SUBMITTED TO:
Alaska Department of Transportation & Public Facilities, Central Region
P.O. Box 196900
Anchorage, Alaska 99519

BY:
Shannon & Wilson, Inc.
2355 Hill Road
Fairbanks, Alaska 99709

(907) 479-0600
www.shannonwilson.com

REVISED

REPORT

Dillingham Airport Initial PFAS Site Characterization

DILLINGHAM, ALASKA

SHANNON & WILSON

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Submitted To: Alaska Department of Transportation & Public Facilities, Central Region
P.O. Box 196900
Anchorage, Alaska 99519
Attn: Jeremy Thompson and Andrew Warner

Subject: REPORT, DILLINGHAM AIRPORT INITIAL PFAS SITE CHARACTERIZATION, DILLINGHAM, ALASKA

Shannon & Wilson, Inc. (Shannon & Wilson) prepared this report and participated in this project as a consultant to the Alaska Department of Transportation and Public Facilities (DOT&PF). Shannon & Wilson's services were authorized by Professional Services Agreement Number 25 19 1-013, issued by the DOT&PF on December 19, 2018, via Amendment 36, NTP 2-7 dated April 9, 2021 and NTP 2-7a dated June 10, 2021.

This report presents a summary of Shannon & Wilson's initial per- and polyfluoroalkyl substance (PFAS) site characterization effort at and near the Dillingham Airport (DLG). Ongoing water supply well monitoring activities are reported separately. This report supersedes the draft submitted December 16, 2021.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Adam Wyborny, P.E.
Environmental Engineer, Project Manager

Kristen Freiburger
Associate, Statewide Project Manager

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Important Information

ACRONYMS

°C	degrees Celsius
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AAC	Alaska Administrative Code
Addendum	*Generic Work Plan Addendum 005-DLG-01*
AFFF	aqueous film-forming foam
ARFF	Aircraft Rescue and Firefighting
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
CSM	conceptual site model
CSPP	Construction Safety and Phasing Plan
DEC	Alaska Department of Environmental Conservation
Discovery	Discovery Drilling, Inc.
DLG	Dillingham Airport
DOT&PF	Alaska Department of Transportation and Public Facilities
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
Eurofins	Eurofins Environment Testing America
FAA	Federal Aviation Administration
GAC	granular activated carbon
GRO	gasoline range organics
GWP	*Statewide PFAS General Work Plan Revision 1*
IDW	investigation-derived waste
LDRC	Laboratory Data Review Checklist
LHA	Lifetime Health Advisory
LOD	limit of detection
LOQ	limit of quantitation
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTG	migration to groundwater
MW	monitoring well
mV	millivolts
ng/L	nanograms per liter
PAH	polynuclear aromatic hydrocarbon
PFAS	per- and polyfluoroalkyl substances
PFBS	perfluorobutanesulfonic acid
PFHpA	perfluoroheptanoic acid
PFHxA	perfluorohexanoic acid

ACRONYMS

PFHxS	perfluorohexanesulfonic acid
PFDA	perfluorodecanoic acid
PFDoA	perfluorododecanoic acid
PFNA	perfluorononanoic acid
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonic acid
PFTeA	perfluorotetradecanoic acid
PID	photoionization detector
ppm	parts per million
QA	quality assurance
QC	quality control
RAP	reclaimed asphalt pavement
RCRA	Resource Conservation and Recovery Act
RL	reporting limit
RRO	residual range organics
SGS	SGS North America, Inc.
Shannon & Wilson	Shannon & Wilson, Inc.
SVOC	semi-volatile organic compound
TAH	total aromatic hydrocarbons
TAqH	total aqueous hydrocarbons
TCLP	toxicity characteristic leaching procedure
USGS	U.S. Geologic Survey
VOC	volatile organic compound
WO	work order
YSI	multiprobe water quality meter

EXECUTIVE SUMMARY

Per- and polyfluoroalkyl substances (PFAS) are found in soil, groundwater, and surface water at the Dillingham Airport (DLG) due to the historic use of aqueous film-forming foam (AFFF). The Alaska Department of Transportation and Public Facilities (DOT&PF) released AFFF for training, systems testing, emergency response, and during required inspections for many years (Section 1.2). On behalf of DOT&PF, Shannon & Wilson sampled nearly 100 onsite and offsite water supply wells for PFAS in 2019 and 2020. Private well monitoring is ongoing. This report documents initial PFAS site characterization at and near the DLG.

The DLG site characterization field effort occurred from June to August 2021. Shannon & Wilson collected analytical surface and subsurface soil, groundwater, sediment, and surface water samples for determination of PFAS and petroleum compounds. The groundwater sampling effort entailed installing 22 groundwater monitoring wells (MWs) in clusters, ranging from 10 feet to 80 feet deep (Section 2.3). PFOS and PFOA were identified above their respective cleanup levels in onsite soil, water, and sediment. PFOS was found above the cleanup level in surface water and sediment near the DLG property boundary, in a culvert leading to the estuary southwest of the DLG. PFOS and PFOA were either not detected or detected at concentrations below their respective cleanup levels in all offsite samples besides the affected private wells within the monitoring network.

Identifying PFAS source areas was a site-characterization objective. This initial PFAS effort did not identify secondary, non-AFFF sources. The calculated groundwater flow direction in late July 2021 was primarily to the south or south-southeast, towards Nushagak Bay and the estuary. However, the groundwater flowed east between the DLG and junction of Wood River and Kanakanak Roads. PFAS-impacted groundwater may be traveling offsite towards water supply wells off Kanakanak Road through localized groundwater flow zones. This report also includes a conceptual site model (CSM, Section 4) and PFAS fingerprinting spider plot compression (Section 5.3).

1 INTRODUCTION

This report documents our initial per- and polyfluoroalkyl substances (PFAS) site characterization activities at and near the Dillingham Airport (DLG). These efforts were conducted in summer 2021. The DLG is an active, Alaska Department of Environmental Conservation (DEC) listed contaminated site due to the presence of PFAS in groundwater (File Number 2540.38.023, Hazard ID 26971). The geographic coordinates of the DLG apron near Taxiway B are latitude 59.0435, longitude -158.5105. The DLG and vicinity are shown in Figure 1.

Shannon & Wilson, Inc. (Shannon & Wilson) prepared this report on behalf of the Alaska Department of Transportation & Public Facilities (DOT&PF) Central Region in accordance with the terms and conditions of Shannon & Wilson's contract. The field effort described herein was conducted in general accordance with:

- *DOT&PF Statewide PFAS General Work Plan Revision 1 (GWP)*, July 2020;
- *GWP Addendum 005-DLG-01 Revision 1* (Addendum), May 2021;
- DEC's Addendum approval letter, dated June 23, 2021;
- relevant regulatory guidance documents; and
- 18 Alaska Administrative Code (AAC) 75.335.

1.1 Purpose and Objectives

The purpose of the services described in this report was to evaluate the extent of PFAS contamination resulting from the historic use of aqueous film-forming foam (AFFF) by the DOT&PF at the DLG.

The initial PFAS site characterization effort included:

- collecting analytical surface and subsurface soil samples from near the DLG runway and potential AFFF release areas;
- obtaining information on subsurface hydrogeologic conditions including silt and clay confining layers;
- constructing, developing, and sampling monitoring well (MW) clusters near potential AFFF release areas and within the offsite PFAS plume;
- sampling several existing groundwater MWs; and
- collecting analytical surface water and sediment samples from DLG drainage ditches, culverts, and ponds.

1.2 Background

Shannon & Wilson began sampling water supply wells in Dillingham for PFAS in February 2019. The first well search was triggered by a limited PFAS water sampling effort conducted by DEC in December 2018. DEC sampled nine water supply wells and identified one offsite well exceeding applicable action levels. Shannon & Wilson returned to Dillingham for a more extensive well search in June 2019. Between February 2019 and February 2020, a total of 97 water supply wells were sampled and seven were found to have PFAS concentrations above action levels. These results are shown in Figure 2, Highest Water Supply Well Results. Ongoing, quarterly sampling has continued for a subset of these locations. Water supply well sampling is reported separately.

Exhibit 1-1: Southwest former ARFF training area

The presumed source of PFAS contamination at the DLG is the historic use of AFFF for training, systems testing, emergency response, and during annual Federal Aviation Administration (FAA) inspections. AFFF contains PFAS including perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). PFAS compounds are commonly referred to as "forever chemicals" due to their persistence, toxicity, and bioaccumulative potential. There is evidence that exposure to these compounds can lead to adverse health effects.

Known and suspected AFFF release areas are shown in red in Figure 3. The precise history of AFFF testing and training is unknown. Based on historical records and employee recollections, the testing area southwest of the runway was used most often. Additional detail related to AFFF release history can be found in Section 2.1, History of AFFF Use, and Section 3.2, Potential Sources of Contamination, of the GWP Addendum. Figure 3 has been updated to include historic AFFF releases from engine cleaning and other maintenance activities at or near the Aircraft Rescue and Firefighting (ARFF) building.

Documented fuel releases occurred within the DLG lease lot area in the past, at the former Yute Air (now Everts Air), Alaska Airlines/Pen Air, former Mark Air (now Grant Aviation), and the DOT&PF maintenance buildings. In 2006 and 2007, DEC led a site-wide groundwater sampling effort at the DLG and discovered diesel range organics (DRO) above

the DEC groundwater-cleanup level in a MW near what is now the Alaska Airlines terminal, and gasoline range organics (GRO) and benzene above their respective cleanup levels in a MW near the Everts Air building. The report concluded petroleum-impacted groundwater plume appeared to be limited to the main lease lot and apron area of the DLG. Additional detail related to fuel release history can be found in Section 2.3, Site-wide Petroleum Contamination Investigation, of the GWP Addendum.

1.2.1 Potential Additional Source Areas

Several secondary source areas were evaluated as part of this site characterization effort in addition to known AFFF releases by the DOT&PF. These potential source areas are shown in yellow in Figure 3 and summarized below.

- Emergency response by the City of Dillingham fire department to a 2007 electrical fire near the junction of Kanakanak Road and Fairview Drive/Gauthier Way. It is unknown but unlikely AFFF was used to suppress this fire.
- A former municipal and commercial landfill on Wood River Road, active from the 1960s to 1980s near what is now the northern end of the DLG runway.
- A former landfarm off Sutherland Road that contained petroleum-contaminated soil excavated from the former Yute Air contaminated site at the DLG lease lots. The excavated soil was not sampled for PFAS; however, it may have contained PFAS from airport operations.
- A current and former landfarm on the northwest side of the runway at the former instrument landing site.
- Ground asphalt from the runway placed in the lease lot and general aviation area as reclaimed asphalt pavement (RAP) in 2018.

It is possible that there are other unidentified PFAS sources areas in Dillingham.

1.3 Geology and Hydrology

Dillingham is located at the confluence of the Nushagak and Wood Rivers, at the northernmost point of Nushagak Bay within Bristol Bay. Dillingham lies on a glacial moraine and outwash-mantled lowland with wide expanses of wetlands and lakes. The DLG is in the relatively flat floodplain of the Nushagak River, between 65 feet and 80 feet above sea level. The terrain has low rolling hills typically 50 to 100 feet high. Lower elevation areas consist of undisturbed muskeg swamp.

The DLG and PFAS sampling area are underlain by a complex sequence of primarily fine-grained glacial, fluvial, and marine sediments several hundred feet thick. The DLG runway was constructed on up to 12 feet of engineered fill. The fill overlies intermingled silt

and organic silt deposits of variable thickness. Below the near-surface silt lies interbedded silt, granular soils (e.g. silty sand, silty sand with gravel), silty clay, and clay deposits. Silt and clay, where present, likely impede the movement of PFAS-containing groundwater near the DLG.

Exhibit 1-2: Near-surface silt and peat bog deposits in boring SB9

Information from property owners, local drillers, previous subsurface explorations, and well logs suggest there are multiple, localized water-bearing zones near the DLG. Water-supply well logs describe interbedded sands, silts, and clays consistent with the soils described above. These logs document clay layers between three and 55 feet in thickness. Local well drillers report high variability in the depth and thickness of clay layers over short (i.e., less than 50 feet) lateral distances. Additionally, residents within the study area report water with a high mineral content and sulfur odor near wells with a low mineral content (clear water and no odor).

As part of an unrelated project to support the design of DLG runway improvements, Shannon & Wilson advanced over 25 soil borings at the DLG and along Wood River Road in 2019. Groundwater was observed at a wide range of depths, from 15 to 30 feet below ground surface (bgs) and was generally perched atop fine-grained soils. Water levels can fluctuate by several feet seasonally during periods of high precipitation or rapid snow melt.

Exhibit 1-3: Clay deposits below 60 feet bgs in SB9

The DEC drinking water protection areas database indicates the groundwater flow direction near the DLG is variable but generally to the south or south-southeast. A 1994 report prepared by the U.S. Geologic Survey (USGS) states groundwater in the Dillingham vicinity flows south-southwest towards the Nushagak River and south-southeast towards the Wood River (Palcsak and Dorava, 1994). In 2006, Shannon & Wilson installed 11 groundwater MWs in the DLG lease lot area as part of a petroleum release investigation for the DEC.

These wells were screened within tightly packed silts to span the surface of the groundwater. Multiple different, localized groundwater flow directions were identified within the apron and lease lot area ranging from west to south. This study shows that there can be substantial variability between the local and regional groundwater flow direction in Dillingham.

1.4 Contaminants of Concern and Action Levels

The primary contaminants of concern are PFAS compounds PFOS and PFOA. The DEC migration-to-groundwater (MTG) soil cleanup levels for PFOS and PFOA are 3.0 micrograms per kilogram (µg/kg) and 1.7 µg/kg, respectively. The DEC groundwater cleanup level for PFOS or PFOA is 400 nanograms per liter (ng/L). The soil and groundwater cleanup levels were promulgated in 18 AAC 75.345 in 2016. There are no cleanup levels for other PFAS compounds.

The groundwater MWs installed for PFAS site characterization are located near residential and commercial water supply wells. Therefore, in this report we will also compare groundwater results to the current DEC drinking water action level, which is 70 ng/L for the sum of PFOS and PFOA. This action level was published in an April 2019 update to DEC's *Technical Memorandum: Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water*. From August 2018 to April 2019 the State of Alaska used a different action level for drinking water. The former 'sum of 5' action level for this time period was 70 ng/L for the sum of PFOS, PFOA, perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), and perfluorononanoic acid (PFNA).

The secondary contaminants of concern are DRO and residual range organics (RRO). DEC's 2019 *Field Sampling Guidance* also identifies GRO, benzene, toluene, ethylbenzene, and xylenes (BTEX), and polycyclic aromatic hydrocarbons (PAHs) as contaminants of potential concern at ARFF training areas. Analytical samples for this project were also submitted for volatile organic compounds (VOCs) analysis per DEC's comments on the GWP Addendum. Surface water sample results are compared to total aromatic hydrocarbon (TAH) and total aromatic hydrocarbon (TAqH) regulatory limits. The TAH analyte list includes BTEX, while the TAqH analyte list includes 16 PAHs.

The current regulatory and action levels for these contaminants are summarized in Exhibit 1-4. The water limits are reported in micrograms per liter (µg/L). The soil limits are reported in milligrams per kilogram (mg/kg).

