayish brown (10YR 4/2), poorly graded medium, SAND; with 30-40% charred wood (charcoal).		SP		3-7 ft bgs: 4, 50 lb bags Pel-Plug 3/8 in bentonite chips.				0.1	
	@6.4 ft, becomes moist.									
	Moist, medium stiff, dark grayish brown (10YR 4/2), laminated/interbedded, sandy, SILT; with beds of charcoal and coarse grained sand (SW-SM).		ML				100		0.1	
			GW-GM							
			SW-SM							
	Wet, loose, poorly graded fine, dark grayish brown (10YR 4/2), subrounded, GRAVEL; with well graded medium to coarse sand and silt.		GW-GM						0.1	7.0-64.7 ft bgs: Shallow Aquifer
10	Wet, loose, dark greenish gray (GLEY2 3/10G), well graded medium to coarse ,SAND; with silt and one 5 inch piece of wood (branch).				4 inch Sch. 40 PVC casing. Borehole diameter: 9 in to 150 ft bgs, 8 in to 300 ft bgs.					
	Wet, medium dense, dark greenish gray (GLEY2 3/10G), poorly graded coarse, subangular to subrounded, GRAVEL; with fine to coarse sand and trace organics (wood).		SW-SM						0	
	Wet, loose, medium dense, dark greenish gray (GLEY2 3/10G), well graded medium to coarse, SAND; with silt, subangular to subrounded, fine, gravel, and wood (branches and roots).						100			
15									0	
	Moist, medium dense, dark greenish gray (GLEY2 3/10G), well graded fine to coarse, silty, SAND.		SM						0.1	
	@16-17.8 ft: trace gravel.				7-224 ft bgs: 12 bags, Baroid Haliburton Grout (9.4 lb/gal).		100			
	Wet, loose, dark greenish gray (GLEY2 3/10G), well graded fine to coarse, subrounded to subangular, GRAVEL; with well graded fine to coarse sand.		GW						0.1	
20										
	Wet, medium dense, dark yellowish brown (10 YR 4/4), well graded fine to coarse, subangular to subrounded, GRAVEL; with silt and well graded medium to coarse sand.		GW-GM						0	
							100			
	Wet, loose, dark yellowish brown (10 YR 4/4), well graded fine to coarse, SAND; with silt.		SW-SM						0	
	Wet, loose, dark yellowish brown (10 YR 4/4), poorly graded coarse, SAND.		SP							
25										

CONTRACTOR
EQUIPMENT Sonic Drill Rig
DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
LOGGER J. Traywick **REVIEWER** C. Bartlett **PRINTED** 01/31/23

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LONGITUDE
ANGLE Vertical
BEARING ------

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 2 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	Moist, stiff, dark greenish gray (GLEY1 3/5GY), sandy (fine), lean, CLAY.		CL						0	
	Moist, stiff, dark greenish gray (GLEY1 3/5GY), sandy (fine), SILT; trace organics.		ML						0.1	
			GW-GM				100			
	Very wet (saturated), medium dense, dark greenish gray (GLEY1 3/5GY), well graded fine to coarse, subangular to subrounded, GRAVEL; with silt and sand.		ML / GM							
	Moist, firm, dark yellowish brown (10YR 4/4), sandy, SILT; with gravel.								0.1	
30	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subangular to subrounded, silty, GRAVEL; with well graded fine to medium, sand.		SW							
	Wet, loose, dark yellowish brown (10YR 4/4), well graded medium to coarse, SAND; with trace gravel.		GM						0.1	
	Very wet (saturated), medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subrounded, silty, GRAVEL; with cobbles and well graded fine to medium, sand.		SW-SM				100			
	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded medium to coarse, SAND with trace gravel.		GW-GM						0.1	
			SW-SM							
35	Very wet (saturated), medium dense, dark yellowish brown (10YR 4/4),well graded fine to coarse, subrounded to subangular, GRAVEL; with cobbles, sand, and silt.		GW-GM						0.1	
	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded medium to coarse, SAND; with silt and trace gravel.									
	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subangular to subrounded, GRAVEL; with cobbles, silt, and well graded fine to coarse sand.						100		0.1	
40									0.1	
	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded medium to coarse, SAND; with silt, cobbles, and well graded fine to coarse, subrounded to subangular, gravel.		SW-SM				100		0	
	Moist, medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subangular to subrounded, silty, GRAVEL; with cobbles and well graded fine to coarse sand.		GM						0.1	
45	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subrounded, GRAVEL; with silt, cobbles, and well graded medium to coarse, sand.		GW-GM						0	
	Moist, very dense, grayish brown (10YR 5/2), well graded fine to medium, silty, SAND; with trace gravel.		SM				100			
	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subrounded, GRAVEL; with cobbles, silt, and well graded fine to medium, sand. Gravel becomes wet, loose, subangular to subrounded, and sand becomes well graded fine to coarse.		GW-GM						0	
50										

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LOGGER J. Traywick **REVIEWER** C. Bartlett **PRINTED** 01/31/23

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 3 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
									0	
							100		0.1	
55	Moist, very dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND; with trace organics.		SM						0.3	
	@ 55 ft: Transitions to wet, dense, yellowish brown (10YR 5/4), well graded fine to medium, silty, SAND.									
	@56.0 ft: grades to SW-SM.								0	
	@ 56.2 ft: Transitions to wet, medium dense, yellowish brown (10YR 5/4), well graded fine to coarse, silty, SAND; with well graded fine to coarse, subrounded, gravel.		GW-GM				100			
	@ 56.8 ft: Transitions to moist, dense, yellowish brown (10YR 5/4), poorly graded fine, silty, SAND.									
	Wet, medium dense, yellowish brown (10YR 5/4), well graded fine to coarse, subrounded, GRAVEL; with silt and well graded fine to coarse sand.		SM						0.1	
60	Moist, dense, yellowish brown (10YR 5/4), well graded fine to medium, silty, SAND.		GW-GM						0	
	@59 ft: Non-uniform, 0.1 in thick, lens of gray silty SAND with organics.		SM							
	Wet, medium dense, yellowish brown (10YR 5/4), well graded fine to coarse, surounded to rounded, GRAVEL; with silt and well graded fine to coarse sand.		GW-GM				100		0.1	64.7-134.0 ft bgs: Zone A Aquifer
	Moist, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND; with trace gravel.		SM						0.1	
65	@62.6 ft: thin interbedded organics.		GW-GM							
	Wet, medium dense, yellowish brown (10YR 5/4), well graded fine to coarse, subrounded, GRAVEL; with silt and well graded fine to coarse sand.								0	
	Moist, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND.									
	Moist, dense, dark yellowish brown (10YR 4/4), silty, SAND; with trace gravel.						100			
	Wet, medium dense, dark yellowish brown (10YR 4/4), well graded fine to coarse, subangular to subrounded, GRAVEL; with cobbles, silt, and well graded fine to coarse sand.								0	
70									0	
							100			
									0	
75										

CONTRACTOR
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DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
LOGGER J. Traywick **REVIEWER** C. Bartlett

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 4 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLE ID	PID READING (ppm)	COMMENTS
80									0	
									0	
							100			
									0	
	Dry to moist, loose, dark yellowish brown (10YR 4/4), well graded fine to coarse, SAND; with silt, cobbles, and well graded fine to coarse, subangular to subrounded, gravel.		SW-SM						0.1	
							100		0.1	
	@ 83.6 ft: Transitions to dry, dense, brown (10YR 5/3), well graded fine to medium, SAND; with silt and trace, very fine, gravel.									
85									0.1	
	@ 86.5 ft: Transitions to dry, loose, brown (10YR 5/3), well graded fine to coarse, SAND; with silt and well graded fine to coarse, subangular to subrounded, gravel.						100		0.1	
	@ 87.8 ft: Transitions to dry, loose, brown (10YR 5/3), well graded fine to coarse, SAND; with silt and trace, well graded fine to coarse, subrounded, gravel.								0.1	
	@ 89.2 ft: Transitions to dry, medium dense, brown (10YR 5/3), well graded fine to medium, SAND; with silt and trace, fine to coarse, subrounded, gravel.		GW-GM						0	
	Wet, loose, brown (10YR 5/3), well graded fine to coarse, subangular to subrounded, GRAVEL; with silt and well graded medium to coarse sand.									
	Wet, loose, brown (10YR 5/3), well graded medium to coarse, SAND; with well graded fine to coarse, subrounded to subangular, gravel.		SW SW-SM				100		0.1	
	Moist, medium dense, brown (10YR 5/3), well graded fine to medium, SAND; with silt and trace fine gravel. @92.5-96.3: trace fine gravel. @94.4-96.3: some coarse sand.									
95									0.1	
									0.1	
							100			
									0	
100										

CONTRACTOR
EQUIPMENT Sonic Drill Rig
DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
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BOREHOLE LOG

BORING COI-MW08 **SHEET** 5 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLE ID	PID READING (ppm)	COMMENTS
	@100.6 ft: Transitions to moist, medium dense, brown (10YR 5/3), well graded fine to medium, SAND; with silt and well graded fine to coarse, subrounded to subangular, gravel.						100		0	
	@ 102.9 ft: Transitions to dry, medium dense, brown (10YR 5/3), well graded fine to medium, SAND; with silt.								0	
105	Moist, medium dense, brown (10YR 5/3), well graded fine to coarse, SAND; with well graded fine to coarse, subangular, gravel.		SW						0	
	Moist, medium dense, dark gray (GLEY1 4/N), poorly graded medium, SAND; with silt.		SP-SM				100		0	
	Moist, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND.		SM						0	
110	@110-112 ft: very wet (saturated) @112-112.7 ft: wet, trace, fine to coarse, gravel.								0	
							100		0	
	Dry to moist, medium dense, dark gray (GLEY1 4/N), poorly graded medium, SAND; with silt.		SP-SM						0	
	@117-118 ft: One nodule (elliptical sphere) of lean CLAY (CL); with sand.								0	
115									0	
							100		0	
									0	
120								Grab groundwater sample at 120 ft bgs: MW-08-120-120622	0	
							100		0.1	
125										

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 6 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
130							100		0	
									0	
									0	
									0.1	
							100		0	
135	Moist, very firm, dark gray (GLEY1 4/N), lean, CLAY.		CL					Grab soil sample at 134 ft bgs: MW-08-134	0	134-144 ft bgs: Deep Aquitard
	Dry, very firm, dark gray (GLEY1 4/N), SILT. @ 136.7 ft: Transitions to moist, firm, dark gray (GLEY1 4/N), SILT; with interbedded layers of sand (SP-SM) <0.5 inch.		ML				100	Grainsize Sample. ML-137-139	0.1	
140	Moist, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND.		SM						0.1	
	Dry to moist, very firm, dark gray (GLEY1 4/N), SILT; with sand.		ML							
	Moist, medium dense, dark gray (GLEY1 4/N), poorly graded medium, SAND.		SP							
	Dry to moist, firm, dark gray (GLEY1 4/N), SILT; with poorly graded fine sand.		ML				100		0.1	
	Moist, medium dense, dark gray (GLEY1 4/N), well graded fine to coarse, SAND; with silt.		SP-SM							
	Moist, dense, dark gray (GLEY1 4/N), sandy (well graded fine to medium), SILT.		ML							
145	Moist, medium dense, dark gray (GLEY1 4/N), well graded medium to coarse, SAND.		SP					Grab soil sample at 144 ft bgs: MW-08-144		144-300 ft bgs: Zone B Aquifer
							100	Graisize Sample. SP-146-148		
	Moist, dense, dark gray (GLEY1 4/N), poorly graded SAND; with silt.		SP-SM							
150										

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 7 OF 12
START DATE 11/29/2022 **Elevation**
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PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	Moist, very dense, dark gray (GLEY1 4/N), well graded fine to medium, SAND; with silt and trace, fine, rounded, gravel.		SW-SM		150 ft bgs: Borhole diameter transitions from 9 in to 8 in.					
	Moist, medium dense, dark gray (GLEY1 4/N), well graded fine to medium, silty, SAND.		SM							
	Moist, medium dense, dark gray (GLEY1 4/N), well graded medium to coarse, SAND; with trace, fine, rounded, gravel.		SP				100	Grab soil sample at 152 ft bgs: MW-08-152		
	Dry to moist, firm, SILT; with poorly graded sand.		ML							
155							100			
	@ 158 ft: Transitions to dry to moist, dark gray (GLEY1 4/N), medium firm, sandy (fine), SILT. @160 ft: becomes wet.									
160										
	@ 161.3 ft: Transitions to wet, stiff, dark gray (GLEY1 4/N), SILT; with poorly graded sand. @ 161.8 ft: Transitions to moist to dry, stiff, dark gray (GLEY1 4/N), sandy (fine), SILT. @ 162.8 ft: Transitions to very wet (saturated), dark gray (GLEY1 4/N), medium stiff, sandy (fine), SILT. @ 163.8 ft: Transitions to moist, stiff, dark gray (GLEY1 4/N), SILT.						100	Grab soil sample at 162 ft bgs: MW-08-162		
165								Grainsize sample. ML-165-167		
	Wet, loose, dark gray (GLEY1 4/N), well graded medium to coarse, SAND.		SP				100	Grab soil sample at 167 ft bgs: MW-08-167		
170								Grab groundwater sample at 170 ft bgs: MW-08-170-120622		
	Dry, medium dense, dark gray (GLEY1 4/N), well graded fine to medium, silty, SAND.		SM				100	Grainsize sample. SM-172-174		
175										

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 8 OF 12
START DATE 11/29/2022 **Elevation**
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DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	Dry, stiff, dark gray (GLEY1 4/N), interbedded sand (well graded fine to medium) and SILT.		ML					Grab soil sample at 175 ft bgs: MW-08-175		
	@177.7 ft: 0.1 ft sand layer (SM), well graded fine to medium.						100			
	@177.7 ft: Transitions to dry, stiff, dark gray (GLEY1 4/N), SILT; with fine sand.									
	Dry, dense, dark gray (GLEY1 4/N), well graded fine to medium, silty, SAND.		SM							
180	Dry, stiff, dark gray (GLEY1 4/N), fine sandy, SILT.		ML							
	Dry, stiff, dark gray (GLEY1 4/N), SILT; with poorly graded fine sand.						100			
	Dry, stiff, dark gray (GLEY1 4/N), fine sandy, SILT.									
185	Dry, firm, dark gray (GLEY1 4/N), SILT; with fine sand.							Grab soil sample at 185 ft bgs: MW-08-185	0	
							100		0	
	Dry, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND.		SM							
190	@190-200 ft: Becomes very wet (saturated).								0	
	@198.8-197.4 ft: Organic woody layer in sand (SM) matrix.						100		0	
195								Grab soil sample at 195 ft bgs: MW-08-195	0	
							100		0	
200									0	

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BOREHOLE LOG

BORING COI-MW08 **SHEET** 9 OF 12
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PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	Wet to moist, dense, dark gray (GLEY1 4/N), poorly graded fine, SAND; with silt.		SP-SW						0	
							100		0	
205	@ 204 ft: Transitions to dry to moist, dense, dark gray (GLEY1 4/N), well graded fine to medium, SAND; with silt.									
	@204.6 ft: 0.1 ft coarse sand (SP) layer. @ 204.7 ft: Transitions to dry to moist, dense, dark gray (GLEY1 4/N), poorly graded fine, SAND; with silt.									
	@207.0-207.2 ft: some medium sand.		SM				100			
	Dry, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND.		SP							
	Dry to moist, medium dense, dark gray (GLEY1 4/N), poorly graded medium, SAND.		SM							
210	Dry, dense, dark gray (GLEY1 4/N), poorly graded fine, silty, SAND.									
	Dry to moist, dense, dark gray (GLEY1 4/N), well graded fine to medium, SAND; with silt.		SP-SW				100			
215									0	
									0	
							100			
220									0	
							100		0	
	Dry to moist, medium dense, dark gray (GLEY1 4/N),		SW-SM							
225										

CONTRACTOR
EQUIPMENT Sonic Drill Rig
DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
LOGGER J. Traywick **REVIEWER** C. Bartlett

LATITUDE
LONGITUDE
ANGLE Vertical
BEARING ------
PRINTED 01/31/23

REMARKS:

COORDINATE SYSTEM:
SEE KEY SHEET FOR SYMBOLS AND ABBREVIATIONS

BLAKELY HARBOR UPLAND CORES NO ELEV CITY OF ISSAQUAH_D2.GPJ PNW DEFAULT GINT LIBRARY.GLB 1/31/23

Geosyntec consultants
520 Pike Street, Suite 2600
Seattle, Washington 98101
Phone: 206.496.1450

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING COI-MW08 **SHEET** 10 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	well graded fine to medium (trace coarse), SAND; with silt.								0	
	Dry to moist, medium dense, dark gray (GLEY1 4/N), well graded fine to medium (trace coarse), SAND; with silt and trace well graded fine to coarse, rounded, gravel.						100		0.1	
	Dry to moist, medium dense, dark gray (GLEY1 4/N), well graded fine to coarse, SAND; with silt.								0	
	Dry to moist, medium dense, dark gray (GLEY1 4/N), well graded medium to coarse, SAND; with silt.		ML		224-235.5 ft bgs: 4, 50 lb bags Pel-Plug 3/8 in bentonite chips.					
230	@229.5 ft: 0.1 ft layer containing fine to coarse gravel.		SW-SM							
	Dry, very stiff, dark gray (GLEY1 4/N), SILT.									
	Moist, loose, dark gray (GLEY1 4/N), well graded medium to coarse, SAND; with silt and trace fine to coarse rounded gravel.						100			
235	No recovery.				235.5-248 ft bgs: 12, 50 lb bags Gillibrand Industrial Sands, 12x20 size.		0			Sand and gravel material from core fell back down casing.
240	Wet, loose, dark gray (GLEY1 4/N), well graded fine to coarse, subangular, GRAVEL; with silt and well graded medium to coarse, sand.		GW-GM						0	
	@ 241.8 ft: Transitions to wet, loose, dark gray (GLEY1 4/N), well graded fine to coarse, subangular to subrounded, GRAVEL; with silt.				238-248 ft bgs: 10-slot well screen.		100		0.1	
245	Moist, medium dense, very dark gray (GLEY1 3/N), well graded medium to coarse, SAND; with silt and fine to coarse, subangular, gravel.		SW-SM						0	
	@ 245.8 ft: Transitions to moist, dense, very dark gray (GLEY1 3/N), well graded fine to coarse, SAND; with silt and fine to coarse, subangular gravel.								0	
	@246.5 ft: Transitions to moist, dense, very dark gray (GLEY1 3/N), well graded fine to coarse, SAND; with silt and well graded fine to coarse, subangular to subrounded, gravel.						100			
	@247.6 ft: Transitions to moist, dense, very dark gray (GLEY1 3/N), well graded fine to medium, SAND; with silt and trace fine gravel.		SM						0	
250			SP-SM							

CONTRACTOR
EQUIPMENT Sonic Drill Rig
DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
LOGGER J. Traywick **REVIEWER** C. Bartlett

LATITUDE
LONGITUDE
ANGLE Vertical
BEARING ------
PRINTED 01/31/23

REMARKS:

COORDINATE SYSTEM:
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Geosyntec consultants
520 Pike Street, Suite 2600
Seattle, Washington 98101
Phone: 206.496.1450

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING COI-MW08 **SHEET** 11 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL: WELL LOG	WELL: WELL CONSTRUCTION MATERIAL	SAMPLES: TYPE	SAMPLES: % RECOVERY	SAMPLES: SAMPLE ID	SAMPLES: PID READING (ppm)	COMMENTS
	Dry to moist, dense, very dark gray (GLEY1 3/N), poorly graded fine, silty, SAND; with trace fine to coarse, subangular, gravel. @249 ft: Transitions to silty SAND without gravel.				248-300 ft bgs: Hole backfilled with bentonite grout.					
	Dry to moist, dense, very dark gray (GLEY1 3/N), poorly graded medium, SAND; with silt, cobbles, and trace well graded fine to coarse, subangular, gravel. @ 252.2 ft: Transitions to dry to moist, dense, very dark gray (GLEY1 3/N), well graded fine to medium, SAND; with silt and trace fine gravel.						100			
255	@ 254.4 ft: Transitions to dry to moist, dense, very dark gray (GLEY1 3/N), poorly graded medium, SAND; with silt.								0.1	
	@ 256.4 ft: Transitions to dry to moist, very dense, very dark gray (GLEY1 3/N), poorly graded fine, SAND; with silt. @ 257 ft: Transitions to dry to moist, very dense, very dark gray (GLEY1 3/N), well graded fine to medium (trace coarse), SAND; with silt and trace fine gravel.						100		0	
	@ 259 ft: Transitions to dry to moist, medium dense, very dark gray (GLEY1 3/N), well graded fine to medium, SAND; with silt.								0	
260									0	
							100			
265										
	No recovery.						52			Material fell out of soil catcher.
270	Moist, medium dense, dark gray (GLEY1 4/N), poorly graded medium (trace coarse), SAND; with silt.		SP-SM						0	
							100		0	
275										

CONTRACTOR
EQUIPMENT Sonic Drill Rig
DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
LOGGER J. Traywick **REVIEWER** C. Bartlett

LATITUDE
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Geosyntec consultants

520 Pike Street, Suite 2600
Seattle, Washington 98101
Phone: 206.496.1450

GS FORM: CORE3 10/00

BOREHOLE LOG

BORING COI-MW08 **SHEET** 12 OF 12
START DATE 11/29/2022 **Elevation**
FINISH DATE 12/16/2022
PROJECT City of Issaquah
LOCATION Salmon Run Nature Park
PROJECT NUMBER PNG0989

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOLIC LOG	USCS Classification	WELL LOG	WELL CONSTRUCTION MATERIAL	SAMPLES TYPE	% RECOVERY	SAMPLE ID	PID READING (ppm)	COMMENTS
									0.1	
									0	
							76			
	No recovery.									Material fell out of soil catcher.
280	Dry to moist, dense, dark gray (GLEY1 4/N), well graded fine to medium, SAND; with silt.		SP-SM							
							100			
285										
	@ 287.2 ft: Transitions to dry to moist, very dense, dark gray (GLEY1 4/N), poorly graded fine (trace medium), SAND; with silt.						100			
	@ 288.5 ft: SAND contains trace well graded fine to coarse, subangular, gravel.									
290	@ 290 ft: Transitions to dry to moist, dense, dark gray (GLEY1 4/N), well graded fine to medium, SAND; with silt and dense, trace subangular gravel.									
							100			
295										
							100			
	End of boring @ 300 ft bgs.									
300										

CONTRACTOR
EQUIPMENT Sonic Drill Rig
DRILL MTHD Sonic
DIAMETER 9 in to 150 ft, 8 in to 300 ft
LOGGER J. Traywick **REVIEWER** C. Bartlett

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APPENDIX B
Photo Log

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 1.** **Date:** 29 November 2022 **Direction:** Southwest **View:** Track-mounted sonic drill rig set up at well location (COI-MW-08).