Exhibit 1-4: Regulatory and Action Levels

Method	Analyte	Soil Limit [a] (mg/kg)	Water Limit [b] (µg/L)
537M	PFOS	0.0030	0.40
	PFOA	0.0017	0.40
	PFOS + PFOA [c]	--	0.070
AK101	GRO	300	2,200
AK102	DRO	250	1,500
AK103	RRO	11,000	1,100
EPA 8260	Volatile organic compounds (VOCs)	0.000031 to 72	0.0075 to 21,000
	Benzene	0.022	4.6
	Toluene	6.7	1,100
	Ethylbenzene	0.13	15
	Xylenes (total)	1.5	190
	Total aromatic hydrocarbons (TAH)	--	10
EPA 8270D-SIM	Polycyclic aromatic hydrocarbons (PAHs)	0.038 to 15,000	0.19 to 530
	Total aqueous hydrocarbons (TAqH)	--	15

Notes:

VOC and PAH cleanup levels vary with analyte

a. 18 AAC 75 *Table B2. Method Two - Under 40-Inch Zone - Migration to Groundwater* or *Table B1. Method Two - Soil Cleanup Levels Table - Migration to Groundwater*.

b. 18 AAC 75.345 *Table C. Groundwater Human Health Cleanup Levels*, EPA lifetime health advisory level for drinking water, or 18 AAC 70.990(59) and (60).

c. Drinking Water Action level reported in DEC's April 2019 Technical Memorandum.

mg/kg = milligram per kilogram; µg/L = microgram per liter

1.5 Scope of Services

The scope of services summarized in this report includes site access and permitting; targeted soil field screening; analytical soil, groundwater, surface water, and sediment sampling; data analysis; and preparation of this summary report. Soil sampling included collection of surface soil and subsurface soil from borings. Figure 4 presents an overview of the initial site characterization sample locations.

This report was prepared for the exclusive use of the DOT&PF and its representatives. This work presents Shannon & Wilson's professional judgment as to the conditions of the site. Information presented here is based on the sampling and analyses field staff performed. This report should not be used for other purposes without Shannon & Wilson's approval or if any of the following occurs:

- Project details change, or new information becomes available, such as revised regulatory levels or the discovery of additional source areas.

- Conditions change due to natural forces or human activity at, under, or adjacent to the project site.
- Assumptions stated in this report have changed.
- If the site ownership or land use has changed.
- Regulations, laws, or cleanup levels change.
- If the site's regulatory status has changed.

If any of these occur, Shannon & Wilson should be retained to review the applicability of recommendations. This report should not be used for other purposes without Shannon & Wilson's review. If a service is not specifically indicated in this report, do not assume it was performed.

2 FIELD ACTIVITIES

This section summarizes field activities performed between June 24 and August 1, 2021 to implement the GWP Addendum. Investigation-derived waste (IDW) management was performed between September 27 and October 1, 2021. Analytical sample locations are presented in Figure 4, Sample Location Overview.

Shannon & Wilson staff members Dana Fjare, Schylar Healy, Andrew Frick, Marcy Nadel, and Veselina Yakimova conducted the initial site characterization effort described in this report. These individuals are State of Alaska Qualified Environmental Professionals as defined in 18 AAC 75.333[b].

2.1 Preparation and Permitting

Shannon & Wilson coordinated with the FAA, City of Dillingham, and multiple departments within DOT&PF to obtain the necessary permits and permissions to conduct the site characterization activities. Copies of these permits are included in Appendix A. Each field staff member also completed a City of Dillingham Travel Notification Form and obtained a molecular COVID-19 test prior to travel.

Shannon & Wilson prepared a Construction Safety and Phasing Plan (CSPP) related to sampling activities on and near the DLG runway and taxiways. The CSPP documents project phasing, access and vehicle route details, badging, work zone lighting, and other relevant details. A draft CSPP was submitted to the Regional Safety & Airport Security Officer, Airport Manager, and other DOT&PF personnel for review. The CSPP was revised in response to comments, the April 30, 2021 version is considered final.

Advancing soil borings near the DLG runway required an FAA 7460-1 airspace permit. Shannon & Wilson submitted the final CSPP and 7460 permit application to the FAA on April 30, 2021, within the required timeframe of at least 45 days before the anticipated drilling start date. The 7460-1 determination letter was received June 15, 2021. Four soil boring locations were located within or near movement areas (Figure 4). Shannon & Wilson and the DOT&PF Airport Manager coordinated with the FAA to schedule an outage for some navigational aids for one evening, and brief partial runway closures to allow drilling at each end of the runway. The partial closure consisted of closing the final 1,000 feet of the runway for less than one hour each. DOT&PF issued a Notice to Airmen for these time periods.

Shannon & Wilson obtained a DOT&PF right-of-entry and building permit for planned sampling activities within the lease lot area, and a lane closure permit for offsite MW installation occurring in DOT&PF road rights-of-way. Building permit number ADA-09485 was issued July 7, 2021. Lane closure permit number 31020 was issued June 21, 2021 and included an approved traffic control plan (Appendix A).

Utilities clearance was determined in coordination with the Alaska Digline, Nushagak Electric Cooperative, the DLG Airport Manager, FAA, City of Dillingham Public Works, and GCI/United. Several planned MW clusters were relocated to avoid utility conflicts. Drilling location SB4 was moved from the Martin Street right-of-way to inside the DLG fence.

Four Shannon & Wilson staff members and one driller also obtained DLG-issued identification badges with a non-movement driver training endorsement. Badge training included airport access information, pavement markings, radio training, and other items. DOT&PF personnel escorted field staff within movement areas, and within all DLG restricted areas before badging. Three Shannon & Wilson badges remain active and are stored at the DLG.

2.2 Soil Sampling

Soil characterization activities for this project included sampling surface and subsurface soil. Surface soil sample locations are depicted in Figure 5, while soil borings are depicted in Figures 6 and 7. Soil boring logs are included in Appendix B. Copies of Shannon & Wilson's field notes and included in Appendix C.

2.2.1 Surface Soil

Shannon & Wilson field staff collected surface soil from the following locations:

- eight samples from the unpaved southwest former ARFF training area;

- two samples from the edge of the pavement near the former ARFF training area by the Taxiway B windsock;
- four samples near the southern end of the DLG runway;
- three samples from the edge of the pavement nearest the 2019 emergency response site;
- eight additional samples along the DLG runway;
- two samples at the former landfarm off Sutherland Road; and
- four samples near the junction of Kanakanak Road and Fairview Drive/Gauthier Way.

Shannon & Wilson field-screened surface soil for petroleum compounds using a photoionization detector (PID) prior to analytical sample collection. The highest PID reading was seven parts per million (ppm), less than half the threshold for classifying soils as potentially petroleum contaminated. Copies of our *Soil Sample Collection Logs* are included in Appendix C.

For the purposes of site characterization, we established a 60-by-60-foot soil sampling grid within the AFFF discharge area at the southwest former training area (Figure 5). During training, AFFF was released near the northern end of the southwest gravel pad and materials storage area, where it flowed northwest off the pad. The soil grid ended about five feet from the gravel pad slope break. Field screening and analytical soil samples were collected from the lowest point within each grid, from up to three inches bgs. These samples submitted for PFAS analysis. Field staff did not observe hydrocarbon staining or other indications of petroleum contamination within the soil grid. The sample with the highest PID reading (less than 1.0 ppm) was also submitted for GRO, DRO, RRO, VOC, and PAH analysis. We collected a soil field-duplicate sample for each analyte. We also collected a soil sample equipment blank from the hand shovel and spoons used to sample surface soil at the southwest training area.

The soil samples from along the runway and taxiway were analyzed for PFAS only. The 2019 emergency response site samples were collected within six inches of the edge of the runway. During the field effort we discovered the AFFF response site indicated in the GWP Addendum was mislocated and adjusted the sample locations accordingly. Most of the onsite soil samples consisted of silty gravel fill with minimal to no organics. Samples *SS-10*, *SS-11*, *SS-12*, and *SS-13* contained fibrous organics and/or native silt as well as gravel. Sample *SS-08* contained asphalt chunks. These were collected from immediately below the vegetation or historic asphalt, where present, within the uppermost four inches bgs. We collected two additional onsite field-duplicate sample pairs for PFAS analysis.

The offsite soil samples were also analyzed for PFAS only. The former landfarm samples *SS-25*, *SS-65*, and *SS-27* consisted of saturated, organic-rich muskeg from the uppermost inch bgs. The Kanakanak Road and Fairview Drive/Gauthier Way soil samples were collected from within the road rights-of-way because field staff were unable to reach the business owner to request property access.

Exhibit 2-1: Surface soil sampling at 2019 emergency response site

Surface soil sample *SS-20* was collected from inside a culvert and consisted of saturated silt and clay. Surface soil samples *SS-21*, *SS-22*, and *SS-23* from the western property boundary consisted of silty gravel with sand. We collected one offsite field-duplicate sample pair.

2.2.2 Soil Borings

On behalf of DOT&PF, Shannon & Wilson retained the services of Discovery Drilling, Inc. (Discovery) to advance soil borings and install long-term groundwater MWs. They drilled 22 MWs and advanced four soil borings unassociated with the wells. The borings extended from ground surface to up to 82 feet bgs.

Discovery used a Geoprobe Model 6712 DT track-mounted drill rig. This drill is equipped with Macro-Core tooling, a solid barrel (2-inch outside diameter) direct-push device for collecting continuous core samples of unconsolidated material. They used 5 1/4-inch inside diameter (6-inch outside diameter) hollow stew auger to install the MWs. Discovery advanced both direct push tooling and 3-inch diameter split-spoon samplers, depending on the depth

Exhibit 2-2: Drilling near the Taxiway B windsock

and lithology. Direct push drilling alone was not able to reach 80 feet bgs. At depth, the split-spoon samplers were spaced every five to 10 feet. Discovery also used water obtained from the City of Dillingham water system to suppress heave at some drilling locations. Shannon & Wilson collected pre- and post-treatment water samples from the City of Dillingham water system prior to using that water for drilling. The pre-treatment sample contained an estimated PFHxS concentration of 1.1 J ng/L, while the post-treatment sample did not contain detectable concentrations of PFAS.

Discovery advanced soil borings without MWs in the following four locations (Figure 7):

- systems testing areas at the north (SB6) and south (SB8) ends of the runway;
- northwest corner of the apron, north of Taxiway B (SB7); and
- former ARFF training area near the southwest end of the runway (SB13).

Shannon & Wilson geologists field-screened soil using a PID, described recovered soil for the purpose of determining subsurface lithology, and collected analytical soil samples from each boring. Appendix B presents a descriptive log of soil conditions and an explanation of the symbols and terminology used. The highest PID reading for subsurface soil was 2.4 ppm collected from 15 to 20 feet bgs in SB1. Field staff did not encounter a petroleum sheen, odor, or other indicators of petroleum contamination while drilling. Copies of our *Soil Sample Collection Logs* are included in Appendix C.

Exhibit 2-3: Well installation at MW03

We collected two to four analytical samples per boring for PFAS analysis. Onsite, these samples were collected from just below vegetation or pavement, part-way between the surface and groundwater table, at the groundwater interface or smear zone, and within the screened interval of the shallowest MW. Preference was given to more organic-rich material (e.g. peat or organic silt layer) and changes in soil type. Offsite, PFAS samples were collected only from the groundwater interface and screened interval. Petroleum soil samples were collected from the groundwater interface of former ARFF training area borings SB7, SB11, and SB13. We collected seven subsurface soil duplicate sample pairs for PFAS analysis and one duplicate sample pair for analysis of petroleum analytes. The precise sample intervals are shown in the field notes (Appendix C) and analytical data tables. We collected two field-blank samples for PFAS

analysis, one each during drilling at SB11 and SB13. We did not collect a field-blank sample at SB7 because the area is paved, eliminating the potential for PFAS-containing particulate matter to enter the analytical samples.

2.3 Monitoring Wells

Discovery installed 22 MWs in 10 clusters of two to three wells each. Well locations are shown in Figures 8 through 10. For easy reference, the rounded depth of the MW is denoted in the well name (i.e. DLG-MW01-30 was installed at approximately 30 feet bgs). The MW cluster numbers correspond to the soil boring numbers; there is no MW06, MW07, MW08, or MW13.

2.3.1 Well Installation

Discovery advanced soil borings and installed MWs in the following ten locations:

- the northwest corner of the airport lease lots, within the general aviation area (MW11);
- near the Taxiway B windsock (MW12);
- the southwest end of the airport lease lots, near long-term airport parking (MW09);
- on the east side of the runway near Martin Street (MW04);
- at the intersection of Airport Road and Airport Spur Road (MW02);
- at the intersection of Airport Road and Emperor Way, near the Holy Rosary Church (MW05);
- south of the airport lease lots and apron, southwest of Taxiway A (MW03);
- the former ARFF training area southwest of the runway (MW14);
- at the intersection of Wood River and Kanakanak Roads (MW01); and
- at the intersection of Fairview Drive/Gauthier Way and Kanakanak Road, in front of the Community Baptist Church (MW10).

Dense silts and/or clay were encountered at most drilling locations. The well depths and screened interval lengths vary with each MW due to subsurface conditions (see Appendix B). Discovery completed the wells using flush-mount monuments. The wells were constructed using two-inch inside-diameter schedule 40 PVC material. The screens are pre-pack 0.010-inch slotted screen with 20/40 sand and threaded end caps. The filter pack within the annular space at and around the screened interval is 10/20 silica sand. A bentonite chip seal followed by grout or bentonite with small sections of pea gravel or natural slough fills the remaining annul space, depending on the well.

We had planned to drill to 80 feet at each MW cluster. However, continuous, dense silt and/or clay were encountered for up to 20 feet in some borings. The subsequent borings were terminated at shallower depths when continuous silts or clays were identified. The deepest MW04 boring is 60 feet deep, while the deepest boring in several other MW clusters is between 74 and 78 feet deep.

Discovery installed eight clusters of two MWs each. Only the MW09 and MW03 clusters have three wells each. Perched groundwater was identified in MW09, at approximately six feet bgs. Wells MW09-50 and MW09-65 were installed below a silt layer and had a depth-to-water of 25 to 30 feet bgs. Possible perched water was also identified in the MW03 and MW05 clusters. The static water level in the shallowest well of these clusters was about three feet above or below the static water level of the deeper well/s. Well construction details can be found in the individual boring logs in Appendix B and *Monitoring Well Construction Details* field forms in Appendix C.

During drilling at the MW11 cluster in the lease lot area, two 5-foot sections of drilling rod came loose. Discovery Drilling was unable to remove the drilling rod after multiple attempts. Field staff notified the Airport Manager. The drilling rod remains in place from approximately 10 to 20 feet bgs.

2.3.2 Development and Sampling

The MWs were developed using an inertial pump and tubing with a foot value and surge block to agitate the water column and remove sediment. Development proceeded until there was a significant improvement in the clarity of the water. Due to an abundance of silt, some MWs did not produce clear water after pumping 100 gallons or more. Four wells had a low recharge rate and were pumped dry during development (MW03-30, MW09-10, MW11-80, and MW14-80). These wells were allowed to recharge, surged, purged dry, and then allowed to recharge to at least 80 percent their original volume before sampling. Copies of our *Well Development Logs* and *Monitoring Well Sampling Logs* are included in Appendix B.

Following development, a submersible Hurricane pump was used to purge the well until the water parameters stabilized or a total of three well volumes had been purged. Field staff measured these parameters using a multiprobe water quality meter (YSI) and recorded pH, temperature in degrees Celsius (°C), conductivity in microSiemens (µS), dissolved oxygen (DO) in milligrams per liter (mg/L), and redox potential in millivolts (mV) approximately once every three minutes until sample collection. The following values were used to indicate stability for a minimum of three consecutive readings: ±0.1 pH, ±3 percent °C, ±10 percent DO, ±3 percent conductivity, and ±10 mV redox. Water clarity (visual) was also recorded. The groundwater from low recharge wells was not clear at the time of sampling.

Exhibit 2-4: Entrained silt in MW development water

The water samples were collected into laboratory-supplied containers immediately after each well was purged. Groundwater samples were collected for PFAS analysis from each MW. Samples were collected for GRO, DRO, RRO, and VOC analysis from the shallowest well in the clusters near former ARFF training areas: MW11-35, MW12-40, and MW14-50. A sample was also collected for PAH analysis from MW14-50. We collected eight field duplicate sample pairs and five field blank samples for PFAS analysis. We did not collect a submersible pump equipment blank sample on days where it was used to sample one MW. We collected two field duplicate pairs and one equipment blank sample for petroleum analysis.

2.3.3 Existing Wells

Shannon & Wilson also sampled three existing MWs at the DLG. Two are located at the south end of the lease lots and apron (2006-MW08-20 and Everts-MW1-25), and one is between the lease lots and runway (2006-MW11-30). The MW named Everts-MW1-25 is not owned by DOT&PF; we obtained permission from Everts Air Cargo to sample it. These wells are shown in Figure 8. We were unable to locate many of the MWs identified in Figure 4 of the GWP Addendum. Wells MW2 through MW6 are paved over or presumed destroyed.

The existing MWs were sampled with a peristaltic pump. Everts-MW1-25 was obstructed approximately 4 feet bgs and damaged by frost jacking. Existing well 2006-MW08-20 exhibited low recharge. MW 2006-MW11-30 was also damaged by frost jacking and

exhibited low recharge. The two 2006 MWs were pumped dry, allowed to recharge overnight, and sampled the following day. Drill logs for these two MWs indicate they are screened within tightly packed silt. These samples were submitted for PFAS analysis.

2.3.4 Groundwater Elevation

Solinst Leveloggers were deployed in five shallow MWs (MW03-30, MW-04-25, MW05-45, MW10-40, and MW11-35) distributed across the central portion of the DLG for one week in late July. Time series data was not recorded at MW14 due to the timing of well installation. The data loggers were placed below the static water level in these MWs to measure absolute pressure (water pressure and atmospheric pressure), which was used to calculate groundwater elevation. A Solinst Barologger was placed at the ground surface to record local changes in atmospheric pressure over the same time period. The water level measurements were corrected with the barometric pressure readings.

Groundwater levels over this time period were relatively stable. Hourly groundwater elevation variations recorded by the data loggers did not reveal a prominent diurnal signal, however levels varied by between 0.01 and 0.10 feet across 12-hour time periods. The accuracy of data logger elevation measurements at this site is +/- 0.03 feet. Total elevation change was up to about 0.2 feet over the 5- to 8-day measurement period. Table D-1 in Appendix D summarizes statistics characterizing the hourly head measurements recorded by the data loggers.

Groundwater elevation checks in each of the 22 MWs were conducted over a 20-hour period on July 30 and 31, 2021. This information is recorded in Table D-2. The data loggers were removed from the MWs during elevation checks. The MWs were surveyed by Southwest Alaska Surveying the week if September 27, 2021. Survey information is included in Appendix D. We used the surveyed elevations and depth-to-water measurements to calculate groundwater gradients, discussed in Section 5.2.

2.4 Surface Water and Sediment Sampling

Surface water and collocated sediment samples were collected from the following locations on airport property, inside the DLG fence:

- drainage ditch at the northeast end of the runway, near outfall G (*SW-05* / *SED-05*);
- inside the culvert on the west side of the runway near Taxiway A (*SW-06* / *SED-06*); and
- west of the runway near the 2019 AFFF emergency response location (*SW-04* / *SED-04*).

Surface water and sediment samples were collected from the following locations outside the DLG fence:

- north of the lease lots, inside the outfall A2 culvert (*SW-02* / *SED-02*);
- pooled water southwest of the lease lot area between outfalls B1 and B2 (*SW-03* / *SED-03*);
- small pond by Kanakanak Road downhill from outfalls D and E (*SW-09* / *SED-09*);
- drainage ditch north of Kanakanak Road near the southwest end of the runway (*SW-08* / *SED-08*);
- small pond west inside the outfall C culvert leading to the estuary (*SW-07* / *SED-07*);
- pooled water west of Wood River Road (*SW-01*); and
- small pond at the former Wood River Road landfill (*SW-10*).

Surface water sample locations are shown in Figure 11. Figure 12 displays surface water and soil sample locations for the 2019 emergency response area. Sediment sample locations are shown in Figures 13 and 14. These sample locations differ from the locations indicated in the GWP Addendum because water was not present at some locations at the time of sampling. Offsite soil sample *SS-20* was collected from inside a culvert and could also be considered a sediment sample (see Section 2.2.1). Sample *SW-10* was collected September 30, 2021, during the second field mobilization.

The samples were collected using hand tools, a disposable plastic cup, or the laboratory-supplied sample container within an arm's reach from the edge of the water. No reusable equipment was employed to sample the surface water. Copies of our *Surface Water Sample Logs* are included in Appendix C.

Surface water and sediment samples were submitted for PFAS analysis. Surface water samples *SW-02* through *SW-09* were also submitted for GRO, DRO, RRO, TAH, other VOCs, and TAqH or PAH analysis. Sediment samples *SED-02* through *SED-09* were submitted for GRO, DRO, RRO, and VOC analysis. Sediment sample *SED-02* and its duplicate were submitted for PAH analysis. We collected two collocated surface water and sediment field-duplicate pairs, one for each day of sampling. We also collected an equipment blank for PFAS analysis from reusable equipment used to collect the sediment samples.

2.5 Sample Custody, Storage, and Shipping

Field staff collected, handled, and stored samples in a manner consistent with the GWP and DEC *Field Sampling Guidance*. Immediately after collection, the samples were placed in a designated sample cooler maintained between 0 °C and 6 °C with ice substitute. The PFAS samples were stored in individual Ziploc bags. Shannon & Wilson maintained custody of the analytical samples until submitting them to the laboratory for analysis. The samples were stored in sample coolers or a small in-room refrigerator at nighttime.

When shipping the analytical samples, chain-of-custody forms were placed in the hard-sided cooler with an adequate quantity of frozen ice substitute to maintain the proper temperature range. The samples were packaged as necessary to prevent bottle breakage and sealed with custody seals on the outside of each cooler. Samples submitted to SGS North America, Inc. (SGS) were shipped to the Ted Stevens Anchorage International Airport using Alaska Air Cargo's Goldstreak service and delivered to the laboratory by courier. Samples submitted to the Eurofins Environment Testing America (Eurofins) Laboratory in Sacramento, CA were shipped to the Sacramento International Airport where they were collected by a Eurofins employee.

2.6 Investigation-Derived Waste

Exhibit 2-5: Filtering purge water with GAC

IDW generated during initial PFAS site characterization included groundwater, decontamination fluids, subsurface soil, and other solid waste. Purge water and onsite decontamination water were filtered through granular activated carbon (GAC) and discharged to the ground surface south of the lease lot area, as indicated in Figure 8 of the GWP Addendum. Silty MW development water was allowed to settle to remove or reduce suspended solids prior to filtration. The water was gravity fed at approximately one-quarter to three-quarters of a gallon per minute through three, five-gallon GAC units in series or filtered by pumping at one-half to three gallons per minute through six, five-gallon GAC units (Exhibit 2-5). Sample *GAC-POST* was collected from the final unit effluent after filtration. The drums used to store purge water before it was filtered were decontaminated and rinsed at the purge water discharge site. These drums were taken by DOT&PF for reuse.


Exhibit 2-6: IDW management. Decontaminating soil augers (left). Drums packaged for transport (right).

Soil drill cuttings from nearly all the soil borings were containerized in 63 open-top 55-gallon drums pending the receipt of analytical data. A portion of the unsaturated soil cuttings from offsite borings SB1, SB2, and SB5 were spread on the ground surface adjacent to the well cluster per the DEC-approved GWP Addendum. Unsaturated soil cuttings from the onsite borings and SB10, which is paved, were containerized. There were no subsurface soil PID readings above 20 ppm. Settled sediment from the bottom of the MW purge water drums was containerized with the used GAC. The drums were labeled and temporarily stored offsite at Dillingham Mini Storage and a nearby locked connex.

Two additional analytical soil samples were analyzed for semi-volatile organic compounds (SVOCs) and toxicity characteristic leaching procedure (TCLP) Resource Conservation and Recovery Act (RCRA) metals to characterize the containerized soil for disposal. These samples, *Drum 40* and *Drum 55*, were collected from drill cuttings generated at SB11 and SB14, respectively. These locations were selected because they had the highest potential to be contaminated with petroleum or metals.

Following receipt of the subsurface soil analytical results, Shannon & Wilson submitted a *Contaminated Media Transport and Treatment or Disposal Approval* form for approval and mobilized to Dillingham in September 2021 to coordinate drum disposal (Appendix A). The 23 drums containing material from SB3, SB9, SB13, SB14, settled sediment, and used GAC were relabeled and disposed of through Clean Harbors Environmental Services in September 2021. The drums were transported to Seattle by barge and are in transit to their Aragonite Incineration Facility in Dugway, Utah for incineration. The Non-Hazardous Waste Manifest and other IDW transport documentation is included in Appendix C.

The 40 drums containing soil drill cuttings from the remaining boring locations were spread on the ground surface at the DLG onsite landfarm by Shannon & Wilson's contractor. The landfarm is on the northwest side of the runway at the former instrument landing site shown in Figure 3. The soil spreading area was over 200 feet from an airport drainage ditch and approximately 1,400 feet from the nearest watershed outfall. The emptied drums were decontaminated with a low-foaming, biodegradable detergent and rinsed using a pressure washer. The decontamination water flowed to the DOT&PF shop sump.

Exhibit 2-7: Onsite soil spreading at the DLG landfarm

Direct push soil liners, MW development and sampling tubing, nitrile gloves, and other inert IDW were disposed in dumpsters emptied at the City of Dillingham landfill.

2.7 Deviations

In general, Shannon & Wilson conducted these services in accordance with the approved GWP Addendum. The following are the deviations from our agreed-upon scope of services. These modifications do not impact the overall data quality or project aims.

- The GWP Addendum included two surface soil sample grids. The northwest training area (Figure 3) soil grid was eliminated because the general aviation area is now paved with reclaimed asphalt pavement (RAP). Instead, field staff collected additional surface soil samples along the runway and at the former landfarm (see Section 2.2.1). Collecting RAP or asphalt samples was outside our scope of services.
- Eight collocated surface water and sediment samples were collected from the DLG. The ninth onsite sample pair was omitted because water was not present at the time. An additional offsite surface water sample was collected from the former landfill (sample *SW-10*). An extra surface water sample was collected from a location incorrectly identified as the former landfill (*SW-01*; see Section 2.4).
- The drilling decontamination water associated with offsite borings SB1 and SB2 was discharged to the ground surface without filtration. This change was approved by DEC via email after the receipt of analytical data for these borings.
- The number of MWs and their depths were somewhat different from the depths outlined in the GWP Addendum. These changes were made due to subsurface

conditions. The abundance of fine-grained material prevented Discovery from installing three MWs at most locations (see Section 2.3.1).

- The CSPP stated runway closure would not be required. DOT&PF executed a brief, partial runway closure for two of the boring locations (see Section 2.1).
- We collected field-blank samples for PFAS analysis from two of the three PFAS source areas. A field-blank was not collected at SB7 because the area is paved.

3 ANALYTICAL RESULTS

The soil, sediment, and water samples submitted for this project were analyzed for determination of the 18 PFAS compounds listed in EPA Method 537.1 or 537M. The PFAS samples were analyzed by Eurofins.

We also submitted a subset of the samples for analysis of GRO, DRO, RRO, VOCs (including the TAH analyte list), and PAHs (or TAqH) by Methods AK101, AK102, AK103, 8260D, and 8270D SIM, respectively. Additional samples were analyzed for SVOCs by Method SW 8270D and TCLP RCRA metals by Method SW 6020B TCLP. These samples were analyzed by SGS in Anchorage, Alaska.

Figure 4 shows an overview of the analytical sample locations. The DLG analytical results are summarized in Tables 1 through 11. Analytical sample QA/QC are summarized in Appendix E. The laboratory reports and DEC Laboratory Data Review Checklists for each work order are also included in Appendix E.

3.1 Surface Soil

PFOS was detected at concentrations above the DEC migration-to-groundwater soil cleanup level of 3.0 µg/kg in five surface soil samples from the southwest former ARFF training area (Table 2; Figure 5). The highest PFOS concentration was 15 µg/kg in a sample from the north side of the soil grid, or five times the cleanup level. After PFOS, PFHxS was detected at the highest concentrations. PFOA was not detected in these source area samples. One soil grid sample and duplicate were also analyzed for petroleum compounds. DRO were detected at up to 62.0 mg/kg and RRO up to 617 mg/kg (sample *SS-Grid-A3* / *SS-Grid-A4*). GRO and VOCs were not detected above the laboratory limit of detection (LOD).

PFOS and perfluorohexanoic acid (PFHxA) were the only PFAS analytes detected above the laboratory reporting limit (RL) in onsite surface soil samples (Table 1; Figure 5). PFOS was found at 1.2 J* µg/kg near the northeastern corner of the apron and lease lot area (sample *SS-13*). PFHxA was found at 0.93 µg/kg near the 2019 emergency response incident along the runway (sample *SS-16*). PFHxS, PFHpA, and perfluorodecanoic acid (PFDA) were also detected at estimated concentrations below the RL in onsite surface soil samples outside the ARFF training area. PFOS, PFHpA, and PFNA were detected at estimated concentrations below the RL in offsite soil samples (Table 3).

Exhibit 3-1: Surface soil sample *SS-12*

Table 1 summarizes the results of most onsite surface-soil samples. Table 2 includes results for the southwest training area soil grid samples. Table 3 summarizes PFAS results for samples collected offsite.

3.2 Soil Borings

PFOS, PFOA, or both exceeded the DEC migration-to-groundwater soil cleanup level in subsurface samples from four borings (SB3, SB9, SB13, SB14). These results are summarized in Table 4. PFOS was found at 61 µg/kg in surface soil south of the apron, or over 20 times the cleanup level (sample *SB3-0-0.8*). PFOS also exceeded the cleanup level in surface soil SB9, SB13, and SB14 (Figure 6).

Subsurface PFOS soil results are shown in Figure 6. PFOS was found at 32 µg/kg at the southwest training area (sample *SB13-0-0.5*), 5.7 µg/kg southwest of the lease lots (sample *SB9-0-0.5*), and 4.5 µg/kg south of the southwest training area (sample *SB14-0-0.8*).

PFOA also exceeded the soil cleanup level in surface soil south of the apron at 9.9 µg/kg, and subsurface soil at two other locations (*SB10-36.0-37.1* and *SB13-10.9-11.4*). PFOA was found at 9.9 µg/kg south of the apron, over five times the soil-cleanup level of 1.7 µg/kg (sample *SB3-0-0.8*). Subsurface PFOA soil results are shown in Figure 7. PFOA was found at a higher concentration, 16 µg/kg, at approximately 37 feet bgs southwest of the lease lots (sample *SB9-36.6-36.8*). PFOA was also found at 3.5 µg/kg in soil from approximately 11 feet bgs at the southwest training area (*SB13-10.9-11.4*).

The highest detections of other PFAS were in the same borings. PFHxS was found at 25 µg/kg and PFHxA at 6.4 µg/kg in soil from 11 feet bgs at the southwest training area (sample *SB13-10.9-11.4*). PFNA was found at 15 J* µg/kg in surface soil south of the apron (sample *SB3-0-0.8*). Soil samples from borings SB1, SB2, SB7, and SB12 also had one or more detected PFAS analyte.