	**PHOTOGRAPH 2.** **Date:** 29 November 2022 **Direction:** Southeast **View:** Track-mounted sonic drill rig set up at well location (COI-MW-08).

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 3.

Date: 30 November 2022

Direction: Northeast

View: Worksite view from the corner of NW Juniper St and 5th Ave NW. Utility markings are visible and indicate a utility corridor beneath the gravel parking strip.

PHOTOGRAPH 4.

Date: 07 December 2022

Direction: East

View: Worksite in Salmon Run Nature Park.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 5.

Date: 14 December 2022

Direction: Southeast

View: Grout mixing during well installation.

PHOTOGRAPH 6.

Date: 21 December 2022

Direction: Southwest

View: Well development crane setting up at monitoring well for final well development.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 7.** **Date:** 21 December 2022 **Direction:** Northwest **View:** Final well development pump set up.

	**PHOTOGRAPH 8.** **Date:** 7 December 2022 **Direction:** North **View:** Impact on work site from operation of heavy equipment.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 9.** **Date:** 28 November 2022 **Direction:** West **View:** View of proposed work site (before drilling).

	**PHOTOGRAPH 10.** **Date:** 28 November 2022 **Direction:** East **View:** View of proposed work site (before drilling).

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 11.** **Date:** 02 January 2023 **Direction:** West **View:** View of rehabilitated work site (after drilling).

	**PHOTOGRAPH 12.** **Date:** 02 January 2023 **Direction:** East **View:** View of rehabilitated work site (after drilling).

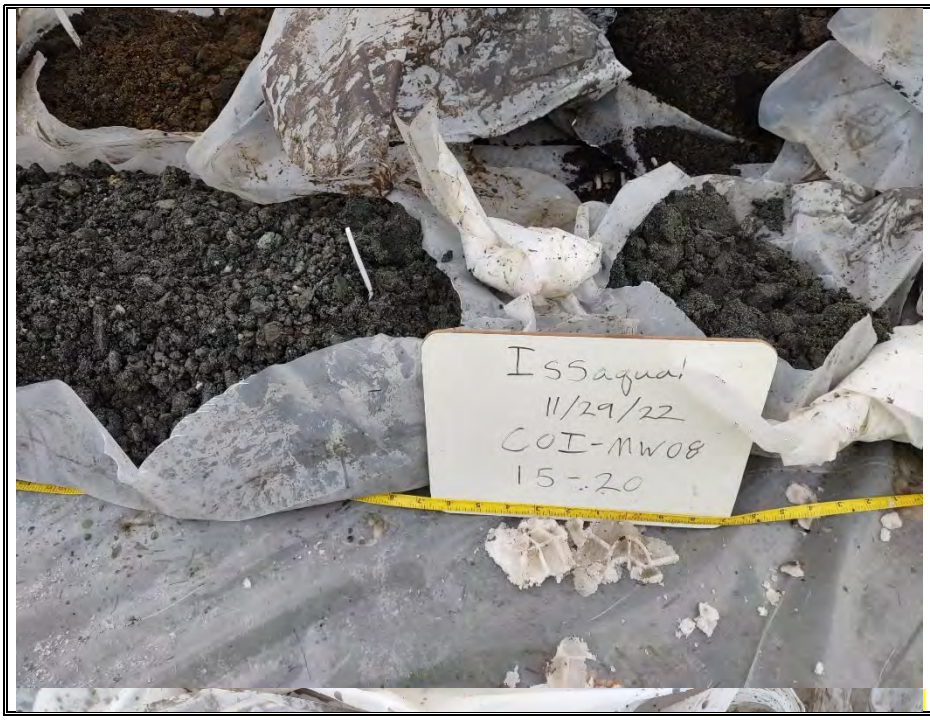
APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 13.

Date: 29 November 2022

Direction: n/a

View: Sample at 14 ft bgs, representative of well-graded SAND with silt and trace wood debris from Shallow Aquifer.



PHOTOGRAPH 14.

Date: 29 November 2022

Direction: n/a

View: Sample at 16 to 20 ft bgs, representative of silty SAND (right) and well-graded GRAVEL with sand from Shallow Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 15.** **Date:** 29 November 2022 **Direction:** n/a **View:** Sample at 22 to 23 ft bgs, representative of well-graded gravel with silt and sand from Shallow Aquifer.

	**PHOTOGRAPH 16.** **Date:** 29 November 2022 **Direction:** n/a **View:** Sharp contact between poorly graded SAND and Sandy Lean CLAY (Right) @ 25.5 ft bgs and Sandy SILT and well-graded gravel with silt and sand (Left) @ 27.2ft bgs from Shallow Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 17.

Date: 29 November 2022

Direction: n/a

View: Sample at 37 to 40 ft bgs, representative of well-graded GRAVEL with silt and sand from Shallow Aquifer.

PHOTOGRAPH 18.

Date: 29 November 2022

Direction: n/a

View: Sample at 50 to 52 ft bgs, representative of well-graded GRAVEL with silt and sand from Shallow Aquifer.

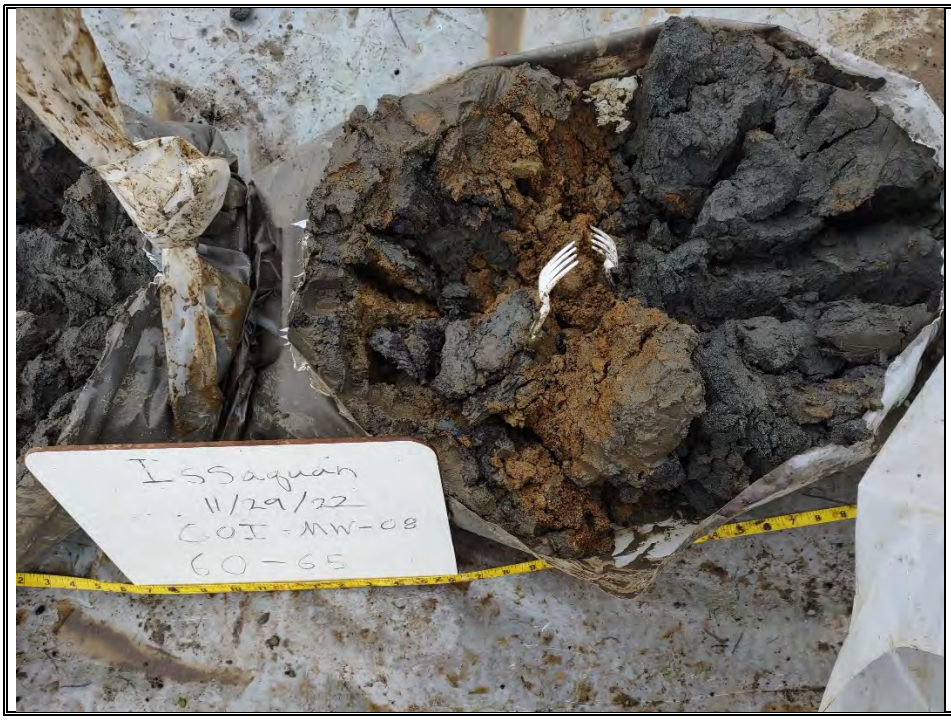
APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 19.

Date: 29 November 2022

Direction: n/a

View: Sample at 55 to 60 ft bgs, representative of (right to left) silty SAND, silty SAND with gravel, well-graded GRAVEL with silt and sand, and silty SAND from Shallow Aquifer.



PHOTOGRAPH 20.

Date: 29 November 2022

Direction: n/a

View: Sample at 62 to 64 ft bgs, representative of (right to left) silty SAND, well-graded GRAVEL with silt and sand, and silty SAND from Shallow Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 21.

Date: 29 November 2022

Direction: n/a

View: Contact between silty Sand and well-graded GRAVEL with silt and sand at 64.7 ft bgs. Contact between Shallow Aquifer and A Zone Aquifer

PHOTOGRAPH 22.

Date: 29 November 2022

Direction: n/a

View: Sample at 66 to 68 ft bgs, representative of well-graded GRAVEL with silt and sand from A Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 23.** **Date:** 29 November 2022 **Direction:** n/a **View:** Sample at 72 to 75 ft bgs, representative of well-graded GRAVEL with silt and sand from A Zone Aquifer.

	**PHOTOGRAPH 24.** **Date:** 30 November 2022 **Direction:** n/a **View:** Contact between well-graded SAND with silt and gravel and well-graded SAND with silt at 83.6 ft bgs from A Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 25.

Date: 30 November 2022

Direction: n/a

View: Sample at 96 to 98 ft bgs, representative of well-graded SAND with silt from A Zone Aquifer.

PHOTOGRAPH 26.

Date: 30 November 2022

Direction: n/a

View: Contact between well-graded SAND and poorly-graded SAND with silt at 106.2 ft bgs from A Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 27.

Date: 30 November 2022

Direction: n/a

View: Sample at 121 to 123 ft bgs, representative of well-graded SAND with silt from A Zone Aquifer.

PHOTOGRAPH 28.

Date: 01 December 2022

Direction: n/a

View: Prominent contact between well-graded SAND with silt and lean CLAY at 134 ft bgs. Contact between A Zone Aquifer and Deep Aquitard.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 29.

Date: 02 December 2022

Direction: n/a

View: Sample at 138 to 140 ft bgs, representative of SILT with sand from Deep Aquitard.

PHOTOGRAPH 30.

Date: 02 December 2022

Direction: n/a

View: Sample at 140 to 142 ft bgs, representative of interbedded SILT with sand and poorly graded SAND of the Deep Aquitard.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 31.** **Date:** 02 December 2022 **Direction:** n/a **View:** Sample at 145 to 147 ft bgs, representative of poorly-graded SAND from B Zone Aquifer.

	**PHOTOGRAPH 32.** **Date:** 02 December 2022 **Direction:** n/a **View:** Sample at 160 to 161 ft bgs, representative sandy SILT from B Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 33.** **Date:** 06 December 2022 **Direction:** n/a **View:** Sample at 164 to 165 ft bgs, representative of SILT from B Zone Aquifer.

	**PHOTOGRAPH 34.** **Date:** 06 December 2022 **Direction:** n/a **View:** Contact between SILT and poorly-graded SAND at 167.5 ft bgs from B Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 35.

Date: 06 December 2022

Direction: n/a

View: Sample at 173 to 175 ft bgs, representative of silty SAND from B Zone Aquifer.

PHOTOGRAPH 36.

Date: 06 December 2022

Direction: n/a

View: Sample at 177.5 to 180 ft bgs, representative of (left to right) sandy SILT and silty SAND from B Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 37.** **Date:** 07 December 2022 **Direction:** n/a **View:** Sample at 192 to 195 ft bgs, representative of silty SAND from B Zone Aquifer.

	**PHOTOGRAPH 38.** **Date:** 09 December 2022 **Direction:** n/a **View:** Sample at 210 to 212 ft bgs, representative of SAND with silt from B Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

	**PHOTOGRAPH 39.** **Date:** 09 December 2022 **Direction:** n/a **View:** Sample at 230 to 234 ft bgs, representative of well-graded SAND with silt and trace gravel from B Zone Aquifer.

	**PHOTOGRAPH 40.** **Date:** 12 December 2022 **Direction:** n/a **View:** Sample at 240 to 245 ft bgs, representative of well-graded GRAVEL with silt and sand and well-graded GRAVEL with silt from B Zone Aquifer. Screen set from 238 to 248 ft bgs across these water-bearing gravels.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 41.

Date: 12 December 2022

Direction: n/a

View: Sample at 245 to 250 ft bgs, representative of (left to right) well-graded SAND with silt and gravel, well-graded SAND with silt, and silty SAND from B Zone Aquifer.

PHOTOGRAPH 42.

Date: 12 December 2022

Direction: n/a

View: Sample at 250 to 252.5 ft bgs, representative of poorly-graded SAND with silt and trace gravel from B Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 43.

Date: 12 December 2022

Direction: n/a

View: Sample at 262 to 265 ft bgs, representative of poorly-graded SAND with silt from B Zone Aquifer.

PHOTOGRAPH 44.

Date: 13 December 2022

Direction: n/a

View: Sample at 280 to 282.5 ft bgs, representative of poorly-graded SAND with silt from B Zone Aquifer.

APPENDIX B – PHOTOGRAPHIC RECORD
SITE: Salmon Run Nature Park, Issaquah, Washington
SUBJECT: Additional Well Installation Report – COI-MW08

PHOTOGRAPH 45.

Date: 13 December 2022

Direction: n/a

View: Sample at 288 to 290 ft bgs, representative of poorly-graded SAND with silt from B Zone Aquifer.

PHOTOGRAPH 46.

Date: 13 December 2022

Direction: n/a

View: Sample at 292.5 to 295 ft bgs, representative of poorly-graded SAND with silt from B Zone Aquifer.

APPENDIX C
Laboratory Analytical Reports

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Olga Stewart
Geosyntec Consultants, Inc.
110 W 38th Street, Suite 200A
Anchorage, Alaska 99503

Generated 1/12/2023 9:20:26 AM

JOB DESCRIPTION

PFAS, Lower Issaquah Valley

JOB NUMBER

320-95123-1

Eurofins Sacramento
880 Riverside Parkway
West Sacramento CA 95605

See page two for job notes and contact information.

Job Notes

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The data in the report relate to the field sample(s) as received by the laboratory and associated QC. All results have been reviewed and have been found to be compliant with laboratory and accreditation requirements, with the exception of the noted deviation(s). For questions, please contact the Project Manager.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

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1/12/2023 9:20:26 AM

Authorized for release by
Laura Turpen, Project Manager I
Laura.Turpen@et.eurofinsus.com
(916)374-4414

Table of Contents

Definitions/Glossary

Client: Geosyntec Consultants, Inc.
Job ID: 320-95123-1
Project/Site: PFAS, Lower Issaquah Valley

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Job ID: 320-95123-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-95123-1

Comments
No additional comments.

Receipt
The samples were received on 12/9/2022 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.7º C.

LCMS
Method QSM B15: Due to the high concentration of Perfluorooctanoic acid (PFOA), the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-639741 and analytical batch 320-640136 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method QSM B15: The Isotope Dilution Analyte (IDA) recoveries associated with the following sample is below the method recommended limit: (MB 320-639741/1-A). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the samples.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method 3535: Due to the excess amount of sediment, the following sample was decanted into new 250 mL container: MW-08-170-120622 (320-95123-8). After decanting, the sample was fortified with IDA and then extracted.

Method 3535: The following sample was light brown prior to extraction: MW-08-170-120622 (320-95123-8).

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 320-640633.

Method 3535: Elevated reporting limits are provided for the following sample due to limited sample provided for preparation: MW-08-170-120622 (320-95123-8).

Method 3535: The following sample contained floating particulates in the sample bottle prior to extraction: EB-120722 (320-95123-12).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: MW-08-134 — Lab Sample ID: 320-95123-1

No Detections.

Client Sample ID: MW-08-144 — Lab Sample ID: 320-95123-2

No Detections.

Client Sample ID: MW-08-152 — Lab Sample ID: 320-95123-3

No Detections.

Client Sample ID: MW-08-162 — Lab Sample ID: 320-95123-4

No Detections.

Client Sample ID: MW-08-167 — Lab Sample ID: 320-95123-5

No Detections.

Client Sample ID: MW-08-175 — Lab Sample ID: 320-95123-6

No Detections.

Client Sample ID: MW-08-185 — Lab Sample ID: 320-95123-7

No Detections.

Client Sample ID: MW-08-170-120622 — Lab Sample ID: 320-95123-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	16		5.3	1.5	ng/L	1		QSM B15	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.9		5.3	1.3	ng/L	1		QSM B15	Total/NA
Perfluorooctanoic acid (PFOA)	6.3		5.3	1.5	ng/L	1		QSM B15	Total/NA
Perfluorononanoic acid (PFNA)	8.5		5.3	1.5	ng/L	1		QSM B15	Total/NA
Perfluorobutanesulfonic acid (PFBS)	19		5.3	0.90	ng/L	1		QSM B15	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	51		5.3	1.0	ng/L	1		QSM B15	Total/NA
Perfluorooctanesulfonic acid (PFOS)	98		5.3	1.5	ng/L	1		QSM B15	Total/NA

Client Sample ID: MW-08-195 — Lab Sample ID: 320-95123-9

No Detections.

Client Sample ID: Trip Blank-1 — Lab Sample ID: 320-95123-11

No Detections.

Client Sample ID: EB-120722 — Lab Sample ID: 320-95123-12

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample ID: MW-08-134

Date Collected: 12/02/22 16:20
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-1

Matrix: Solid
Percent Solids: 70.8

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.27	0.041	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.27	0.050	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorooctanoic acid (PFOA)	ND		0.40	0.070	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorononanoic acid (PFNA)	ND		0.27	0.029	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorodecanoic acid (PFDA)	ND		0.27	0.064	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluoroundecanoic acid (PFUnA)	ND		0.27	0.056	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorododecanoic acid (PFDoA)	ND		0.27	0.040	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorotridecanoic acid (PFTriA)	ND		0.27	0.028	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.27	0.049	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.27	0.050	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.27	0.038	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.40	0.057	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.27	0.064	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.27	0.030	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1
HFPO-DA (GenX)	ND		0.27	0.054	ug/Kg	☼	12/13/22 20:34	12/14/22 20:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*66*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C4 PFHpA	*68*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C4 PFOA	*69*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C5 PFNA	*71*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C2 PFDA	*70*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C2 PFUnA	*74*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C2 PFDoA	*67*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C2 PFTeDA	*74*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C3 PFBS	*61*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
18O2 PFHxS	*63*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C4 PFOS	*65*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
d3-NMeFOSAA	*65*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
d5-NEtFOSAA	*73*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*
13C3 HFPO-DA	*61*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	**29.2**		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	**70.8**		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: MW-08-144

Date Collected: 12/02/22 16:25
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-2

Matrix: Solid
Percent Solids: 82.6

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.036	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.045	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorooctanoic acid (PFOA)	ND		0.35	0.062	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.026	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.056	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.049	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1

Client Sample ID: MW-08-144
Lab Sample ID: 320-95123-2
Date Collected: 12/02/22 16:25 **Matrix: Solid**
Date Received: 12/09/22 09:20 **Percent Solids: 82.6**

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.035	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.025	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.043	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.045	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.034	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.35	0.051	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.23	0.056	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.23	0.027	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1
HFPO-DA (GenX)	ND		0.23	0.048	ug/Kg	☼	12/13/22 20:34	12/14/22 20:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*75*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C4 PFHpA	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C4 PFOA	*77*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C5 PFNA	*81*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C2 PFDA	*78*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C2 PFUnA	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C2 PFDoA	*74*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C2 PFTeDA	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C3 PFBS	*71*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
18O2 PFHxS	*74*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C4 PFOS	*70*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
d5-NEtFOSAA	*79*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*12/13/22 20:34*	*12/14/22 20:54*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	**17.4**		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	**82.6**		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: MW-08-152
Lab Sample ID: 320-95123-3
Date Collected: 12/02/22 16:30 **Matrix: Solid**
Date Received: 12/09/22 09:20 **Percent Solids: 80.7**

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.24	0.037	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.045	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorooctanoic acid (PFOA)	ND		0.36	0.063	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.026	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.057	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.050	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.036	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.025	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.044	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.045	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.035	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.36	0.051	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1

Client Sample ID: MW-08-152

Date Collected: 12/02/22 16:30
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-3

Matrix: Solid
Percent Solids: 80.7

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.24	0.057	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.24	0.027	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1
HFPO-DA (GenX)	ND		0.24	0.049	ug/Kg	☼	12/13/22 20:34	12/14/22 21:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*75*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C4 PFHpA	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C4 PFOA	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C5 PFNA	*84*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C2 PFDA	*79*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C2 PFUnA	*85*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C2 PFDoA	*77*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C2 PFTeDA	*81*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C3 PFBS	*77*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
18O2 PFHxS	*75*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C4 PFOS	*74*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
d3-NMeFOSAA	*77*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
d5-NEtFOSAA	*85*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*
13C3 HFPO-DA	*72*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:04*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	**19.3**		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	**80.7**		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: MW-08-162

Date Collected: 12/06/22 11:45
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-4

Matrix: Solid
Percent Solids: 81.8

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.035	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.043	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorooctanoic acid (PFOA)	ND		0.34	0.060	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.025	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.055	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.048	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.034	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.024	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.042	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.043	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.033	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.34	0.049	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.23	0.055	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.23	0.026	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1
HFPO-DA (GenX)	ND		0.23	0.047	ug/Kg	☼	12/13/22 20:34	12/14/22 21:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*

Client Sample ID: MW-08-162

Date Collected: 12/06/22 11:45
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-4

Matrix: Solid
Percent Solids: 81.8

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C4 PFOA	*78*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C5 PFNA	*85*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C2 PFDA	*82*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C2 PFUnA	*82*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C2 PFDoA	*77*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C2 PFTeDA	*83*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C3 PFBS	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
18O2 PFHxS	*81*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C4 PFOS	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*
13C3 HFPO-DA	*71*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:14*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	**18.2**		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	**81.8**		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: MW-08-167

Date Collected: 12/06/22 11:50
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-5

Matrix: Solid
Percent Solids: 73.3

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.26	0.041	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.050	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorooctanoic acid (PFOA)	ND		0.39	0.070	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.029	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorodecanoic acid (PFDA)	ND		0.26	0.063	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluoroundecanoic acid (PFUnA)	ND		0.26	0.055	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorododecanoic acid (PFDoA)	ND		0.26	0.039	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorotridecanoic acid (PFTriA)	ND		0.26	0.028	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.26	0.049	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.050	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.26	0.038	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.39	0.057	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.26	0.063	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.26	0.030	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1
HFPO-DA (GenX)	ND		0.26	0.054	ug/Kg	☼	12/13/22 20:34	12/14/22 21:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*
13C4 PFHpA	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*
13C4 PFOA	*78*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*
13C5 PFNA	*83*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*
13C2 PFDA	*78*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*
13C2 PFUnA	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*
13C2 PFDoA	*75*		*50 - 150*	*12/13/22 20:34*	*12/14/22 21:45*	*1*

Client Sample ID: MW-08-167

Lab Sample ID: 320-95123-5
Date Collected: 12/06/22 11:50 **Matrix: Solid**
Date Received: 12/09/22 09:20 **Percent Solids: 73.3**