Samples collected from the groundwater smear zone in soil borings SB7, SB11, and SB13 were also submitted for petroleum analysis. DRO were detected at 9.32 J mg/kg in smear zone soil near the northeast corner of the apron and lease lots (sample *SB7-28.8-30.2*). GRO, RRO, VOCs, and PAHs were not detected above the laboratory LOQ in any of the other soil boring samples (Table 5).

Two soil samples of containerized drill cuttings were also submitted for SVOC and TCLP RCRA metals analysis. SVOCs were not detected. TCLP barium and chromium were detected at concentrations well below EPA disposal standards. Table 5 also summarizes petroleum and TCLP metals soil results.

3.3 Monitoring Wells

MW analytical results are shown in Figures 8 through 10. Results for shallow MWs (up to 40 feet deep) are shown in Figure 8. Results for wells 45 to 55 feet deep are shown in Figure 9, and results for wells over 60 feet deep are shown in Figure 10.

PFOS and PFOA exceed the DEC drinking water action level in three MWs on or near the lease lot and apron area. These wells are 2006-MW08-20, DLG-MW03-75, and DLG-MW09-50. The two other wells in the MW03 cluster have lower PFOS and PFOA concentrations up to about 70 percent of the DEC drinking water action level. The two other wells in the MW09 cluster have not detected or low concentrations of PFOS and PFOA, up to 2.2 ng/L.

Concentrations of individual PFAS analytes vary by multiple orders of magnitude over the DLG study area. Two MWs have concentrations over 1,000 ng/L for one or more analytes: 1,100 ng/L PFOS in 2006-MW08-20 and 1,300 ng/L PFHxS, 1,100 ng/L PFHxA, and 1,100 ng/L perfluorobutanesulfonic acid (PFBS) in DLG-MW09-50. These MWs are about 900 feet from each other.

Six MWs have concentrations over 70 ng/L for one or more PFAS analyte. In addition to the locations described above, these results include 120 ng/L PFHxS in DLG-MW01-30; 110 ng/L PFHxS and 100 ng/L PFHxA in DLG-MW02-40; and 200 ng/L PFHxA, 170 ng/L PFHxS, and 130 ng/L PFHpA in DLG-MW03-30. These results are fairly consistent with onsite and offsite water-supply well results. PFHxS and PFHxA are often detected at higher concentrations than PFOS and PFOA near and downgradient from the DLG. Table 6 summarizes PFAS results for these MW samples. Table 6 also includes water sample *GAC-POST*. PFAS were not detected in the post-filtration water sample.

Exhibit 3-2: Existing well 2006-MW11-30

DRO were detected at 0.222 J mg/L, an estimated concentration below the limit of quantitation (LOQ), in DLG-MW11-35 and duplicate. This detection is below the DRO groundwater cleanup level of 1.5 mg/L. GRO, RRO, VOCs, and PAHs were not detected in DLG-MW11-35 or the other two shallow MW sampled for petroleum compounds. Table 7 summarizes petroleum results for these wells.

3.4 Surface Water

PFOS exceeded the DEC groundwater cleanup level of 400 ng/L in two surface water samples from the DLG (Figure 11). PFOS was found at 450 ng/L southwest of the lease lots (sample *SW-03*) and in a culvert south of the runway (sample *SW-07*). PFOA was found at lower concentrations in these samples, 4.6 ng/L and 7.7 ng/L, respectively. PFOS was also found at 380 ng/L in a culvert north of the lease lots (sample *SW-02* and duplicate). PFAS surface water results are shown in Table 8 and Figure 11.

PFAS concentrations in surface water downhill of the 2019 emergency response were elevated, though below DEC cleanup levels. PFHxA was found at 520 ng/L and PFHpA at 86 ng/L. PFOS and PFOA were detected below 20 ng/L (sample *SW-04* and duplicate). Figure 12 shows both surface water and soil results for samples collected from the 2019 emergency response area.

DRO, RRO, and benzene were detected in one or more of the surface water samples. Water downhill from the emergency response site had the highest DRO concentration at 0.830

mg/L. RRO was also detected at 0.862 mg/L in sample *SW-04*. Water from north of the lease lots had the highest RRO and benzene concentrations. RRO were detected at 0.943 mg/L, or over 80 percent the cleanup level, and benzene at 0.121 µg/L (sample *SW-02* and duplicate). Ethylbenzene, xylenes, toluene, and PAHs were not detected. Petroleum surface water results are summarized in Table 9. This table includes TAH and TAqH sums calculated per DEC guidance. The TAH and TAqH concentrations were below surface water discharge standards.

3.5 Sediment

PFOS or DRO exceed their respective cleanup levels in several sediment samples. PFOS was found at 14 µg/kg and 3.2 J* µg/kg in a culvert and drainage ditch along Kanakanak Road, south of the runway (samples *SED-07* and *SED-08*, respectively). Figure 13 shows PFOS sediment sample results. The higher of the two PFOS sediment exceedances corresponds with one of the highest surface water results (sample *SW-07*). This result is nearly five times the PFOS cleanup level. PFOA was not detected.

PFHxS and long-chain perfluorododecanoic acid (PFDoA) and perfluorotetradecanoic acid (PFTeA) were also detected above the laboratory RL in these samples. After PFOS, the highest detection was 0.61 µg/kg PFTeA north of the lease lots (sample *SED-02*). Table 10 summarizes PFAS sediment sample results.

DRO were found at up to 509 mg/kg south-southwest of the runway (sample *SED-07*). This result is over twice the DRO cleanup level of 250 mg/kg. DRO were also found at 307 mg/kg south of the runway (sample *SED-08*) and 299 mg/L near Taxiway A (sample *SED-06*). RRO were detected below the cleanup level in each of the sediment samples. The highest RRO detection was 2,520 mg/kg in sample *SED-07*. Toluene was detected below the cleanup level in samples *SED-03* and *SED-08*. The other VOC analytes and PAHs were not detected above the LOQ. Petroleum sediment sample results are summarized in Table 11 and Figure 14.

4 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) describes potential pathways between a contaminant source and possible receptors (i.e., people, animals, and plants) and is used to determine who may be at risk of exposure to those contaminants. This section describes the suspected and identified contaminant sources, migration and exposure pathways, and potential receptors on the DEC Human Health Conceptual Site Model Scoping and Graphic Forms included in Appendix F. The contaminants of concern at and near the DLG are PFAS and DRO.

A draft CSM was included in the GWP Addendum describing planned site characterization activities. The enclosed CSM has been updated based on observed site conditions and the analytical results discussed in Section 3. This CSM should be reevaluated if regulatory standards change.

4.1 Description of Potential Receptors

This sampling effort identified PFOS, PFOA, and DRO above cleanup levels in onsite samples both inside and outside the DLG fence. Shannon & Wilson considers residents, commercial/industrial workers, site visitors or trespassers, construction workers, and subsistence harvesters to be current or future receptors for one or more exposure pathway. Previous water supply well sampling has identified residential and commercial receptors on and off airport property. Additional onsite receptors include DOT&PF personnel, airline and cargo employees, emergency responders, and private pilots.

4.2 Potential Exposure Pathways

Potential exposure pathways include:

- incidental ingestion of soil or groundwater;
- dermal adsorption of contaminants in soil, groundwater, or surface water;
- inhalation of fugitive dust;
- direct contact with sediment; and
- ingestion of wild or farmed foods.

4.2.1 Groundwater Exposure

Groundwater ingestion through impacted water-supply wells had been the primary exposure pathway for the DLG. Residents and commercial or industrial workers at properties with known exceedances of drinking water standards are being supplied bottled water. Groundwater ingestion is not therefore considered a current exposure pathway.

The PFAS-impacted water supply wells provide houses, businesses, and a public airline terminal with water. Residents continue to use their well water for domestic purposes, including bathing. Commercial or industrial workers may use their water for vehicle washing or other activities resulting in dermal contact. Additionally, construction workers and DOT&PF staff members could be exposed to shallow contaminated groundwater during future excavation and construction projects.

The DOT&PF and Alaska Department of Administration's Division of Risk Management plan to construct potable-water holding tanks as a long-term alternate water source for these

properties. When the holding tanks are in place the PFAS-impacted wells will be turned off or decommissioned.

According to the Alaska Department of Health and Social Services, PFAS are not absorbed through the skin. We therefore consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.

4.2.2 Surface Water

Dermal contact with surface water, like dermal contact with groundwater, is considered an insignificant contaminant exposure pathway. However, residents, site visitors, commercial workers, and subsistence harvesters could come in contact with PFAS-impacted surface water bodies outside the DLG fence. DOT&PF staff and construction workers could also be exposed to contaminated surface water during airport operations, or future excavation and construction projects.

4.2.3 Soil Exposure

Surface soil and fill at the DLG have a moderate to high silt content that likely allows for small respirable particles (i.e., less than 10 micrometers). PFOS and/or PFOA exceeds the soil-cleanup level in several onsite areas, but the only area open to the public is vegetated. DOT&PF personnel, airline and cargo employees, and construction workers could inhale wind-blown dust during outdoor, summertime work. Residents and site visitors are unlikely to be exposed to wind-blown dust.

Exhibit 4-1: Drilling near long-term airport parking

Direct contact with PFAS-contaminated soil is possible for residents, DOT&PF employees, commercial or industrial workers, site visitors, construction workers, and subsistence harvesters. Members of the public could potentially come in contact with PFAS-contaminated soil near long-term airport parking (soil boring SB9; Exhibit 4-1). The other soil-sample exceedances are within the DLG fence. Future runway repair or other construction projects could expose DOT&PF employees, construction workers, and other visitors to surface or subsurface soil contamination.

4.2.4 Sediment Exposure

PFOS and/or DRO were identified above soil-cleanup levels in sediment from several airport drainage ditches and culverts. Substance harvesters, residents, and visitors could potentially come in contact with PFAS- and DRO-contaminated sediment southwest of the runway (samples *SED-07* and *SED-08*). Behind the DLG fence, direct contact with sediment is unlikely at present. Future drainage repair or other construction activities could result in direct contact to DOT&PF employees and construction workers.

4.2.5 Wild and Farmed Foods

Residents and visitors to Dillingham often fish in the estuary called Seven Sisters Creek southwest of the airport, and in Nushagak Bay. PFAS have the potential to bioaccumulate and could be taken up by plants, fish, and birds. Residents may also harvest plants and berries around the DLG. Ingestion of wild foods is considered a potential exposure pathway and is evaluated in our ecological scoping from included in Appendix F.

To our knowledge, PFAS-contaminated groundwater is not currently being used for vegetable gardening. Contaminated well water could be used for this purpose in the future.

4.2.6 Other Media

Characterization efforts to date have focused primarily on groundwater and soil, with limited surface water and sediment sampling. Additional information is needed to evaluate exposure to PFAS-contaminated biota. This CSM should be reevaluated as additional source areas are investigated, or if regulatory standards change.

5 DISCUSSION AND RECOMMENDATIONS

This section presents our discussion of the summer 2021 initial PFAS site characterization results and observations.

5.1 Distribution of PFAS Contamination

PFOS and PFOA were found above cleanup levels at multiple locations on airport property. The initial site characterization data suggests there are two primary PFAS sources, shown in Figure 3.

1. AFFF releases at the ARFF building and former training areas within the lease lot area.
2. The former southwest training area.

It is possible there were undocumented AFFF releases near the southern edge of the lease lots and apron. Elevated PFOS concentrations in surface soil near long-term airport parking (boring SB9) and elevated PFOS, PFOA, and PFNA concentrations south of the apron (boring SB3) suggest additional source areas. Additionally, the highest concentration of PFOS in a groundwater sample was collected from shallow MW immediately south of the apron (sample *2006-MW08-20*; Figure 8).

PFOS and PFOA were not detected at appreciable concentrations at the potential offsite source areas: Kanakanak Road and Fairview Drive/Gauthier Way, the former Wood River Road landfill, or former landfarm off Sutherland Road (Figure 3). Most PFAS analytes were not detected in the surface soil, surface water, and sediment samples collected from these areas. These results imply offsite PFAS compounds found in groundwater along Kanakanak Road originate from the DLG, through it is still possible there are additional, unidentified sources.

Exhibit 5-1: MW10 well cluster

Despite reported AFFF releases along the runway and taxiways, our characterization efforts did not identify PFOS and PFOA above migration-to-groundwater soil-cleanup levels in surface soil along the runway (Figure 5). PFAS concentrations in surface water, sediment, and groundwater were also considerably lower along much of the runway than south of the lease lots, or downhill from the southwest training area. These results show PFAS are migrating towards the DLG property boundaries and offsite in surface water and groundwater (Figures 8 and 11). PFOS-contaminated surface water with entrained sediment may be flowing into the estuary southwest of the DLG.

PFOS and PFOA were detected below cleanup levels in surface water downhill from the 2019 AFFF emergency response site, but other PFAS compounds were detected at much higher concentrations (Figure 12). Most notable are a PFHxA detection of 520 ng/L and PFHpA detection of 86 ng/L (sample *SW-04* and duplicate). This is consistent with a release of C6-based AFFF, which is manufactured to exclude PFOS and PFOA. However, residual PFOS and PFOA can remain in the ARFF truck piping and foam tank. Manufacturing impurities for C6 foams may also result in trace amounts of PFOA in the foam concentrate.

It is also possible the PFOS and PFOA detected in this surface water sample came from residual C8 compounds in the ARFF truck tank and piping. Most PFAS were not detected in a November 2019 surface-water sample collected four months after the AFFF release, likely because it was located too far to the north.

PFAS concentrations in the 22 MWs varied widely, including between wells of the same cluster screened within vertical 10 to 20 feet of one another. This is attributed to multiple confining layers or locally discontinuous portions of the aquifer that have impeded the movement of PFAS-contaminated groundwater. These results are consistent with our observations of spatially variable groundwater elevations during drilling.

The highest PFOS, PFOA, PFHxS, and PFHxA concentrations were generally in the shallow monitoring wells (Figure 8), with two notable exceptions (*DLG-MW09-50* and *DLG-MW03-75*). Southwest of the lease lots, PFAS concentrations were much higher in MW09-50 than the 10-foot and 65-foot wells in the same cluster (Figure 9). South of the lease lots, PFOS and PFOA were detected at higher concentrations in MW03-75 than the corresponding 30-foot and 50-foot wells. However, PFHxS and PFHxA were detected at similar levels in MW03-30 and MW03-75.

5.2 Groundwater Flow Directions

The water table surface underlying the DLG study area as measured on July 31, 2021 is shown in Figure 15. This figure was prepared using water level elevations calculated from depth-to-water measurements collected over a 20-hour period. Significant static water level differences in wells of the same cluster were observed in MW09, MW05, and MW03. The highest values in these clusters reflect perched conditions, highly localized zones of low-permeability silt or silty sand, and/or differential drainage. They are depicted on Figure 15 with circles showing the elevation of the highest zone.

The water table surface depicted in Figure 15 was created in ArcGIS using a natural neighbor interpolation of the water table elevations recorded at the 22 MWs. The dotted lines represent one-foot contours, while the color changes represent three-foot contours. Groundwater flow is from areas of high (red and orange) to low (blue) elevations and is relatively consistent with the slope of the land surface. Groundwater flow directions across most of the DLG in late July 2021 were to the south or south-southeast, towards Nushagak Bay and the estuary. The groundwater gradient is generally steep, at up to 55 feet per mile south of the lease lots.

Although groundwater flow in the study area is primarily towards the south or south-southeast, groundwater flows east between the airport and MW01 at the junction of Wood River and Kanakanak Roads. The gradient in this area is less than 10 feet per mile. This

groundwater flow regime appears to continue to the east past the MW01 cluster to MW10 but cannot be verified beyond MW10 with the available data.