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	75		50 - 150	12/13/22 20:34	12/14/22 21:45	1
13C3 PFBS	72		50 - 150	12/13/22 20:34	12/14/22 21:45	1
18O2 PFHxS	74		50 - 150	12/13/22 20:34	12/14/22 21:45	1
13C4 PFOS	75		50 - 150	12/13/22 20:34	12/14/22 21:45	1
d3-NMeFOSAA	75		50 - 150	12/13/22 20:34	12/14/22 21:45	1
d5-NEtFOSAA	82		50 - 150	12/13/22 20:34	12/14/22 21:45	1
13C3 HFPO-DA	75		50 - 150	12/13/22 20:34	12/14/22 21:45	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	26.7		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	73.3		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: MW-08-175

Lab Sample ID: 320-95123-6
Date Collected: 12/06/22 14:55 **Matrix: Solid**
Date Received: 12/09/22 09:20 **Percent Solids: 78.1**

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.25	0.039	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.048	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorooctanoic acid (PFOA)	ND		0.38	0.067	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.028	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.061	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.053	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.038	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorotridecanoic acid (PFTriA)	ND		0.25	0.027	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.047	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.048	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.037	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.38	0.055	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.25	0.061	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.25	0.029	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1
HFPO-DA (GenX)	ND		0.25	0.052	ug/Kg	☼	12/13/22 20:34	12/14/22 21:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	81		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C4 PFHpA	84		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C4 PFOA	77		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C5 PFNA	86		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C2 PFDA	85		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C2 PFUnA	86		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C2 PFDoA	79		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C2 PFTeDA	83		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C3 PFBS	80		50 - 150	12/13/22 20:34	12/14/22 21:55	1
18O2 PFHxS	82		50 - 150	12/13/22 20:34	12/14/22 21:55	1
13C4 PFOS	79		50 - 150	12/13/22 20:34	12/14/22 21:55	1
d3-NMeFOSAA	80		50 - 150	12/13/22 20:34	12/14/22 21:55	1
d5-NEtFOSAA	90		50 - 150	12/13/22 20:34	12/14/22 21:55	1

Client Sample ID: MW-08-175 — Lab Sample ID: 320-95123-6

Date Collected: 12/06/22 14:55 — **Matrix: Solid**
Date Received: 12/09/22 09:20 — **Percent Solids: 78.1**

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	76		50 - 150	12/13/22 20:34	12/14/22 21:55	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	21.9		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	78.1		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: MW-08-185 — Lab Sample ID: 320-95123-7

Date Collected: 12/06/22 15:00 — **Matrix: Solid**
Date Received: 12/09/22 09:20 — **Percent Solids: 80.9**

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.036	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.044	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorooctanoic acid (PFOA)	ND		0.35	0.062	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.026	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.056	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.049	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.035	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.025	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.043	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.044	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.034	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.35	0.050	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.23	0.056	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.23	0.027	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1
HFPO-DA (GenX)	ND		0.23	0.048	ug/Kg	☼	12/13/22 20:34	12/14/22 22:05	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	77		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C4 PFHpA	77		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C4 PFOA	78		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C5 PFNA	88		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C2 PFDA	76		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C2 PFUnA	85		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C2 PFDoA	79		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C2 PFTeDA	86		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C3 PFBS	78		50 - 150	12/13/22 20:34	12/14/22 22:05	1
18O2 PFHxS	79		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C4 PFOS	78		50 - 150	12/13/22 20:34	12/14/22 22:05	1
d3-NMeFOSAA	81		50 - 150	12/13/22 20:34	12/14/22 22:05	1
d5-NEtFOSAA	82		50 - 150	12/13/22 20:34	12/14/22 22:05	1
13C3 HFPO-DA	75		50 - 150	12/13/22 20:34	12/14/22 22:05	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	19.1		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	80.9		0.1	0.1	%			12/12/22 11:17	1

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: MW-08-170-120622

Lab Sample ID: 320-95123-8
Date Collected: 12/06/22 10:50
Matrix: Water
Date Received: 12/09/22 09:20

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**16**		5.3	1.5	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluoroheptanoic acid (PFHpA)	**6.9**		5.3	1.3	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorooctanoic acid (PFOA)	**6.3**		5.3	1.5	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorononanoic acid (PFNA)	**8.5**		5.3	1.5	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorodecanoic acid (PFDA)	ND		5.3	0.87	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluoroundecanoic acid (PFUnA)	ND		5.3	1.9	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorododecanoic acid (PFDoA)	ND		5.3	1.1	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorotridecanoic acid (PFTriA)	ND		5.3	1.8	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.3	1.3	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorobutanesulfonic acid (PFBS)	**19**		5.3	0.90	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorohexanesulfonic acid (PFHxS)	**51**		5.3	1.0	ng/L		12/16/22 13:18	01/10/23 14:14	1
Perfluorooctanesulfonic acid (PFOS)	**98**		5.3	1.5	ng/L		12/16/22 13:18	01/10/23 14:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		13	0.90	ng/L		12/16/22 13:18	01/10/23 14:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		13	1.2	ng/L		12/16/22 13:18	01/10/23 14:14	1
HFPO-DA (GenX)	ND		11	1.8	ng/L		12/16/22 13:18	01/10/23 14:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*103*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C4 PFHpA	*107*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C4 PFOA	*102*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C5 PFNA	*110*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C2 PFDA	*109*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C2 PFUnA	*111*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C2 PFDoA	*81*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C2 PFTeDA	*61*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C3 PFBS	*94*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
18O2 PFHxS	*100*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C4 PFOS	*95*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
d5-NEtFOSAA	*109*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*
13C3 HFPO-DA	*98*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:14*	*1*

Client Sample ID: MW-08-195

Lab Sample ID: 320-95123-9
Date Collected: 12/07/22 13:00
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 81.5

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.035	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.043	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorooctanoic acid (PFOA)	ND		0.34	0.060	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.025	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.054	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.048	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.034	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.024	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.042	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: MW-08-195

Lab Sample ID: 320-95123-9

Date Collected: 12/07/22 13:00
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 81.5

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.043	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.033	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.34	0.049	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.23	0.054	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.23	0.026	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1
HFPO-DA (GenX)	ND		0.23	0.046	ug/Kg	☼	12/12/22 18:00	01/05/23 18:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C4 PFHpA	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C4 PFOA	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C5 PFNA	*89*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C2 PFDA	*78*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C2 PFUnA	*84*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C2 PFDoA	*74*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C2 PFTeDA	*73*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C3 PFBS	*75*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
18O2 PFHxS	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C4 PFOS	*77*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
d5-NEtFOSAA	*83*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:21*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture (ASTM D 2216)	**18.5**		0.1	0.1	%			12/12/22 11:17	1
Percent Solids (ASTM D 2216)	**81.5**		0.1	0.1	%			12/12/22 11:17	1

Client Sample ID: Trip Blank-1

Lab Sample ID: 320-95123-11

Date Collected: 12/07/22 15:15
Matrix: Water
Date Received: 12/09/22 09:20

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.50	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.44	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.51	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.51	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.30	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.66	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.38	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.63	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.46	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.31	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.34	ng/L		12/16/22 13:18	01/10/23 14:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.53	ng/L		12/16/22 13:18	01/10/23 14:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	0.31	ng/L		12/16/22 13:18	01/10/23 14:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	0.42	ng/L		12/16/22 13:18	01/10/23 14:25	1

Client Sample ID: Trip Blank-1

Lab Sample ID: 320-95123-11

Date Collected: 12/07/22 15:15

Matrix: Water

Date Received: 12/09/22 09:20

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		3.6	0.63	ng/L		12/16/22 13:18	01/10/23 14:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C4 PFHpA	*97*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C4 PFOA	*98*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C5 PFNA	*107*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C2 PFDA	*97*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C2 PFUnA	*105*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C2 PFDoA	*100*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C2 PFTeDA	*107*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C3 PFBS	*95*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
18O2 PFHxS	*96*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C4 PFOS	*93*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
d3-NMeFOSAA	*82*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*
13C3 HFPO-DA	*99*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:25*	*1*

Client Sample ID: EB-120722

Lab Sample ID: 320-95123-12

Date Collected: 12/07/22 16:00

Matrix: Water

Date Received: 12/09/22 09:20

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.49	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.43	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.50	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.50	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.29	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.65	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.37	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.62	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.45	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.30	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.34	ng/L		12/16/22 13:18	01/10/23 14:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.52	ng/L		12/16/22 13:18	01/10/23 14:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	0.30	ng/L		12/16/22 13:18	01/10/23 14:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	0.41	ng/L		12/16/22 13:18	01/10/23 14:35	1
HFPO-DA (GenX)	ND		3.6	0.62	ng/L		12/16/22 13:18	01/10/23 14:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C4 PFHpA	*96*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C4 PFOA	*96*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C5 PFNA	*111*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C2 PFDA	*101*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C2 PFUnA	*106*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C2 PFDoA	*100*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*
13C3 PFBS	*89*		*50 - 150*	*12/16/22 13:18*	*01/10/23 14:35*	*1*

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: EB-120722
Date Collected: 12/07/22 16:00
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-12
Matrix: Water

Method: DOD 5.3 QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	96		50 - 150	12/16/22 13:18	01/10/23 14:35	1
13C4 PFOS	92		50 - 150	12/16/22 13:18	01/10/23 14:35	1
d3-NMeFOSAA	82		50 - 150	12/16/22 13:18	01/10/23 14:35	1
d5-NEtFOSAA	89		50 - 150	12/16/22 13:18	01/10/23 14:35	1
13C3 HFPO-DA	100		50 - 150	12/16/22 13:18	01/10/23 14:35	1

Isotope Dilution Summary

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Method: QSM B15 - PFAS for QSM 5.3, Table B-15

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFHxA (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)	PFDoA (50-150)	PFTDA (50-150)
320-95123-1	MW-08-134	66	68	69	71	70	74	67	74
320-95123-2	MW-08-144	75	76	77	81	78	80	74	76
320-95123-3	MW-08-152	75	80	76	84	79	85	77	81
320-95123-4	MW-08-162	79	76	78	85	82	82	77	83
320-95123-5	MW-08-167	78	76	78	83	78	80	75	75
320-95123-6	MW-08-175	81	84	77	86	85	86	79	83
320-95123-7	MW-08-185	77	77	78	88	76	85	79	86
320-95123-9	MW-08-195	79	79	79	89	78	84	74	73
LCS 320-639741/2-A	Lab Control Sample	82	83	83	93	91	91	85	91
LCS 320-639742/2-A	Lab Control Sample	81	83	80	91	78	81	76	70
MB 320-639741/1-A	Method Blank	76	80	79	84	79	81	75	84
MB 320-639742/1-A	Method Blank	81	81	81	90	78	79	73	81

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C3PFBS (50-150)	PFHxS (50-150)	PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)	HFPODA (50-150)		
320-95123-1	MW-08-134	61	63	65	65	73	61		
320-95123-2	MW-08-144	71	74	70	73	79	69		
320-95123-3	MW-08-152	77	75	74	77	85	72		
320-95123-4	MW-08-162	76	81	80	80	93	71		
320-95123-5	MW-08-167	72	74	75	75	82	75		
320-95123-6	MW-08-175	80	82	79	80	90	76		
320-95123-7	MW-08-185	78	79	78	81	82	75		
320-95123-9	MW-08-195	75	79	77	79	83	79		
LCS 320-639741/2-A	Lab Control Sample	83	87	85	94	97	77		
LCS 320-639742/2-A	Lab Control Sample	76	77	80	78	85	76		
MB 320-639741/1-A	Method Blank	77	80	78	84	85	73		
MB 320-639742/1-A	Method Blank	81	79	79	77	87	73		