MW01-30 and several water-supply wells south of Kanakanak Road had combined PFOS and PFOA concentrations above 25 percent of the DEC drinking water action level. Based on PFOS and PFOA results alone, this cluster of impacted properties appears unconnected to the broader groundwater plume (Figure 2). However, PFHxS and some other former 'sum of 5' analytes were detected at higher levels than PFOS and PFOA in water supply wells between the airport and MW01 cluster. We also note that well depths are unknown for most wells in this area. PFAS-impacted groundwater in this area may be traveling east from the DLG through highly localized groundwater flow zones within the heterogeneous surficial aquifer.

Groundwater flow directions in the lease lot vicinity are not as well constrained as other areas, due to the distance between MW clusters. Based on the available data, groundwater appears to flow radially away from a small mound localized around the MW09 cluster, at a shallow gradient. Additional MWs or surveyed temporary well points would be needed to better define the groundwater gradient at this PFAS source area.

Ground surface elevations at the DLG range between 65 and 80 feet above sea level, meaning the deepest MWs are screened below sea level. Tidal range in Nushagak bay is typically around 20 feet. In late July 2021, the difference between low and high tides was between 13.1 and 20.8 feet. Given the site's proximity to Nushagak Bay and the large tidal range, we would expect local groundwater gradients to be steeper at low tide and shallower at high tide. We would also expect the tidal influence on groundwater gradient to increase with proximity to Nushagak Bay and the estuary. Under these conditions, the PFAS plume will likely be drawn downgradient towards the bay, particularly from the southwestern former training area.

The time series data summarized in Section 2.3.4. did not display a prominent diurnal signal. The influence of tide in groundwater elevations in the central portion of the DLG was likely muted by low permeability sediments that characterize much of the tidal zone and surficial aquifer sediments. Time series data was not recorded in MW14, the cluster closest to the estuary and location of the lowest measured groundwater elevation (Figure 15). We therefore cannot verify the effect of tide on local groundwater gradients at the southwest training area. The elevation at MW14 was measured half an hour after the day's high tide. If there is a tidal influence at MW14, the calculated gradient of 55 feet per mile likely represents the shallowest, most conservative gradient for this area.

5.3 Spider Plot Signature Comparison

Spider plots are a PFAS fingerprinting tool used to visually compare the concentrations of different PFAS analytes across locations. Figure 16 compares PFAS signatures for groundwater samples with detected concentrations of at least 8 ng/L for multiple analytes. We have included the seven analytes with the highest results in groundwater samples: PFOS, PFOA, PFHxS, PFHxA, PFHpA, PFNA, and PFBS. Please note, results for a limited number of water supply wells sampled before the 2021 site characterization effort are included for comparison (footnotes b and c). These plots have six axes because PFHxA data is unavailable for the 2019 water-supply well sample results.

The spider plots are colorized based on an interpretation of similar chemical signatures. For example, wells *DLG-MW09-50* and *DLG-MW02-40* have the same relative proportions of different PFAS analytes, but different concentrations. Gray plots indicate individual or non-repeating signatures. The plots are arranged by area: water supply and MWs within the lease lots, east and west of Airport Spur Road, the southwest former AFFF training area, Martin Street, and Kanakanak Road east of the DLG.

The groundwater MW and water-supply well PFAS signatures vary widely throughout the approximately 1.5-by-1-mile study area. There are some similarities across locations in different areas. PFHxS and/or PFHxA dominate the balance of PFAS in the light blue, orange, green, and pink categories. PFOS concentrations are highest in the red category. However, there are not always similar signatures in nearby or adjacent wells. For example, *DLG-MW02-40* and sample *191050* display different signatures despite being about 300 feet away from one another and reportedly the same depth. The overall dissimilarity in PFAS signatures within the part of the plume with the highest concentrations makes it difficult to draw conclusions from similarities to other areas. This may be explained by the timing and longevity of AFFF use, multiple sources, and complex groundwater flow pathways at the DLG. It is also worth noting that different PFAS and variations in their molecular structure have been shown to result in differing degrees of mobility in the environment. As a general rule, sulfonates will sorb to soils more strongly than carboxylates, short-chain PFAS are less readily sorbed and thus travel faster in groundwater, and linear isomers tend to be more mobile than their branched counterparts. Physical impediments to migration and differential degrees of compound mobility may account for discrepancies in the spider plots.

5.4 Distribution of Petroleum Contamination

The initial site characterization effort identified limited DRO contamination at the DLG. DRO exceeded soil-cleanup levels in three sediment samples collected from the south side of the airport, including near the estuary (Figure 14). DRO, RRO, and benzene were detected

below their respective cleanup levels in surface soil and surface water elsewhere on airport property. Their source could be historic fuel releases within the lease lots, or fuel releases in other areas. Petroleum analytes were not detected above the laboratory LOQ in shallow groundwater samples from the three historic AFFF release areas. With the possible exception of the former southwest training area, DRO contamination appears unrelated to fire training practices.

5.5 Recommendations

Based on the results of this initial PFAS site characterization effort, Shannon & Wilson recommends the DOT&PF begin quarterly monitoring of the newly installed MWs, develop environmental AFFF response procedures in the event of a future emergency incident, and conduct additional PFAS site characterization. These recommendations are detailed below.

Shannon & Wilson recommends the DOT&PF monitor PFAS concentrations in the newly installed MWs and 2006-MW08-20 quarterly, beginning in summer or fall 2022. We further recommend quarterly groundwater elevation checks for a minimum of one year to identify possible seasonal changes in the groundwater gradient. To better understand the potential impact of the tides on plume migration, we recommend deploying data loggers in both MW14 wells (or more wells as feasible), and a tidal gauge in the estuary southwest of the DLG.

We recommend DLG personnel continue to reserve AFFF for emergency response use only and develop procedures to containerize response-related fluids to the extent practicable. This would include AFFF-water runoff from the response site, nearby surface water or snow, water discharged from systems formerly containing AFFF, and water drained from the engine following the release. Spill response supplies such as sorbent pads and booms, sump pumps, hose, 55-gallon drums, and/or plastic tanks are likely already onsite. We recommend sampling containerized AFFF-water for characterization and disposal. Environmental response following an emergency will reduce the likelihood of future drinking water impacts, thereby saving DOT&PF money over the long term. We also recommend local DOT&PF staff members document the locations where water is sprayed during weekly ARFF operation readiness checks.

Shannon & Wilson further recommends that future characterization efforts for much of the DLG focus on PFAS as the primary contaminant of concern. We recommend DOT&PF continue the site characterization effort with an emphasis on the following areas:

- groundwater east of the lease lots (Sutherland Road, John Pearson Lane, Kanakanak Road) to better understand connections to the eastern portion of the PFAS plume;
- groundwater and subsurface soil within the lease lots and general aviation area;

- groundwater south of the airport along Kanakanak Road;
- surface water and sediment in the estuary and stormwater drainage system leading to the estuary (DRO and PFAS);
- surface water from seasonal ponds surrounding the lease lot area;
- RAP in lease lots/general aviation area; and
- airport asphalt prior to construction projects.

These recommendations are based on:

- Site conditions observed at and near the DLG during the initial PFAS characterization effort in June and July 2021.
- Conditions observed during primarily offsite sampling efforts in August/September 2020, December 2020, March 2021, June/July 2021, and September 2021.
- The results of testing performed on soil, water, and sediment samples collected on, near, and downgradient from the DLG.
- Shannon & Wilson's previous experience at the DLG.
- Information provided by DOT&PF staff related to site history.
- Publicly available literature and data reviewed for this project.
- Shannon & Wilson's understanding of the project and information provided by DOT&PF and other members of the project team.
- The limitations of Shannon & Wilson's approved Professional Services Agreement Number 25-19-1-013.

The information included in this report is based on limited sampling and should be considered representative of the times and locations at which the sampling occurred. Regulatory agencies may reach different conclusions than Shannon & Wilson. We have prepared and included the attachment “Important Information about your Environmental Report” to assist you and others in understanding the use and limitations of this report.

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Table 1 - Onsite Surface Soil PFAS Analytical Results

Analyte	Cleanup Level	Units	SS-01 7/7/21	SS-02 7/7/21	SS-03 7/7/21	SS-04 7/7/21	SS-04 Duplicate	SS-06 7/7/21	SS-07 7/7/21	SS-08 7/7/21	SS-09 7/7/21	SS-10 7/7/21	SS-11 7/7/21	SS-12 7/7/21	SS-13 7/7/21	SS-14 7/7/21	SS-15 7/7/21	SS-16 7/8/21	SS-16 Duplicate	SS-18 7/8/21	SS-19 7/8/21
Perfluorohexanesulfonic acid (PFHxS)	NS	µg/kg	<0.20	0.035 J	<0.20	0.064 J	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	0.059 J	<0.21	0.047 J	0.053 J
Perfluorohexanoic acid (PFHxA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	0.93	0.92	0.052 J	<0.20
Perfluoroheptanoic acid (PFHpA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	0.11 J	0.089 J	<0.21	<0.20
Perfluorononanoic acid (PFNA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Perfluorobutanesulfonic acid (PFBS)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Perfluorodecanoic acid (PFDA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	0.033 J	0.077 J	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Perfluoroundecanoic acid (PFUnA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Perfluorododecanoic acid (PFDoA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Perfluorotridecanoic acid (PFTrDA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Perfluorotetradecanoic acid (PFTeA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	µg/kg	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1	<2.0	<2.2	<2.1	<2.2	<3.3	<2.1	<2.0	<2.1	<2.1	<2.1	<2.0
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	µg/kg	<2.0	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.1 J*	<2.0	<2.2	<2.1	<2.2	<3.3	<2.1	<2.0	<2.1	<2.1	<2.1	<2.0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22 J*	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	µg/kg	<0.26	<0.26	<0.26	<0.25	<0.25	<0.25	<0.27	<0.27	<0.25	<0.28	<0.26	<0.27	<0.41	<0.26	<0.25	<0.26	<0.26	<0.26	<0.25
Perfluorooctanesulfonic acid (PFOS)	3.0	µg/kg	<0.51	0.44 J	<0.51	0.55	<0.49	<0.50	<0.54	<0.53	<0.50	<0.55	<0.52	0.74	1.2 J*	<0.53	<0.49	<0.53	<0.52	0.24 J	0.45 J
Perfluorooctanoic acid (PFOA)	1.7	µg/kg	<0.20	<0.21	<0.20	<0.20	<0.20	<0.20	<0.21	<0.21	<0.20	<0.22	<0.21	<0.22	<0.33	<0.21	<0.20	<0.21	<0.21	<0.21	<0.20

Notes: Results reported from Eurofins TestAmerica, Sacramento work order 320-76026.
Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

µg/kg micrograms per kilogram
NS Not specified; action level not established.
< Analyte was not detected; reported as <RL.
J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.
J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 2 - Southwest Training Area Soil Grid Results

Analytical Method	Analyte	Cleanup Level	Units	SS-Grid-A1 7/8/2021	SS-Grid-A2 7/8/2021	SS-Grid-A3 7/8/2021	SS-Grid-A3 Duplicate	SS-Grid-B2 7/8/2021	SS-Grid-B3 7/8/2021	SS-Grid-C1 7/8/2021	SS-Grid-C2 7/8/2021	SS-Grid-C3 7/8/2021
AK101	Gasoline Range Organics (GRO)	300	mg/kg	—	—	<2.00 B*	<2.05 B*	—	—	—	—	—
AK102	Diesel Range Organics (DRO)	250	mg/kg	—	—	35.2	62.0	—	—	—	—	—
AK103	Residual Range Organics (RRO)	11,000	mg/kg	—	—	363	617	—	—	—	—	—
SM21 2540G	Total Solids	NS	%	—	—	94.9	95.3	—	—	—	—	—
SW8260D (VOCs)	1,1,1,2-Tetrachloroethane	0.022	mg/kg	—	—	<0.00800	<0.00820	—	—	—	—	—
	1,1,1-Trichloroethane	32	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,1,2,2-Tetrachloroethane	0.003	mg/kg	—	—	<0.000800	<0.000820	—	—	—	—	—
	1,1,2-Trichloroethane	0.0014	mg/kg	—	—	<0.000320	<0.000328	—	—	—	—	—
	1,1-Dichloroethane	0.092	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,1-Dichloroethene	1.2	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,1-Dichloropropene	NS	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,2,3-Trichlorobenzene	0.15	mg/kg	—	—	<0.0199	<0.0205	—	—	—	—	—
	1,2,3-Trichloropropane	0.000031	mg/kg	—	—	**<0.000800**	**<0.000820**	—	—	—	—	—
	1,2,4-Trichlorobenzene	0.082	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,2,4-Trimethylbenzene	0.61	mg/kg	—	—	<0.0199	<0.0205	—	—	—	—	—
	1,2-Dibromo-3-chloropropane	NS	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	1,2-Dibromoethane	0.00024	mg/kg	—	—	**<0.000399**	**<0.000410**	—	—	—	—	—
	1,2-Dichlorobenzene	2.4	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,2-Dichloroethane	0.0055	mg/kg	—	—	<0.000800	<0.000820	—	—	—	—	—
	1,2-Dichloropropane	0.03	mg/kg	—	—	<0.00399	<0.00410	—	—	—	—	—
	1,3,5-Trimethylbenzene	0.66	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,3-Dichlorobenzene	2.3	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	1,3-Dichloropropane	NS	mg/kg	—	—	<0.00399	<0.00410	—	—	—	—	—
	1,4-Dichlorobenzene	0.037	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	2,2-Dichloropropane	NS	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	2-Butanone (MEK)	15	mg/kg	—	—	<0.100	<0.102	—	—	—	—	—
	2-Chlorotoluene	NS	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	2-Hexanone	0.11	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	4-Chlorotoluene	NS	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Acetone	38	mg/kg	—	—	<0.100	<0.102	—	—	—	—	—
	Benzene	0.022	mg/kg	—	—	<0.00499	<0.00515	—	—	—	—	—
	Bromobenzene	0.36	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Bromochloromethane	NS	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Bromodichloromethane	0.0043	mg/kg	—	—	<0.000800	<0.000820	—	—	—	—	—
	Bromoform	0.1	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Bromomethane	0.024	mg/kg	—	—	<0.00800	<0.00820	—	—	—	—	—
	Carbon disulfide	2.9	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	Carbon tetrachloride	0.021	mg/kg	—	—	<0.00499	<0.00515	—	—	—	—	—
	Chlorobenzene	0.46	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Chloroethane	72	mg/kg	—	—	<0.0800	<0.0820	—	—	—	—	—
	Chloroform	0.0071	mg/kg	—	—	0.000798 J	<0.00164	—	—	—	—	—
	Chloromethane	0.61	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	cis-1,2-Dichloroethene	0.12	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	cis-1,3-Dichloropropene	0.018	mg/kg	—	—	<0.00499	<0.00515	—	—	—	—	—
	Dibromochloromethane	0.0027	mg/kg	—	—	<0.00199	<0.00205	—	—	—	—	—
	Dibromomethane	0.025	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Dichlorodifluoromethane	3.9	mg/kg	—	—	<0.0199	<0.0205	—	—	—	—	—
	Ethylbenzene	0.13	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—