Surrogate Legend

PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Isotope Dilution Summary

Client: Geosyntec Consultants, Inc. Job ID: 320-95123-1
Project/Site: PFAS, Lower Issaquah Valley

Method: QSM B15 - PFAS for QSM 5.3, Table B-15

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFHxA (50-150)	C4PFHA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)	PFDoA (50-150)	PFTDA (50-150)
320-95123-8	MW-08-170-120622	103	107	102	110	109	111	81	61
320-95123-11	Trip Blank-1	95	97	98	107	97	105	100	107
320-95123-12	EB-120722	95	96	96	111	101	106	100	112
LCS 320-640633/2-A	Lab Control Sample	95	96	97	105	99	106	100	107
LCSD 320-640633/3-A	Lab Control Sample Dup	98	97	100	109	100	108	101	104
MB 320-640633/1-A	Method Blank	94	99	96	108	102	107	101	106

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C3PFBS (50-150)	PFHxS (50-150)	PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)	HFPODA (50-150)		
320-95123-8	MW-08-170-120622	94	100	95	95	109	98		
320-95123-11	Trip Blank-1	95	96	93	82	90	99		
320-95123-12	EB-120722	89	96	92	82	89	100		
LCS 320-640633/2-A	Lab Control Sample	96	90	93	81	84	98		
LCSD 320-640633/3-A	Lab Control Sample Dup	97	94	90	79	88	105		
MB 320-640633/1-A	Method Blank	90	94	94	87	90	102		

Surrogate Legend

PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Method: QSM B15 - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-639741/1-A
Matrix: Solid
Analysis Batch: 640136

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 639741

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorooctanoic acid (PFOA)	ND		0.30	0.053	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.30	0.043	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg		12/13/22 20:34	12/14/22 19:44	1
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		12/13/22 20:34	12/14/22 19:44	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*76*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C4 PFHpA	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C4 PFOA	*79*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C5 PFNA	*84*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C2 PFDA	*79*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C2 PFUnA	*81*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C2 PFDoA	*75*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C3 PFBS	*77*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
18O2 PFHxS	*80*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C4 PFOS	*78*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
d5-NEtFOSAA	*85*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*12/13/22 20:34*	*12/14/22 19:44*	*1*

Lab Sample ID: LCS 320-639741/2-A
Matrix: Solid
Analysis Batch: 640136

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 639741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.16		ug/Kg		108	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.37		ug/Kg		118	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.27		ug/Kg		114	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.04		ug/Kg		102	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	2.15		ug/Kg		107	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.37		ug/Kg		118	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.37		ug/Kg		119	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	2.44		ug/Kg		122	66 - 139

Method: QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-639741/2-A
Matrix: Solid
Analysis Batch: 640136

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 639741

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotetradecanoic acid (PFTeA)	2.00	2.12		ug/Kg		106	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.78	1.93		ug/Kg		109	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.89		ug/Kg		104	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	2.05		ug/Kg		110	68 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.06		ug/Kg		103	61 - 139
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.12		ug/Kg		106	63 - 144
HFPO-DA (GenX)	2.00	2.23		ug/Kg		112	85 - 123

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*82*		*50 - 150*
13C4 PFHpA	*83*		*50 - 150*
13C4 PFOA	*83*		*50 - 150*
13C5 PFNA	*93*		*50 - 150*
13C2 PFDA	*91*		*50 - 150*
13C2 PFUnA	*91*		*50 - 150*
13C2 PFDoA	*85*		*50 - 150*
13C2 PFTeDA	*91*		*50 - 150*
13C3 PFBS	*83*		*50 - 150*
18O2 PFHxS	*87*		*50 - 150*
13C4 PFOS	*85*		*50 - 150*
d3-NMeFOSAA	*94*		*50 - 150*
d5-NEtFOSAA	*97*		*50 - 150*
13C3 HFPO-DA	*77*		*50 - 150*

Lab Sample ID: MB 320-639742/1-A
Matrix: Solid
Analysis Batch: 644725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 639742

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorooctanoic acid (PFOA)	ND		0.30	0.053	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.30	0.043	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg		12/12/22 18:00	01/05/23 18:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg		12/12/22 18:00	01/05/23 18:01	1

Method: QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-639742/1-A
Matrix: Solid
Analysis Batch: 644725

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 639742

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
HFPO-DA (GenX)	ND		0.20	0.041	ug/Kg		12/12/22 18:00	01/05/23 18:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C4 PFHpA	*81*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C4 PFOA	*81*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C5 PFNA	*90*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C2 PFDA	*78*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C2 PFUnA	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C2 PFDoA	*73*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C2 PFTeDA	*81*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C3 PFBS	*81*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
18O2 PFHxS	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C4 PFOS	*79*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
d3-NMeFOSAA	*77*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*12/12/22 18:00*	*01/05/23 18:01*	*1*

Lab Sample ID: LCS 320-639742/2-A
Matrix: Solid
Analysis Batch: 644725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 639742

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.10		ug/Kg		105	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.12		ug/Kg		106	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.15		ug/Kg		108	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.97		ug/Kg		99	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	2.22		ug/Kg		111	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.09		ug/Kg		105	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.33		ug/Kg		117	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	2.20		ug/Kg		110	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	2.21		ug/Kg		111	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.78	1.94		ug/Kg		109	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.97		ug/Kg		108	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	2.00		ug/Kg		107	68 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.15		ug/Kg		108	61 - 139
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.27		ug/Kg		113	63 - 144
HFPO-DA (GenX)	2.00	2.16		ug/Kg		108	85 - 123

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*81*		*50 - 150*
13C4 PFHpA	*83*		*50 - 150*

Method: QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-639742/2-A
Matrix: Solid
Analysis Batch: 644725

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 639742

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFOA	80		50 - 150
13C5 PFNA	91		50 - 150
13C2 PFDA	78		50 - 150
13C2 PFUnA	81		50 - 150
13C2 PFDoA	76		50 - 150
13C2 PFTeDA	70		50 - 150
13C3 PFBS	76		50 - 150
18O2 PFHxS	77		50 - 150
13C4 PFOS	80		50 - 150
d3-NMeFOSAA	78		50 - 150
d5-NEtFOSAA	85		50 - 150
13C3 HFPO-DA	76		50 - 150

Lab Sample ID: MB 320-640633/1-A
Matrix: Water
Analysis Batch: 645707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 640633

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.55	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.48	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.56	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.56	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.33	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.73	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.42	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.69	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.51	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.34	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.38	ng/L		12/16/22 13:18	01/10/23 13:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.58	ng/L		12/16/22 13:18	01/10/23 13:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	0.34	ng/L		12/16/22 13:18	01/10/23 13:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	0.46	ng/L		12/16/22 13:18	01/10/23 13:14	1
HFPO-DA (GenX)	ND		4.0	0.69	ng/L		12/16/22 13:18	01/10/23 13:14	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C4 PFHpA	99		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C4 PFOA	96		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C5 PFNA	108		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C2 PFDA	102		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C2 PFUnA	107		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C2 PFDoA	101		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C2 PFTeDA	106		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C3 PFBS	90		50 - 150	12/16/22 13:18	01/10/23 13:14	1
18O2 PFHxS	94		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C4 PFOS	94		50 - 150	12/16/22 13:18	01/10/23 13:14	1
d3-NMeFOSAA	87		50 - 150	12/16/22 13:18	01/10/23 13:14	1

Method: QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-640633/1-A
Matrix: Water
Analysis Batch: 645707

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 640633

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	90		50 - 150	12/16/22 13:18	01/10/23 13:14	1
13C3 HFPO-DA	102		50 - 150	12/16/22 13:18	01/10/23 13:14	1

Lab Sample ID: LCS 320-640633/2-A
Matrix: Water
Analysis Batch: 645707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 640633

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	40.0	39.4		ng/L		99	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	41.4		ng/L		104	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	41.8		ng/L		105	71 - 133
Perfluorononanoic acid (PFNA)	40.0	39.0		ng/L		97	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	42.7		ng/L		107	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	40.1		ng/L		100	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	44.7		ng/L		112	72 - 134
Perfluorotridecanoic acid (PFTriA)	40.0	45.5		ng/L		114	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	42.5		ng/L		106	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.5	34.9		ng/L		98	72 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.5	36.8		ng/L		101	68 - 131
Perfluorooctanesulfonic acid (PFOS)	37.2	36.9		ng/L		99	65 - 140
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	38.6		ng/L		97	61 - 135
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	43.9		ng/L		110	65 - 136
HFPO-DA (GenX)	40.0	41.3		ng/L		103	84 - 121

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	95		50 - 150
13C4 PFHpA	96		50 - 150
13C4 PFOA	97		50 - 150
13C5 PFNA	105		50 - 150
13C2 PFDA	99		50 - 150
13C2 PFUnA	106		50 - 150
13C2 PFDoA	100		50 - 150
13C2 PFTeDA	107		50 - 150
13C3 PFBS	96		50 - 150
18O2 PFHxS	90		50 - 150
13C4 PFOS	93		50 - 150
d3-NMeFOSAA	81		50 - 150
d5-NEtFOSAA	84		50 - 150
13C3 HFPO-DA	98		50 - 150

Method: QSM B15 - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-640633/3-A
Matrix: Water
Analysis Batch: 645707

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 640633

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)			40.0	39.4		ng/L		98	72 - 129	0	30
Perfluoroheptanoic acid (PFHpA)			40.0	41.2		ng/L		103	72 - 130	1	30
Perfluorooctanoic acid (PFOA)			40.0	41.7		ng/L		104	71 - 133	0	30
Perfluorononanoic acid (PFNA)			40.0	38.5		ng/L		96	69 - 130	1	30
Perfluorodecanoic acid (PFDA)			40.0	42.6		ng/L		106	71 - 129	0	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.6		ng/L		99	69 - 133	1	30
Perfluorododecanoic acid (PFDoA)			40.0	41.8		ng/L		104	72 - 134	7	30
Perfluorotridecanoic acid (PFTriA)			40.0	44.5		ng/L		111	65 - 144	2	30
Perfluorotetradecanoic acid (PFTeA)			40.0	42.3		ng/L		106	71 - 132	0	30
Perfluorobutanesulfonic acid (PFBS)			35.5	34.0		ng/L		96	72 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)			36.5	34.9		ng/L		96	68 - 131	5	30
Perfluorooctanesulfonic acid (PFOS)			37.2	37.9		ng/L		102	65 - 140	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	42.2		ng/L		105	61 - 135	9	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	44.8		ng/L		112	65 - 136	2	30
HFPO-DA (GenX)			40.0	40.4		ng/L		101	84 - 121	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*98*		*50 - 150*
13C4 PFHpA	*97*		*50 - 150*
13C4 PFOA	*100*		*50 - 150*
13C5 PFNA	*109*		*50 - 150*
13C2 PFDA	*100*		*50 - 150*
13C2 PFUnA	*108*		*50 - 150*
13C2 PFDoA	*101*		*50 - 150*
13C2 PFTeDA	*104*		*50 - 150*
13C3 PFBS	*97*		*50 - 150*
18O2 PFHxS	*94*		*50 - 150*
13C4 PFOS	*90*		*50 - 150*
d3-NMeFOSAA	*79*		*50 - 150*
d5-NEtFOSAA	*88*		*50 - 150*
13C3 HFPO-DA	*105*		*50 - 150*

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-95123-1 DU
Matrix: Solid
Analysis Batch: 639153

Client Sample ID: MW-08-134
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	29.2			31.0		%				6	20
Percent Solids	70.8			69.0		%				3	20

LCMS

Prep Batch: 639741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-1	MW-08-134	Total/NA	Solid	SHAKE	
320-95123-2	MW-08-144	Total/NA	Solid	SHAKE	
320-95123-3	MW-08-152	Total/NA	Solid	SHAKE	
320-95123-4	MW-08-162	Total/NA	Solid	SHAKE	
320-95123-5	MW-08-167	Total/NA	Solid	SHAKE	
320-95123-6	MW-08-175	Total/NA	Solid	SHAKE	
320-95123-7	MW-08-185	Total/NA	Solid	SHAKE	
MB 320-639741/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-639741/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Prep Batch: 639742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-9	MW-08-195	Total/NA	Solid	SHAKE	
MB 320-639742/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-639742/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 640136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-1	MW-08-134	Total/NA	Solid	QSM B15	639741
320-95123-2	MW-08-144	Total/NA	Solid	QSM B15	639741
320-95123-3	MW-08-152	Total/NA	Solid	QSM B15	639741
320-95123-4	MW-08-162	Total/NA	Solid	QSM B15	639741
320-95123-5	MW-08-167	Total/NA	Solid	QSM B15	639741
320-95123-6	MW-08-175	Total/NA	Solid	QSM B15	639741
320-95123-7	MW-08-185	Total/NA	Solid	QSM B15	639741
MB 320-639741/1-A	Method Blank	Total/NA	Solid	QSM B15	639741
LCS 320-639741/2-A	Lab Control Sample	Total/NA	Solid	QSM B15	639741

Prep Batch: 640633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-8	MW-08-170-120622	Total/NA	Water	3535	
320-95123-11	Trip Blank-1	Total/NA	Water	3535	
320-95123-12	EB-120722	Total/NA	Water	3535	
MB 320-640633/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-640633/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-640633/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 644725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-9	MW-08-195	Total/NA	Solid	QSM B15	639742
MB 320-639742/1-A	Method Blank	Total/NA	Solid	QSM B15	639742
LCS 320-639742/2-A	Lab Control Sample	Total/NA	Solid	QSM B15	639742

Analysis Batch: 645707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-8	MW-08-170-120622	Total/NA	Water	QSM B15	640633
320-95123-11	Trip Blank-1	Total/NA	Water	QSM B15	640633
320-95123-12	EB-120722	Total/NA	Water	QSM B15	640633
MB 320-640633/1-A	Method Blank	Total/NA	Water	QSM B15	640633
LCS 320-640633/2-A	Lab Control Sample	Total/NA	Water	QSM B15	640633
LCSD 320-640633/3-A	Lab Control Sample Dup	Total/NA	Water	QSM B15	640633

QC Association Summary

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

General Chemistry

Analysis Batch: 639153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-95123-1	MW-08-134	Total/NA	Solid	D 2216	
320-95123-2	MW-08-144	Total/NA	Solid	D 2216	
320-95123-3	MW-08-152	Total/NA	Solid	D 2216	
320-95123-4	MW-08-162	Total/NA	Solid	D 2216	
320-95123-5	MW-08-167	Total/NA	Solid	D 2216	
320-95123-6	MW-08-175	Total/NA	Solid	D 2216	
320-95123-7	MW-08-185	Total/NA	Solid	D 2216	
320-95123-9	MW-08-195	Total/NA	Solid	D 2216	
320-95123-1 DU	MW-08-134	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: MW-08-134
Date Collected: 12/02/22 16:20
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Client Sample ID: MW-08-134
Date Collected: 12/02/22 16:20
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-1
Matrix: Solid
Percent Solids: 70.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.33 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 20:44	K1S	EET SAC

Client Sample ID: MW-08-144
Date Collected: 12/02/22 16:25
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Client Sample ID: MW-08-144
Date Collected: 12/02/22 16:25
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-2
Matrix: Solid
Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.15 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 20:54	K1S	EET SAC

Client Sample ID: MW-08-152
Date Collected: 12/02/22 16:30
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Client Sample ID: MW-08-152
Date Collected: 12/02/22 16:30
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-3
Matrix: Solid
Percent Solids: 80.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.19 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 21:04	K1S	EET SAC

Client Sample ID: MW-08-162
Date Collected: 12/06/22 11:45
Date Received: 12/09/22 09:20

Lab Sample ID: 320-95123-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: MW-08-162
Lab Sample ID: 320-95123-4
Date Collected: 12/06/22 11:45
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 81.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.36 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 21:14	K1S	EET SAC

Client Sample ID: MW-08-167
Lab Sample ID: 320-95123-5
Date Collected: 12/06/22 11:50
Matrix: Solid
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Client Sample ID: MW-08-167
Lab Sample ID: 320-95123-5
Date Collected: 12/06/22 11:50
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 73.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.19 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 21:45	K1S	EET SAC

Client Sample ID: MW-08-175
Lab Sample ID: 320-95123-6
Date Collected: 12/06/22 14:55
Matrix: Solid
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Client Sample ID: MW-08-175
Lab Sample ID: 320-95123-6
Date Collected: 12/06/22 14:55
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 78.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.04 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 21:55	K1S	EET SAC

Client Sample ID: MW-08-185
Lab Sample ID: 320-95123-7
Date Collected: 12/06/22 15:00
Matrix: Solid
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Lab Chronicle

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Client Sample ID: MW-08-185
Lab Sample ID: 320-95123-7
Date Collected: 12/06/22 15:00
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 80.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.29 g	10.0 mL	639741	12/13/22 20:34	PV	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	640136	12/14/22 22:05	K1S	EET SAC

Client Sample ID: MW-08-170-120622
Lab Sample ID: 320-95123-8
Date Collected: 12/06/22 10:50
Matrix: Water
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			94.6 mL	10.0 mL	640633	12/16/22 13:18	SEY	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	645707	01/10/23 14:14	D1R	EET SAC

Client Sample ID: MW-08-195
Lab Sample ID: 320-95123-9
Date Collected: 12/07/22 13:00
Matrix: Solid
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			639153	12/12/22 11:17	TCS	EET SAC

Client Sample ID: MW-08-195
Lab Sample ID: 320-95123-9
Date Collected: 12/07/22 13:00
Matrix: Solid
Date Received: 12/09/22 09:20
Percent Solids: 81.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.42 g	10.0 mL	639742	12/12/22 18:00	FX	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	644725	01/05/23 18:21	RS1	EET SAC

Client Sample ID: Trip Blank-1
Lab Sample ID: 320-95123-11
Date Collected: 12/07/22 15:15
Matrix: Water
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			275.4 mL	10.0 mL	640633	12/16/22 13:18	SEY	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	645707	01/10/23 14:25	D1R	EET SAC

Client Sample ID: EB-120722
Lab Sample ID: 320-95123-12
Date Collected: 12/07/22 16:00
Matrix: Water
Date Received: 12/09/22 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			280.3 mL	10.0 mL	640633	12/16/22 13:18	SEY	EET SAC
Total/NA	Analysis	QSM B15		1	1 mL	1 mL	645707	01/10/23 14:35	D1R	EET SAC

Laboratory References:
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Geosyntec Consultants, Inc. Job ID: 320-95123-1
Project/Site: PFAS, Lower Issaquah Valley

Laboratory: Eurofins Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2468	01-20-24

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
D 2216		Solid	Percent Solids

Method Summary

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Method	Method Description	Protocol	Laboratory
QSM B15	PFAS for QSM 5.3, Table B-15	DOD 5.3	EET SAC
D 2216	Percent Moisture	ASTM	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

ASTM = ASTM International

DOD 5.3 = Department of Defense Quality Systems Manual V5.3

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Geosyntec Consultants, Inc.
Project/Site: PFAS, Lower Issaquah Valley

Job ID: 320-95123-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-95123-1	MW-08-134	Solid	12/02/22 16:20	12/09/22 09:20
320-95123-2	MW-08-144	Solid	12/02/22 16:25	12/09/22 09:20
320-95123-3	MW-08-152	Solid	12/02/22 16:30	12/09/22 09:20
320-95123-4	MW-08-162	Solid	12/06/22 11:45	12/09/22 09:20
320-95123-5	MW-08-167	Solid	12/06/22 11:50	12/09/22 09:20
320-95123-6	MW-08-175	Solid	12/06/22 14:55	12/09/22 09:20
320-95123-7	MW-08-185	Solid	12/06/22 15:00	12/09/22 09:20
320-95123-8	MW-08-170-120622	Water	12/06/22 10:50	12/09/22 09:20
320-95123-9	MW-08-195	Solid	12/07/22 13:00	12/09/22 09:20
320-95123-11	Trip Blank-1	Water	12/07/22 15:15	12/09/22 09:20
320-95123-12	EB-120722	Water	12/07/22 16:00	12/09/22 09:20

Chain of Custody Record 588717

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Cindy Bartlett	Site Contact:	Date: 12/7/22	COC No:
Company Name: Geosyntec	Tel/Email: CBartlett@Geosyntec	Lab Contact:	Carrier:	1 of _____ COCs
Address: 920 SW 6th Ave Suite 600	Analysis Turnaround Time			Sampler: Jobe Traywick
City/State/Zip: Portland OR 97204	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 503 222 9518	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks 5 D			Lab Sampling:
Project Name: Issaquah	☐ 1 week			
Site: Salmon Run Park, Issaquah, WA	☐ 2 days			Job / SDG No.: PNG0989-2
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	537.1 / mod	Sample Specific Notes:
MW-08-134	12/2/22	16:20	G	S	1	N	N	X	
MW-08-144	12/2/22	16:25			1			X	
MW-08-152	12/2/22	16:30			1			X	
MW-08-162	12/6/22	11:45			1			X	
MW-08-167	12/6/22	11:50			1			X	
MW-08-175	12/6/22	14:55			1			X	
MW-08-185	12/6/22	15:00			1			X	
MW-08-~~150~~ 170 120622 JT 12/7/22	12/6/22	10:50		W	2			X	
MW-08-195	12/7/22	13:00	G	S	1			X	
MW-08-120-120622	12/6/22	8:45	G	W	2			~~X~~ JT 12/7/22	Hold
Trip Blank-1	12/7/22	15:15	G	W	2			X	
EB-120722	12/7/22	16:00	G	W	2			X	

320-95123 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
See work order for list of PFAS compounds

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.7 Corr'd: 1.7 | Therm ID No.: L-03

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Jobe Traywick	Geosyntec	12/7/22 16:30		GEOSYNTEC	12.7.22 16:30
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	GEOSYNTEC	12.8.22 11:20	TO FEDEX		
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				EETSac	12/9/22 09:20

Page 33 of 34

1/12/2023

Login Sample Receipt Checklist

Client: Geosyntec Consultants, Inc.

Job Number: 320-95123-1

Login Number: 95123
List Number: 1
Creator: Guzman, Juan

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664

Professional Analytical Services

Jan 17 2023
GEOSYNTEC
520 PIKE ST
2600
SEATTLE, WA 98101
Attention: CINDY BARTLETT

Dear CINDY BARTLETT:

Enclosed please find the analytical data for your ISSAQUAH project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
ML-137-139	Soil	22-A021961	Grain Size, CONV
SP-146-148	Soil	22-A021962	Grain Size, CONV
ML-165-167	Soil	22-A021963	Grain Size, CONV
SM-172-174	Soil	22-A021964	Grain Size, CONV

Your samples were received on Thursday, December 22, 2022. At the time of receipt, the samples were logged in and properly maintained prior to the subsequent analysis.