Table 2 - Southwest Training Area Soil Grid Results

Analytical Method	Analyte	Cleanup Level	Units	SS-Grid-A1 7/8/2021	SS-Grid-A2 7/8/2021	SS-Grid-A3 7/8/2021	SS-Grid-A3 Duplicate	SS-Grid-B2 7/8/2021	SS-Grid-B3 7/8/2021	SS-Grid-C1 7/8/2021	SS-Grid-C2 7/8/2021	SS-Grid-C3 7/8/2021
SW8260D (VOCs continued)	Hexachlorobutadiene	0.02	mg/kg	—	—	<0.00800	<0.00820	—	—	—	—	—
	Isopropylbenzene	5.6	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	m,p-xylenes	1.5	mg/kg	—	—	<0.0199	<0.0205	—	—	—	—	—
	Methyl isobutyl ketone	18	mg/kg	—	—	<0.100	<0.102	—	—	—	—	—
	Methylene chloride	0.33	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	Methyl-t-butyl ether (MTBE)	0.4	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	Naphthalene	0.038	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	n-Butylbenzene	23	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	n-Propylbenzene	9.1	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	o-Xylene	1.5	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	p-Isopropyltoluene	NS	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	sec-Butylbenzene	42	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Styrene	10	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	tert-Butylbenzene	11	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Tetrachloroethene	0.19	mg/kg	—	—	<0.00499	<0.00515	—	—	—	—	—
	Toluene	7	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	Total Xylenes	1.5	mg/kg	—	—	<0.0300	<0.0308	—	—	—	—	—
	trans-1,2-Dichloroethene	1.3	mg/kg	—	—	<0.0100	<0.0103	—	—	—	—	—
	trans-1,3-Dichloropropene	0.018	mg/kg	—	—	<0.00499	<0.00515	—	—	—	—	—
	Trichloroethene	0.011	mg/kg	—	—	<0.00199	<0.00205	—	—	—	—	—
	Trichlorofluoromethane	41	mg/kg	—	—	<0.0199	<0.0205	—	—	—	—	—
	Trichlorotrifluoroethane	310	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	Vinyl acetate	1.1	mg/kg	—	—	<0.0399	<0.0410	—	—	—	—	—
	Vinyl chloride	0.0008	mg/kg	—	—	<0.000320	<0.000328	—	—	—	—	—
8270D SIM (PAHs)	1-Methylnaphthalene	0.41	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	2-Methylnaphthalene	1.3	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Acenaphthene	37	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Acenaphthylene	18	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Anthracene	390	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Benzo(a)anthracene	0.7	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Benzo(a)pyrene	1.9	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Benzo(b)fluoranthene	20	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Benzo(g,h,i)perylene	15,000	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Benzo(k)fluoranthene	190	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Chrysene	600	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Dibenzo(a,h)anthracene	6.3	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Fluoranthene	590	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Fluorene	36	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Indeno(1,2,3-cd)pyrene	65	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Naphthalene	0.038	mg/kg	—	—	<0.0420	<0.103	—	—	—	—	—
	Phenanthrene	39	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—
	Pyrene	87	mg/kg	—	—	<0.0525	<0.129	—	—	—	—	—

Table 2 - Southwest Training Area Soil Grid Results

Analytical Method	Analyte	Cleanup Level	Units	*SS-Grid-A1* 7/8/2021	*SS-Grid-A2* 7/8/2021	*SS-Grid-A3* 7/8/2021	*SS-Grid-A3* Duplicate	*SS-Grid-B2* 7/8/2021	*SS-Grid-B3* 7/8/2021	*SS-Grid-C1* 7/8/2021	*SS-Grid-C2* 7/8/2021	*SS-Grid-C3* 7/8/2021
EPA 537(Mod) (PFAS)	Perfluorohexanesulfonic acid (PFHxS)	NS	µg/kg	0.44	1.9	0.10 J	—	0.77 J*	0.29	1.2 J*	0.44	0.35
	Perfluorohexanoic acid (PFHxA)	NS	µg/kg	0.084 J	0.16 J	<0.19	—	0.16 J*	0.35	0.30	0.12 J*	0.12 J
	Perfluoroheptanoic acid (PFHpA)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21	0.048 J	0.032 J	<0.20	<0.21
	Perfluorononanoic acid (PFNA)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	<0.21	<0.20	<0.21
	Perfluorobutanesulfonic acid (PFBS)	NS	µg/kg	0.042 J	0.045 J	<0.19	—	0.061 J*	<0.20	0.079 J	0.037 J*	<0.21
	Perfluorodecanoic acid (PFDA)	NS	µg/kg	<0.21	<0.19	<0.19	—	0.063 J*	<0.20	<0.21	<0.20	0.058 J
	Perfluoroundecanoic acid (PFUnA)	NS	µg/kg	<0.21	<0.19	<0.19	—	0.090 J*	0.065 J	0.051 J*	<0.20	0.087 J
	Perfluorododecanoic acid (PFDoA)	NS	µg/kg	<0.21	<0.19	<0.19	—	0.15 J*	<0.20	0.14 J*	<0.20 J*	0.11
	Perfluorotridecanoic acid (PFTrDA)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	<0.21	<0.20	<0.21
	Perfluorotetradecanoic acid (PFTeA)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	0.072 J*	<0.20 J*	<0.21
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	µg/kg	<2.1 J*	<1.9	<1.9	—	<2.1 J*	<2.0	<2.1 J*	<2.0	<2.1
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	µg/kg	<2.1 J*	<1.9	<1.9	—	<2.1 J*	<2.0	<2.1 J*	<2.0	<2.1
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	<0.21 J*	<0.20	<0.21
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	<0.21 J*	<0.20	<0.21
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	<0.21 J*	<0.20	<0.21
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	µg/kg	<0.26	<0.24	<0.24	—	<0.26 J*	<0.25	<0.26 J*	<0.24J*	<0.26
	Perfluorooctanesulfonic acid (PFOS)	3.0	µg/kg	**3.0**	**15**	1.0	—	**6.4 J***	2.9	**12 J***	**3.7**	2.6
	Perfluorooctanoic acid (PFOA)	1.7	µg/kg	<0.21	<0.19	<0.19	—	<0.21 J*	<0.20	<0.21	<0.20	<0.21

Notes: Results reported from Eurofins TestAmerica, Sacramento work order 320-76143 and SGS North America work order 1214339.
Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

mg/kg miligrams per kilogram
µg/kg micrograms per kilogram
NS Not specified; no applicable regulatory limit exists for the associated analyte.
VOCs volatile organic compounds
PAHs polynuclear aromatic hydrocarbons
PFAS per- and poly-fluoroalkyl substances
< Analyte was not detected; reported as <RL or LOD.
<Bold The laboratory's reporting limit (RL) or limit of detection (LOD) is greater than the regulatory limit.
Bold The detected concentration exceeds the regulatory limit for the associated analyte.
J Estimated concentration, detected greater than the detection limit (DL) and less than the RL or limit of quantitation (LOQ). Flag applied by the laboratory.
B* Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon & Wilson, Inc. (*)
J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 3 - Offsite Surface Soil Analytical Results

Analyte	Cleanup Level	Units	SS-20 7/7/21	SS-21 7/7/21	SS-22 7/7/21	SS-23 7/7/21	SS-23 Duplicate	SS-25 7/7/21	SS-26 7/7/21	SS-27 7/7/21
Perfluorohexanesulfonic acid (PFHxS)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5	<2.1
Perfluorohexanoic acid (PFHxA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1
Perfluoroheptanoic acid (PFHpA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	0.22 J	<1.5 J*	0.32 J*
Perfluorononanoic acid (PFNA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	0.47 J	<1.5 J*	<2.1
Perfluorobutanesulfonic acid (PFBS)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5	<2.1
Perfluorodecanoic acid (PFDA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1
Perfluoroundecanoic acid (PFUnA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1
Perfluorododecanoic acid (PFDoA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1
Perfluorotridecanoic acid (PFTrDA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1
Perfluorotetradecanoic acid (PFTeA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	ug/kg	<2.8	<2.1	<2.1	<2.2	<0.20	<11 J*	<15 J*	<21
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	ug/kg	<2.8	<2.1	<2.1	<2.2	<0.20	<11 J*	<15 J*	<21
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5	<2.1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5	<2.1
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5	<2.1
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	ug/kg	<0.35	<0.26	<0.26	<0.27	<0.25	<1.4	<1.9 J*	<2.6
Perfluorooctanesulfonic acid (PFOS)	3.0	ug/kg	0.30 J*	<0.51	<0.53	<0.54	<0.50	1.7 J	<3.8	<5.2
Perfluorooctanoic acid (PFOA)	1.7	ug/kg	<0.28	<0.21	<0.21	<0.22	<0.20	<1.1	<1.5 J*	<2.1

Notes: Results reported from Eurofins TestAmerica, Sacramento work order 320-76143.
Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).
ug/kg micrograms per kilogram
NS Not specified; action level not established.
< Analyte was not detected; reported as <RL.
J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.
J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 4 - Soil Boring PFAS Results

Analyte	Cleanup Level	Units	SB1		SB2			SB3					SB4				SB5	
			15.7-16.3	27.3-28.0	31.7-32.3	37.5-38.4	45.3-46.0	0-0.8	10.0-11.0		20.0-20.9	23.0-24.0	0.5-1.2	15.5-17.0	20.0-21.5	27.8-28.5	35.0-35.5	40.0-41.5
			6/29/21	6/29/21	7/2/21	7/2/21	7/2/21	7/6/21	7/6/21	Duplicate	7/6/21	7/6/21	7/8/21	7/8/21	7/8/21	7/8/21	7/10/21	7/10/21
Perfluorohexanesulfonic acid (PFHxS)	NS	µg/kg	<0.25	0.094 J	0.052 J	<0.20	<0.19 J*	4.8	0.18 J	0.14 J	0.084 J	0.14 J	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorohexanoic acid (PFHxA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	3.9 J*	0.10 J*	0.10 J	0.067 J	0.079 J	<0.27 J*	0.045 J	<0.21	<0.23	<0.23	<0.21
Perfluoroheptanoic acid (PFHpA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	3.3	0.087 J	0.090 J	0.043 J	0.070 J	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorononanoic acid (PFNA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	15 J*	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorobutanesulfonic acid (PFBS)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	0.078 J*	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorodecanoic acid (PFDA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	0.18 J	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluoroundecanoic acid (PFUnA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorododecanoic acid (PFDoA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27 J*	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorotridecanoic acid (PFTrDA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Perfluorotetradecanoic acid (PFTeA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	µg/kg	<2.5	<2.1	<2.3	<2.0	<1.9 J*	<2.7	<2.4	<2.4	<2.2	<2.2	<2.7 J*	<2.1	<2.1	<2.3	<2.3	<2.1
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	µg/kg	<2.5	<2.1	<2.3	<2.0	<1.9 J*	<2.7 J*	<2.4	<2.4	<2.2	<2.2	<2.7 J*	<2.1	<2.1	<2.3	<2.3	<2.1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	<0.27	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	µg/kg	<0.31	<0.26	<0.29	<0.26	<0.24 J*	<0.33	<0.30	<0.30	<0.28	<0.27	<0.33 J*	<0.26	<0.26	<0.28	<0.29	<0.26
Perfluorooctanesulfonic acid (PFOS)	3.0	µg/kg	<0.63	<0.52	<0.58	<0.51	<0.48 J*	**61**	<0.61	<0.60	<0.55	<0.55	<0.67 J*	<0.52	<0.53	<0.57	<0.58	<0.52
Perfluorooctanoic acid (PFOA)	1.7	µg/kg	<0.25	<0.21	<0.23	<0.20	<0.19 J*	**9.9**	<0.24	<0.24	<0.22	<0.22	<0.27 J*	<0.21	<0.21	<0.23	<0.23	<0.21

Notes:
Results reported from Eurofins TestAmerica, Sacramento work orders 76026, 76143, 76365, 76677, and 76864.

Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

µg/kg micrograms per kilogram

NS Not specified; action level not established.

< Analyte was not detected; reported as <RL.

Bold The detected concentration exceeds the regulatory limit for the associated analyte.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 4 - Soil Boring PFAS Results

Analyte	Cleanup Level	Units	SB6				SB7			SB8			SB9				SB10		
			0-0.5	6.9-7.9		11.8-12.4	0-1.1	16.7-17.1	28.8-30.2	0-0.6	16.4-16.8	30.0-30.5	0-0.5	5.0-5.5	15.6-16.2	36.6-36.8	26.8-32.0		36.0-37.1
			7/12/21	7/12/21	Duplicate	7/12/21	7/12/21	7/12/21	7/12/21	7/13/21	7/13/21	7/13/21	7/13/21	7/13/21	7/13/21	7/13/21	7/15/21	Duplicate	7/15/21
Perfluorohexanesulfonic acid (PFHxS)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	0.082 J	<0.24	0.22 J	<0.20	<0.21	<0.22	0.68	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluorohexanoic acid (PFHxA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	0.085 J	<0.23	<0.25	0.23 J	<0.21	<0.20	<0.22
Perfluoroheptanoic acid (PFHpA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	0.054 J	<0.23	<0.25	0.25	<0.21	<0.20	<0.22
Perfluorononanoic acid (PFNA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	0.074 J	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluorobutanesulfonic acid (PFBS)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluorodecanoic acid (PFDA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	0.086 J	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluoroundecanoic acid (PFUnA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluorododecanoic acid (PFDoA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluorotridecanoic acid (PFTrDA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Perfluorotetradecanoic acid (PFTeA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	µg/kg	<1.9	<1.9	<1.9	<2.0	<2.0	<2.4	<2.6	<2.0	<2.1	<2.2	<3.1	<2.3	<2.5	<2.4	<0.21	<0.20	<0.22
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	µg/kg	<1.9	<1.9	<1.9	<2.0	<2.0	<2.4	<2.6	<2.0	<2.1	<2.2	<3.1	<2.3	<2.5	<2.4	<0.21	<0.20	<0.22
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	<0.24	<0.21	<0.20	<0.22
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	µg/kg	<0.24	<0.24	<0.24	<0.25	<0.25	<0.30	<0.32	<0.25	<0.27	<0.28	<0.39	<0.28	<0.31	<0.30	<0.21	<0.20	<0.22
Perfluorooctanesulfonic acid (PFOS)	3.0	µg/kg	<0.48	<0.49	<0.48	<0.49	0.24 J	<0.60	<0.64	<0.49	<0.53	<0.55	**5.7**	<0.63	<0.62	<0.61	<0.21	<0.20	<0.22
Perfluorooctanoic acid (PFOA)	1.7	µg/kg	<0.19	<0.19	<0.19	<0.20	<0.20	<0.24	<0.26	<0.20	<0.21	<0.22	<0.31	<0.23	<0.25	**16**	<0.21	<0.20	<0.22

Notes:
Results reported from Eurofins TestAmerica, Sacramento work orders 76026, 76143, 76365, 76677, and 76864.

Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

µg/kg micrograms per kilogram

NS Not specified; action level not established.

< Analyte was not detected; reported as <RL.

Bold The detected concentration exceeds the regulatory limit for the associated analyte.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 4 - Soil Boring PFAS Results

Analyte	Cleanup Level	Units	SB11					SB12					SB13				SB14			
			0.3-1.2	2.3-3.3		22.5-25.4	31.4-32.0	0.3-0.8	15.0-16.0		35.0-35.7	40.0-40.6	0-0.5	10.9-11.4	35-37.5		0-0.8	21.2-21.7	40.6-41.8	
			7/17/21	7/17/21	Duplicate	7/17/21	7/17/21	7/19/21	7/19/21	Duplicate	7/19/21	7/19/21	7/22/21	7/22/21	7/22/21	Duplicate	7/22/21	7/22/21	7/22/21	Duplicate
Perfluorohexanesulfonic acid (PFHxS)	NS	µg/kg	<0.21	<0.23	<0.24	0.048 J	<0.20	0.097 J	<0.25	<0.24	<0.20	<0.22	3.5	25	0.16 J	0.15 J	0.28	<0.21	<0.24	<0.25
Perfluorohexanoic acid (PFHxA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	0.065 J	<0.25	<0.24	<0.20	<0.22	0.26	6.4	0.054 J	0.042 J	0.037 J	<0.21	<0.24	<0.25
Perfluoroheptanoic acid (PFHpA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	0.047 J*	<0.25	<0.24	<0.20	<0.22	<0.20	1.5	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorononanoic acid (PFNA)	NS	µg/kg	0.25	0.16 J	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorobutanesulfonic acid (PFBS)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	0.21	0.57	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorodecanoic acid (PFDA)	NS	µg/kg	0.32	0.47 J*	<0.24 J*	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluoroundecanoic acid (PFUnA)	NS	µg/kg	<0.21	0.080 J*	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorododecanoic acid (PFDoA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorotridecanoic acid (PFTrDA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorotetradecanoic acid (PFTeA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21 J*	<0.24	<0.25
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	µg/kg	<0.21	<0.23	<0.24	<0.21	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorooctanesulfonic acid (PFOS)	3.0	µg/kg	2.7	1.7 J*	<0.24 J*	<0.21	<0.20	0.22 J*	<0.25	<0.24	<0.20	<0.22	**32**	1.6 J*	0.35	0.38	**4.5**	<0.21	<0.24	<0.25
Perfluorooctanoic acid (PFOA)	1.7	µg/kg	0.069 J	0.093 J	<0.24	0.24	<0.20	<0.22	<0.25	<0.24	<0.20	<0.22	0.12 J	**3.5**	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25

Notes:
Results reported from Eurofins TestAmerica, Sacramento work orders 76026, 76143, 76365, 76677, and 76864.
Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

µg/kg micrograms per kilogram
NS Not specified; action level not established.
< Analyte was not detected; reported as <RL.
Bold The detected concentration exceeds the regulatory limit for the associated analyte.
J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.
J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 5 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
AK101	Gasoline Range Organics (GRO)	300	mg/kg	<2.81 B*	<1.48	<2.06 B*	<2.56 B*	—	—
AK102	Diesel Range Organics (DRO)	250	mg/kg	9.32 J	<23.8 B*	<23.1 B*	<22.8 B*	—	—
AK103	Residual Range Organics (RRO)	11,000	mg/kg	<58.0	<59.5	<58.0	<57.0	—	—
SM21 2540G	Total Solids	NS	%	85.3	83.3	86.0	86.8	84.2	84.0
SW 8260D (VOCs)	1,1,1,2-Tetrachloroethane	0.022	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	—	—
	1,1,1-Trichloroethane	32	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,1,2,2-Tetrachloroethane	0.003	mg/kg	<0.00112	<0.00118	<0.000825	<0.00103	—	—
	1,1,2-Trichloroethane	0.0014	mg/kg	<0.000449	<0.000472	<0.000329	<0.000409	—	—
	1,1-Dichloroethane	0.092	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,1-Dichloroethene	1.2	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,1-Dichloropropene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,2,3-Trichlorobenzene	0.15	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	1,2,3-Trichloropropane	0.000031	mg/kg	**<0.00112**	**<0.00118**	**<0.000825**	**<0.00103**	—	—
	1,2,4-Trichlorobenzene	0.082	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,2,4-Trimethylbenzene	0.61	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	1,2-Dibromo-3-chloropropane	NS	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	1,2-Dibromoethane	0.00024	mg/kg	**<0.000560**	**<0.000590**	**<0.000411**	**<0.000510**	—	—
	1,2-Dichlorobenzene	2.4	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,2-Dichloroethane	0.0055	mg/kg	<0.00112	<0.00118	<0.000825	<0.00103	—	—
	1,2-Dichloropropane	0.03	mg/kg	<0.00560	<0.00590	<0.00411	<0.00510	—	—
	1,3,5-Trimethylbenzene	0.66	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,3-Dichlorobenzene	2.3	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,3-Dichloropropane	NS	mg/kg	<0.00560	<0.00590	<0.00411	<0.00510	—	—
	1,4-Dichlorobenzene	0.037	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	2,2-Dichloropropane	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	2-Butanone (MEK)	15	mg/kg	<0.141	<0.147	<0.103	<0.128	—	—
	2-Chlorotoluene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	2-Hexanone	0.11	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	4-Chlorotoluene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Acetone	38	mg/kg	<0.141	<0.147	<0.103	<0.128	—	—
	Benzene	0.022	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Bromobenzene	0.36	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Bromochloromethane	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Bromodichloromethane	0.0043	mg/kg	<0.00112	<0.00118	<0.000825	<0.00103	—	—
	Bromoform	0.1	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Bromomethane	0.024	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	—	—
	Carbon disulfide	2.9	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Carbon tetrachloride	0.021	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Chlorobenzene	0.46	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Chloroethane	72	mg/kg	<0.113	<0.118	<0.0825	<0.102	—	—
	Chloroform	0.0071	mg/kg	<0.00225	<0.00236	<0.00165	<0.00205	—	—
	Chloromethane	0.61	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	cis-1,2-Dichloroethene	0.12	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	cis-1,3-Dichloropropene	0.018	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Dibromochloromethane	0.0027	mg/kg	**<0.00281**	**<0.00295**	<0.00206	<0.00256	—	—
	Dibromomethane	0.025	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Dichlorodifluoromethane	3.9	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	Ethylbenzene	0.13	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Hexachlorobutadiene	0.02	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	—	—
	Isopropylbenzene	5.6	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	m,p-xylenes	1.5	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	Methyl isobutyl ketone	18	mg/kg	<0.141	<0.147	<0.103	<0.128	—	—
	Methylene chloride	0.33	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Methyl-t-butyl ether (MTBE)	0.4	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Naphthalene	0.038	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	n-Butylbenzene	23	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—

Table 5 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
SW 8260D (VOCs continued)	n-Propylbenzene	9.1	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	o-Xylene	1.5	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	p-Isopropyltoluene	NS	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	sec-Butylbenzene	42	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Styrene	10	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	tert-Butylbenzene	11	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Tetrachloroethene	0.19	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Toluene	6.7	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Total Xylenes	1.5	mg/kg	<0.0422	<0.0442	<0.0308	<0.0384	—	—
	trans-1,2-Dichloroethene	1.3	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	trans-1,3-Dichloropropene	0.018	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Trichloroethene	0.011	mg/kg	<0.00281	<0.00295	<0.00206	<0.00256	—	—
	Trichlorofluoromethane	41	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	Trichlorotrifluoroethane	310	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Vinyl acetate	1.1	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Vinyl chloride	0.0008	mg/kg	<0.000449	<0.000472	<0.000329	<0.000409	—	—
8270D SIM (PAH)	1-Methylnaphthalene	0.41	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	2-Methylnaphthalene	1.3	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Acenaphthene	37	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Acenaphthylene	18	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Anthracene	390	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(a)anthracene	0.7	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(a)pyrene	1.9	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(b)fluoranthene	20	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(g,h,i)perylene	15,000	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(k)fluoranthene	190	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Chrysene	600	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Dibenzo(a,h)anthracene	6.3	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Fluoranthene	590	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Fluorene	36	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Indeno(1,2,3-cd)pyrene	65	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Naphthalene	0.038	mg/kg	<0.0117	—	<0.0115	<0.0114	—	—
	Phenanthrene	39	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Pyrene	87	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
SW 8270D (SVOCs)	1,2,4-Trichlorobenzene	0.082	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	1,2-Dichlorobenzene	2.4	mg/kg	—	—	—	—	<0.740	<0.740
	1,3-Dichlorobenzene	2.3	mg/kg	—	—	—	—	<0.740	<0.740
	1,4-Dichlorobenzene	0.037	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	1-Chloronaphthalene	NS	mg/kg	—	—	—	—	<0.740	<0.740
	1-Methylnaphthalene	0.41	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,4,5-Trichlorophenol	28	mg/kg	—	—	—	—	<0.740	<0.740
	2,4,6-Trichlorophenol	0.092	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,4-Dichlorophenol	0.21	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,4-Dimethylphenol	3.2	mg/kg	—	—	—	—	<0.740	<0.740
	2,4-Dinitrophenol	0.34	mg/kg	—	—	—	—	**<8.90**	**<8.85**
	2,4-Dinitrotoluene	0.024	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,6-Dichlorophenol	NS	mg/kg	—	—	—	—	<0.740	<0.740
	2,6-Dinitrotoluene	0.005	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2-Chloronaphthalene	26	mg/kg	—	—	—	—	<0.740	<0.740
	2-Chlorophenol	0.71	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2-Methylnaphthalene	1.3	mg/kg	—	—	—	—	<0.740	<0.740
	2-Methylphenol	6.2	mg/kg	—	—	—	—	<0.740	<0.740
	2-Nitroaniline	NS	mg/kg	—	—	—	—	<0.740	<0.740
	2-Nitrophenol	NS	mg/kg	—	—	—	—	<0.740	<0.740
	3&4-Methylphenol (p&m-Cresol)	NS	mg/kg	—	—	—	—	<2.96	<2.96
	3,3'-Dichlorobenzidine	0.056	mg/kg	—	—	—	—	**<1.49**	**<1.48**

Table 5 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
SW 8270D (SVOCs continued)	3-Nitroaniline	NS	mg/kg	—	—	—	—	<1.49	<1.48
	4,6-Dinitro-2-Methylphenol	NS	mg/kg	—	—	—	—	<5.95	<5.90
	4-Bromophenyl phenyl ether	NS	mg/kg	—	—	—	—	<0.740	<0.740
	4-Chloro-3-methylphenol	NS	mg/kg	—	—	—	—	<0.740	<0.740
	4-Chloroaniline	0.015	mg/kg	—	—	—	—	**<2.96**	**<2.96**
	4-Chlorophenyl-phenylether	NS	mg/kg	—	—	—	—	<0.740	<0.740
	4-Nitroaniline	NS	mg/kg	—	—	—	—	<8.90	<8.85
	4-Nitrophenol	NS	mg/kg	—	—	—	—	<5.95	<5.90
	Acenaphthene	37	mg/kg	—	—	—	—	<0.740	<0.740
	Acenaphthylene	18	mg/kg	—	—	—	—	<0.740	<0.740
	Aniline	NS	mg/kg	—	—	—	—	<5.95	<5.90
	Anthracene	390	mg/kg	—	—	—	—	<0.740	<0.740
	Azobenzene	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(a)anthracene	0.7	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Benzo(a)pyrene	1.9	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(b)fluoranthene	20	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(g,h,i)perylene	15,000	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(k)fluoranthene	190	mg/kg	—	—	—	—	<0.740	<0.740
	Benzoic acid	200	mg/kg	—	—	—	—	<4.45	<4.43
	Benzyl alcohol	5.7	mg/kg	—	—	—	—	<0.740	<0.740
	Bis (2-Chloroethoxy) Methane	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Bis (2-Chloroethyl) Ether	0.00042	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Bis (2-ethylhexyl) phthalate	88	mg/kg	—	—	—	—	<0.740	<0.740
	Bis(2-chloro-1-methylethyl) ether	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Butylbenzylphthalate	16	mg/kg	—	—	—	—	<0.740	<0.740
	Carbazole	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Chrysene	600	mg/kg	—	—	—	—	<0.740	<0.740
	Dibenzo(a,h)anthracene	6.3	mg/kg	—	—	—	—	<0.740	<0.740
	Dibenzofuran	0.97	mg/kg	—	—	—	—	<0.740	<0.740
	Diethylphthalate	60	mg/kg	—	—	—	—	<0.740	<0.740
	Dimethylphthalate	48	mg/kg	—	—	—	—	<0.740	<0.740
	Di-n-butylphthalate	16	mg/kg	—	—	—	—	<0.740	<0.740
	Di-n-octyl phthalate	370	mg/kg	—	—	—	—	<1.49	<1.48
	Fluoranthene	590	mg/kg	—	—	—	—	<0.740	<0.740
	Fluorene	36	mg/kg	—	—	—	—	<0.740	<0.740
	Hexachlorobenzene	0.0082	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Hexachlorobutadiene	0.02	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Hexachlorocyclopentadiene	0.0093	mg/kg	—	—	—	—	**<2.08**	**<2.07**
	Hexachloroethane	0.018	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Indeno(1,2,3-cd)pyrene	65	mg/kg	—	—	—	—	<0.740	<0.740
	Isophorone	2.7	mg/kg	—	—	—	—	<0.740	<0.740
	Naphthalene	0.038	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Nitrobenzene	0.0079	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	N-Nitrosodimethylamine	0.0000033	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	n-Nitrosodi-n-propylamine	0.00068	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	N-Nitrosodiphenylamine	4.6	mg/kg	—	—	—	—	<0.740	<0.740
	Pentachlorophenol	0.0043	mg/kg	—	—	—	—	**<5.95**	**<5.90**
	Phenanthrene	39	mg/kg	—	—	—	—	<0.740	<0.740
	Phenol	29	mg/kg	—	—	—	—	<0.740	<0.740
	Pyrene	87	mg/kg	—	—	—	—	<0.740	<0.740

Table 5 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
SW 6020B TCLP	Arsenic	5.0	mg/L	—	—	—	—	<0.150	<0.150
	Barium	100	mg/L	—	—	—	—	0.239	0.278
	Cadmium	1.0	mg/L	—	—	—	—	<0.0500	<0.0500
	Chromium	5.0	mg/L	—	—	—	—	<0.100	0.314
	Lead	5.0	mg/L	—	—	—	—	<0.0250	<0.0250
	Mercury	0.2	mg/L	—	—	—	—	<0.0125	<0.0125
	Selenium	1.0	mg/L	—	—	—	—	<0.500	<0.500
	Silver	5.0	mg/L	—	—	—	—	<0.0500	<0.0500

Notes: Results reported from SGS North America, Inc. work orders 1214339 and 1214673.

Regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater) for soil and EPAs 40 CFR 261.24 Table 1 - Maximum Concentration of Contaminants for Toxicity Characteristic Leaching Procedure metals.

mg/kg miligrams per kilogram
mg/L milligrams per liter
NS Not specified; action level not established.
VOCs volatile organic compounds
SVOCs semi-volatile organic compounds
TCLP Toxicity Characteristic Leaching Procedure
< Analyte was not detected; reported as <RL or LOD.
<Bold The laboratory's reporting limit (RL) or limit of detection (LOD) is greater than the regulatory limit.
Bold Detected concentration exceeds the regulatory limit for the associated analyte.
J Estimated concentration, detected greater than the detection limit (DL) and less than the RL or limit of quantitation (LOQ). Flag applied by the laboratory.
B* Result is considered not detected due to quality control failures; see checklist for details. Flag applied by Shannon & Wilson, Inc.