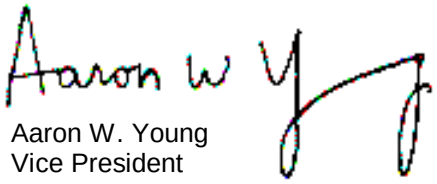
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,



Aaron W. Young
Vice President

Project #: PNG0989

BACT = Bacteriological
CONV = Conventionals
MET = Metals
ORG = Organics
NUT=Nutrients
DEM=Demand
MIN=Minerals

Am Test Inc.
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(425) 885-1664
www.amtestlab.com

Professional Analytical Services

ANALYSIS REPORT

GEOSYNTEC
520 PIKE ST
SEATTLE, WA 98101
Attention: CINDY BARTLETT
Project Name: ISSAQUAH
Project #: PNG0989
All results reported on a dry weight basis.

Date Received: 12/22/22
Date Reported: 1/17/23

AMTEST Identification Number **22-A021961**
Client Identification **ML-137-139**
Sampling Date **12/07/22, 13:00**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Solids	84.5	%		0.1	SM 2540G	SF	12/27/22

Grain Size Distribution

PHI	OPENING (mm)	% RETENTION	FRACTION	PERCENT	METHOD	ANALYST	DATE
-2.25	4.75	< 0.1 %	GRAVEL	0.00	ASTM D422	SF	01/16/23
- 2	4.00	< 0.1 %			ASTM D422	SF	01/16/23
-1	2.00	< 0.1 %			ASTM D422	SF	01/16/23
0	1.00	0.30 %	SAND	44.3	ASTM D422	SF	01/16/23
+1	0.50	1.20 %			ASTM D422	SF	01/16/23
+ 2	0.25	15.5 %			ASTM D422	SF	01/16/23
+ 3	0.125	18.9 %			ASTM D422	SF	01/16/23
+ 4	0.063	8.40 %			ASTM D422	SF	01/16/23
+ 5	0.032	9.00 %	SILT	36.1	ASTM D422	SF	01/16/23
+ 6	0.016	9.60 %			ASTM D422	SF	01/16/23
+ 7	0.008	9.70 %			ASTM D422	SF	01/16/23
+ 8	0.004	7.80 %			ASTM D422	SF	01/16/23
+ 9	0.002	7.70 %	CLAY	19.6	ASTM D422	SF	01/16/23
+ 10	0.001	5.10 %			ASTM D422	SF	01/16/23
> + 10	< 0.001	6.80 %			ASTM D422	SF	01/16/23

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Professional Analytical Services

ANALYSIS REPORT

GEOSYNTEC
520 PIKE ST
SEATTLE, WA 98101
Attention: CINDY BARTLETT
Project Name: ISSAQUAH
Project #: PNG0989
All results reported on a dry weight basis.

Date Received: 12/22/22
Date Reported: 1/17/23

AMTEST Identification Number **22-A021962**
Client Identification **SP-146-148**
Sampling Date **12/07/22, 13:05**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Solids	88.2	%		0.1	SM 2540G	SF	12/27/22

Grain Size Distribution

PHI	OPENING (mm)	% RETENTION	FRACTION	PERCENT	METHOD	ANALYST	DATE
-2.25	4.75	1.10 %	GRAVEL	3.90	ASTM D422	SF	01/16/23
- 2	4.00	0.10 %			ASTM D422	SF	01/16/23
-1	2.00	2.70 %			ASTM D422	SF	01/16/23
0	1.00	18.2 %	SAND	90.8	ASTM D422	SF	01/16/23
+1	0.50	39.9 %			ASTM D422	SF	01/16/23
+ 2	0.25	27.8 %			ASTM D422	SF	01/16/23
+ 3	0.125	4.10 %			ASTM D422	SF	01/16/23
+ 4	0.063	0.80 %			ASTM D422	SF	01/16/23
+ 5	0.032	0.70 %	SILT	3.50	ASTM D422	SF	01/16/23
+ 6	0.016	1.10 %			ASTM D422	SF	01/16/23
+ 7	0.008	1.00 %			ASTM D422	SF	01/16/23
+ 8	0.004	0.70 %			ASTM D422	SF	01/16/23
+ 9	0.002	0.10 %	CLAY	1.80	ASTM D422	SF	01/16/23
+ 10	0.001	< 0.1 %			ASTM D422	SF	01/16/23
> + 10	< 0.001	1.70 %			ASTM D422	SF	01/16/23

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Professional Analytical Services

ANALYSIS REPORT

GEOSYNTEC
520 PIKE ST
SEATTLE, WA 98101
Attention: CINDY BARTLETT
Project Name: ISSAQUAH
Project #: PNG0989
All results reported on a dry weight basis.

Date Received: 12/22/22
Date Reported: 1/17/23

AMTEST Identification Number **22-A021963**
Client Identification **ML-165-167**
Sampling Date **12/07/22, 13:10**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Solids	78.9	%		0.1	SM 2540G	SF	12/27/22

Grain Size Distribution

PHI	OPENING (mm)	% RETENTION	FRACTION	PERCENT	METHOD	ANALYST	DATE
-2.25	4.75	< 0.1 %	GRAVEL	0.00	ASTM D422	SF	01/16/23
- 2	4.00	< 0.1 %			ASTM D422	SF	01/16/23
-1	2.00	< 0.1 %			ASTM D422	SF	01/16/23
0	1.00	0.10 %	SAND	20.1	ASTM D422	SF	01/16/23
+1	0.50	0.10 %			ASTM D422	SF	01/16/23
+ 2	0.25	0.60 %			ASTM D422	SF	01/16/23
+ 3	0.125	3.10 %			ASTM D422	SF	01/16/23
+ 4	0.063	16.2 %			ASTM D422	SF	01/16/23
+ 5	0.032	22.5 %	SILT	74.8	ASTM D422	SF	01/16/23
+ 6	0.016	34.4 %			ASTM D422	SF	01/16/23
+ 7	0.008	15.5 %			ASTM D422	SF	01/16/23
+ 8	0.004	2.40 %			ASTM D422	SF	01/16/23
+ 9	0.002	1.10 %	CLAY	5.20	ASTM D422	SF	01/16/23
+ 10	0.001	0.60 %			ASTM D422	SF	01/16/23
> + 10	< 0.001	3.50 %			ASTM D422	SF	01/16/23

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Professional Analytical Services

ANALYSIS REPORT

GEOSYNTEC
520 PIKE ST
SEATTLE, WA 98101
Attention: CINDY BARTLETT
Project Name: ISSAQUAH
Project #: PNG0989
All results reported on a dry weight basis.

Date Received: 12/22/22
Date Reported: 1/17/23

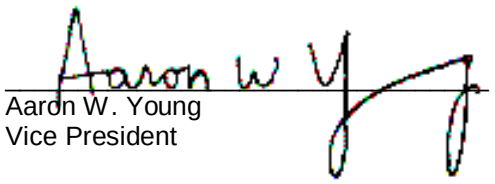
AMTEST Identification Number **22-A021964**
Client Identification **SM-172-174**
Sampling Date **12/07/22, 13:15**

Conventionals

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Total Solids	82.5	%		0.1	SM 2540G	SF	12/27/22

Grain Size Distribution

PHI	OPENING (mm)	% RETENTION	FRACTION	PERCENT	METHOD	ANALYST	DATE
-2.25	4.75	< 0.1 %	GRAVEL	0.00	ASTM D422	SF	01/16/23
- 2	4.00	< 0.1 %			ASTM D422	SF	01/16/23
-1	2.00	< 0.1 %			ASTM D422	SF	01/16/23
0	1.00	0.20 %	SAND	92.0	ASTM D422	SF	01/16/23
+1	0.50	0.50 %			ASTM D422	SF	01/16/23
+ 2	0.25	30.1 %			ASTM D422	SF	01/16/23
+ 3	0.125	49.1 %			ASTM D422	SF	01/16/23
+ 4	0.063	12.1 %			ASTM D422	SF	01/16/23
+ 5	0.032	1.30 %	SILT	4.30	ASTM D422	SF	01/16/23
+ 6	0.016	1.20 %			ASTM D422	SF	01/16/23
+ 7	0.008	0.50 %			ASTM D422	SF	01/16/23
+ 8	0.004	1.30 %			ASTM D422	SF	01/16/23
+ 9	0.002	1.10 %	CLAY	3.90	ASTM D422	SF	01/16/23
+ 10	0.001	0.60 %			ASTM D422	SF	01/16/23
> + 10	< 0.001	2.20 %			ASTM D422	SF	01/16/23



Aaron W. Young
Vice President

Am Test Inc.
13600 NE 126th PL
Suite C
Kirkland, WA, 98034
(425) 885-1664
www.amtestlab.com

Professional Analytical Services

QC Summary for sample numbers: 22-A021961 to 22-A021964

DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	DUP VALUE	RPD
22-A021962	Total Solids	%	88.2	87.8	0.45
22-A021962	Total Solids	%	88.2	88.6	0.45
22-A021962	Gravel	%	3.90	3.50	11.
22-A021962	Gravel	%	3.90	3.70	5.3
22-A021962	Sand	%	90.8	91.6	0.88
22-A021962	Sand	%	90.8	92.5	1.9
22-A021962	Silt	%	3.50	3.00	15.
22-A021962	Silt	%	3.50	2.20	46.
22-A021962	Clay	%	1.80	1.80	0.00
22-A021962	Clay	%	1.80	1.80	0.00

AmTest Chain of Custody Record

AMTEST LABORATORIES
13600 NE 126th PL, Suite C, Kirkland, WA 98034
Ph (425) 885-1664 Fx (425) 820-0245
www.amtestlab.com

Chain of Custody No. [illegible]

Client Name & Address:	Invoice To:
Geosyntec 520 #2600 Pike St, Seattle, WA, 98101	
Contact Person: Cindy Bartlett	Invoice Contact:
Phone No: 503-505-4145	PO Number:
Fax No:	Invoice Ph/Fax:
E-mail: CBartlett@geosyntec.com	Invoice E-mail:
Report Delivery: (Choose all that apply) Mail / Fax / Email / Posted Online	Data posted to online account: YES / NO Web Login ID:
Special Instructions:	
Requested TAT: **(Rush must be pre-approved by lab)** Standard RUSH (5 Day / 3 Day / 48 HR / 24 HR)	Temperature upon Receipt: 2.9°C

Project Name: Issaquah
Project Number: PNG0989

AmTest ID	Client ID (35 characters max)	Date Sampled	Time Sampled	Matrix	No. of containers	Analysis Requested: Chlorinated									QA/QC
21961	ML-137-139	12/7/22	13:00	S	1	X									
21962	SP-146-148	12/7/22	13:05	S	1	X									
21963	ML-165-167	12/7/22	13:10	S	1	X									
21964	SM-172-174	12/7/22	13:15	S	1	X									

Collected/Relinquished By:	Date	Time	Received By:	Date	Time
Jobe Tramontola	12/22/22	14:20		12/22/22	14:20
Relinquished By:	Date	Time	Received By:	Date	Time
Relinquished By:	Date	Time	Received By:	Date	Time

COMMENTS:

APPENDIX D
IDW Disposal Receipts

Placeholder for IDW Disposal Receipts (pending)