Table 6 - Monitoring Well PFAS Results

Analyte	Action Level	Units	2006-MW08-20 7/27/21	2006-MW11-30 7/30/21	Everts-MW1-25 7/29/21	DLG-MW01-30 7/26/21	DLG-MW01-45 7/26/21	DLG-MW02-40 7/24/21	DLG-MW02-40 Duplicate	DLG-MW02-50 7/24/21	DLG-MW03-30 7/25/21	DLG-MW03-30 Duplicate	DLG-MW03-50 7/25/21
Perfluorohexanesulfonic acid (PFHxS)	NS	ng/L	260	<1.9	1.1 J	120	4.8	110	110	4.7	170	160	5.0
Perfluorohexanoic acid (PFHxA)	NS	ng/L	58	<1.9	46	24	0.85 J	100	97	2.8	190	200	7.9
Perfluoroheptanoic acid (PFHpA)	NS	ng/L	21	<1.9	17	3.8	0.43 J	9.4	8.1	<1.9	130	120	3.9
Perfluorononanoic acid (PFNA)	NS	ng/L	4.8	<1.9	0.84 J	<1.9	<1.9	<1.9	<1.8	<1.9	0.37 J	<1.9	<1.9
Perfluorobutanesulfonic acid (PFBS)	NS	ng/L	9.0	<1.9	<2.0	11	0.46 J	92	96	7.3	32	34	1.0 J
Perfluorodecanoic acid (PFDA)	NS	ng/L	0.75 J	0.36 J	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
Perfluoroundecanoic acid (PFUnA)	NS	ng/L	<1.7	<1.9	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
Perfluorododecanoic acid (PFDoA)	NS	ng/L	<1.7	<1.9	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
Perfluorotridecanoic acid (PFTrDA)	NS	ng/L	<1.7	<1.9	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
Perfluorotetradecanoic acid (PFTeA)	NS	ng/L	<1.7	<1.9	<2.0 J*	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	ng/L	<4.3	<4.8	<4.9	<4.7	<4.8	<4.7	<4.6	<4.7	<4.6	<4.8	<4.8
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	ng/L	<4.3	<4.8	<4.9	<4.7	<4.8	<4.7	<4.6	<4.7	<4.6	<4.8	<4.8
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	ng/L	<1.7	<1.9	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	ng/L	<1.7	<1.9	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	ng/L	<1.7	<1.9	<2.0	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.9	<1.9
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	ng/L	<3.5	<3.9	<3.9	<3.8	<3.8	<3.8	<3.7	<3.8	<3.7	<3.8	<3.8
Perfluorooctanesulfonic acid (PFOS)	400	ng/L	**1,100**	<1.9	<2.0	28	1.8 J	<1.9	<1.8	<1.9	9.6	8.5	10
Perfluorooctanoic acid (PFOA)	400	ng/L	59	<1.9	44	8.9	1.4 J	5.5	5.2	<1.9	37	39	6.5
LHA Combined (PFOS + PFOA)†	70†	ng/L	**1,159**	n/a	44 ‡	37	3.2 J	5.5 ‡	5.2 ‡	n/a	47	48	17

Table 6 - Monitoring Well PFAS Results

Analyte	Action Level	Units	DLG-MW03-75	DLG-MW04-25		DLG-MW04-50	DLG-MW05-45		DLG-MW05-70	DLG-MW09-10	DLG-MW09-50	DLG-MW09-65		DLG-MW10-40
			7/25/21	7/21/21	Duplicate	7/21/21	7/17/21	Duplicate	7/17/21	7/18/21	7/19/21	7/19/21	Duplicate	7/22/21
Perfluorohexanesulfonic acid (PFHxS)	NS	ng/L	190	9.5	9.8	39	3.3	3.3	0.59 J	9.6	1,300	1.2 J	1.0 J	1.0 J
Perfluorohexanoic acid (PFHxA)	NS	ng/L	130	12	13	16	<1.6	<1.7	<1.6	4.8	1,100	2.2	2.1	0.93 J
Perfluoroheptanoic acid (PFHpA)	NS	ng/L	30	3.8	4.0	5.2	<1.6	<1.7	<1.6	0.93 J	73	0.29 J	<1.7	<1.9
Perfluorononanoic acid (PFNA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
Perfluorobutanesulfonic acid (PFBS)	NS	ng/L	44	2.6	2.7	9.6	1.8	1.7	0.67 J	5.0	1,100	1.1 J	0.86 J	0.37 J
Perfluorodecanoic acid (PFDA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	0.27 J	<1.6	0.28 J	0.35 J*	<1.8	<1.7	<1.9
Perfluoroundecanoic acid (PFUnA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
Perfluorododecanoic acid (PFDoA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
Perfluorotridecanoic acid (PFTrDA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
Perfluorotetradecanoic acid (PFTeA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8 J*	<1.8	<1.8	<1.7	<1.9
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	ng/L	<4.8	<4.9	<4.8	<4.8	<4.0	<4.3	<4.0	<4.5	<4.5	<4.6	<4.2	<4.8
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	ng/L	<4.8	<4.9	<4.8	<4.8	<4.0	<4.3	<4.0	<4.5	<4.5	<4.6	<4.2	<4.8
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.6	<1.7	<1.6	<1.8	<1.8	<1.8	<1.7	<1.9
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	ng/L	<3.9	<3.9	<3.8	<3.9	<3.2	<3.5	<3.2	<3.6	<3.6	<3.7	<3.3	<3.9
Perfluorooctanesulfonic acid (PFOS)	400	ng/L	88	1.7 J	1.9	6.5	<1.6	<1.7	<1.6	<1.8	19	0.95 J	0.83 J	<1.9
Perfluorooctanoic acid (PFOA)	400	ng/L	34	1.8 J	1.9	4.9	<1.6	<1.7	<1.6	2.2	59	<1.8	<1.7	0.83 J
LHA Combined (PFOS + PFOA)†	70†	ng/L	**122**	3.5 J	3.8	11	n/a	n/a	n/a	2.2 ‡	**78**	0.95 J‡	0.83 J‡	0.83 J‡

Table 6 - Monitoring Well PFAS Results

Analyte	Action Level	Units	DLG-MW10-55	DLG-MW11-35		DLG-MW11-80	DLG-MW12-40	DLG-MW12-80	DLG-MW14-50		DLG-MW14-80		GAC-POST
			7/22/21	7/22/21	Duplicate	7/22/21	7/28/21	7/28/21	7/26/21	Duplicate	7/30/21	Duplicate	7/30/2021
Perfluorohexanesulfonic acid (PFHxS)	NS	ng/L	0.81 J	29	30	<1.9	1.6 J	7.9	25	24	26	24	<1.7
Perfluorohexanoic acid (PFHxA)	NS	ng/L	0.72 J	20	21	0.65 J	1.0 J	11	64	63	40	36	<1.7
Perfluoroheptanoic acid (PFHpA)	NS	ng/L	0.32 J	15	15	<1.9	<1.7	5.6	5.9	5.7	3.7	3.7	<1.7
Perfluorononanoic acid (PFNA)	NS	ng/L	<1.9	<1.9	0.62 J	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
Perfluorobutanesulfonic acid (PFBS)	NS	ng/L	0.32 J	1.0 J	1.3 J	<1.9	1.7	0.74 J	37	36	22	22	<1.7
Perfluorodecanoic acid (PFDA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	0.33 J	<1.8	<1.9	<2.2	<1.8	<1.7
Perfluoroundecanoic acid (PFUnA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
Perfluorododecanoic acid (PFDoA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
Perfluorotridecanoic acid (PFTrDA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
Perfluorotetradecanoic acid (PFTeA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	ng/L	<4.8	<4.8	<4.7	<4.7	<4.3	<4.8	<4.4	<4.9	<5.4	<4.5	<4.2
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	ng/L	<4.8	<4.8	<4.7	<4.7	<4.3	<4.8	<4.4	<4.9	<5.4	<4.5	<4.2
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	ng/L	<1.9	<1.9	<1.9	<1.9	<1.7	<1.9	<1.8	<1.9	<2.2	<1.8	<1.7
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	ng/L	<3.8	<3.9	<3.8	<3.8	<3.5	<3.9	<3.5	<3.9	<4.3	<3.6	<3.4
Perfluorooctanesulfonic acid (PFOS)	400	ng/L	0.90 J	6.2	5.5	<1.9	<1.7	4.8	<1.8	<1.9	8.1	8.7	<1.7
Perfluorooctanoic acid (PFOA)	400	ng/L	<1.9	24	23	<1.9	<1.7	11	2.0	2.1	3.3	3.1	<1.7
LHA Combined (PFOS + PFOA)†	70†	ng/L	0.90 J‡	30	29	n/a	n/a	16	2.0 ‡	2.1 ‡	11	12	n/a

Table 6 - Monitoring Well PFAS Results

Notes:	Results reported from Eurofins Test America, Sacramento work orders 320-76675, 320-76865, and 320-77044.
	Regulatory limits from 18 AAC 75.345 Table C. Groundwater Cleanup Levels and the DEC technical memorandum *Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water.*
†	The DEC drinking water action evel is 70 ppt for PFOS and PFOA combined.
PAHs	polynuclear aromatic hydrocarbons
PFAS	per- and poly-fluoroalkyl substances
ng/L	nanograms per liter; equivalent to parts per trillion (ppt)
NS	Not specified; no applicable regulatory limit exists for the associated analyte.
<	Analyte was not detected; reported as <RL.
Bold	The detected concentration exceeds the regulatory limit for the associated analyte.
J	Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.
B*	Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon & Wilson, Inc. (*)
J*	Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
‡	Minimum concentration, the LHA Combined concentration includes one or more result that is not detected greater than the MDL.
n/a	Not applicable. The LHA combined concentration could not be calculated; PFOS and PFOA were not detected in the project sample.

Table 7 - Monitoring Well Petroleum Results

				DLG-MW11-35		DLG-MW12-40	DLG-MW14-50	
Analytical Method	Analyte	Cleanup Level	Units	7/22/21	Duplicate	7/28/21	7/26/21	Duplicate
AK101	Gasoline Range Organics	2.2	mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
AK102	Diesel Range Organics	1.5	mg/L	0.222 J	0.217 J	<0.566 B*	<0.288	<0.283
AK103	Residual Range Organics	1.1	mg/L	<0.245	<0.245	<0.236	<0.240	<0.236
SW8260D (VOCs)	1,1,1,2-Tetrachloroethane	5.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	1,1,1-Trichloroethane	8,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1,2,2-Tetrachloroethane	0.76	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	1,1,2-Trichloroethane	0.41	µg/L	<0.200	<0.200	<0.200	<0.200	<0.200
	1,1-Dichloroethane	28	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1-Dichloroethene	280	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1-Dichloropropene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2,3-Trichlorobenzene	7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2,3-Trichloropropane	0.0075	µg/L	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**
	1,2,4-Trichlorobenzene	4	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2,4-Trimethylbenzene	56	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2-Dibromo-3-chloropropane	NS	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	1,2-Dibromoethane	0.075	µg/L	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375
	1,2-Dichlorobenzene	300	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2-Dichloroethane	1.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	1,2-Dichloropropane	8.2	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,3,5-Trimethylbenzene	60	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,3-Dichlorobenzene	300	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	1,3-Dichloropropane	NS	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	1,4-Dichlorobenzene	4.8	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	2,2-Dichloropropane	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	2-Butanone (MEK)	5,600	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	2-Chlorotoluene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	2-Hexanone	38	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	4-Chlorotoluene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Benzene	4.6	µg/L	<0.200	<0.200	<0.200	<0.200	<0.200
	Bromobenzene	62	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromochloromethane	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromodichloromethane	1.3	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	Bromoform	33	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromomethane	7.5	µg/L	<2.50	<2.50	<2.50	<2.50	<2.50
	Carbon disulfide	810	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	Carbon tetrachloride	4.6	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Chlorobenzene	78	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	Chloroethane	21,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Chloroform	2.2	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Chloromethane	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	cis-1,2-Dichloroethene	36	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	cis-1,3-Dichloropropene	4.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	Dibromochloromethane	8.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250
	Dibromomethane	8.3	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Dichlorodifluoromethane	200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Ethylbenzene	15	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Hexachlorobutadiene	1.4	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Isopropylbenzene	450	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	m,p-xylenes	190	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00
	Methyl isobutyl ketone	6,300	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	Methylene chloride	110	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	Methyl-t-butyl ether (MTBE)	140	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	Naphthalene	1.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	n-Butylbenzene	1,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	n-Propylbenzene	660	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	o-Xylene	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	p-Isopropyltoluene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	sec-Butylbenzene	2,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Styrene	1,200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	tert-Butylbenzene	690	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Tetrachloroethene	41	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Toluene	1,100	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Total Xylenes	190	µg/L	<1.50	<1.50	<1.50	<1.50	<1.50
	trans-1,2-Dichloroethene	360	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	trans-1,3-Dichloropropene	4.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Trichloroethene	2.8	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Trichlorofluoromethane	5,200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500
	Trichlorotrifluoroethane	10,000	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	Vinyl acetate	410	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00
	Vinyl chloride	0.19	µg/L	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750
	1-Methylnaphthalene	11	µg/L	—	—	—	<0.0245 J*	<0.0240
	2-Methylnaphthalene	36	µg/L	—	—	—	<0.0245 J*	<0.0240
	Acenaphthene	530	µg/L	—	—	—	<0.0245 J*	<0.0240

Table 7 - Monitoring Well Petroleum Results

				DLG-MW11-35		DLG-MW12-40	DLG-MW14-50	
Analytical Method	Analyte	Cleanup Level	Units	7/22/21	Duplicate	7/28/21	7/26/21	Duplicate
8270D SIM LV (PAHs)	Acenaphthylene	260	µg/L	—	—	—	<0.0245 J*	<0.0240
	Anthracene	43	µg/L	—	—	—	<0.0245 J*	<0.0240
	Benzo(a)anthracene	0.3	µg/L	—	—	—	<0.0245	<0.0240
	Benzo(a)pyrene	0.25	µg/L	—	—	—	<0.00980	<0.00960
	Benzo(b)fluoranthene	2.5	µg/L	—	—	—	<0.0245	<0.0240
	Benzo(g,h,i)perylene	0.26	µg/L	—	—	—	<0.0245	<0.0240
	Benzo(k)fluoranthene	0.8	µg/L	—	—	—	<0.0245	<0.0240
	Chrysene	2	µg/L	—	—	—	<0.0245	<0.0240
	Dibenzo(a,h)anthracene	0.25	µg/L	—	—	—	<0.00980	<0.00960
	Fluoranthene	260	µg/L	—	—	—	<0.0245	<0.0240
	Fluorene	290	µg/L	—	—	—	<0.0245 J*	<0.0240
	Indeno(1,2,3-cd)pyrene	0.19	µg/L	—	—	—	<0.0245	<0.0240
	Naphthalene	1.7	µg/L	—	—	—	<0.0490 J*	<0.0481
	Phenanthrene	170	µg/L	—	—	—	<0.0245 J*	<0.0240
	Pyrene	120	µg/L	—	—	—	<0.0245	<0.0240

Notes: Results reported from SGS North America work orders 1214677 and 1214737.
Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.345 Table C. Groundwater Cleanup Levels.

VOCs volatile organic compounds
PAHs polynuclear aromatic hydrocarbons
mg/L milligrams per liter; equivalen to parts per million (ppm)
µg/L micrograms per liter; equivalent to parts per billion (ppb)
NS Not specified; no applicable regulatory limit exists for the associated analyte.
— Analytical sample not collected; parameter not required.
< Analyte was not detected; reported as <LOD.
<Bold The laboratory's limit of detection (LOD) is greater than the regulatory limit.
J Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by
B* Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon &
J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 8 - Surface Water PFAS Results

Analyte	Cleanup Level	Units	SW-01	SW-02		SW-03	SW-04		SW-05	SW-06	SW-07	SW-08	SW-09	SW-10
			7/13/21	7/13/21	Duplicate	7/13/21	7/14/21	Duplicate	7/14/21	7/14/21	7/14/21	7/14/21	7/14/21	9/30/21
Perfluorohexanesulfonic acid (PFHxS)	NS	ng/L	<1.8 J*	160	160	140	1.8	1.8	<1.8	12	110	5.6 J*	24	1.2 J
Perfluorohexanoic acid (PFHxA)	NS	ng/L	<1.8 J*	41	43	20	480	520	<1.8	7.1	23	5.0 J*	24	1.3 J
Perfluoroheptanoic acid (PFHpA)	NS	ng/L	<1.8 J*	20	20	3.8 J*	84	86	<1.8	4.0	9.0	<1.8 J*	9.2	<1.7
Perfluorononanoic acid (PFNA)	NS	ng/L	<1.8 J*	5.4	5.5	<1.8	2.8	3.0	<1.8	1.5 J	0.94 J	<1.8 J*	1.6 J*	0.27 JH*
Perfluorobutanesulfonic acid (PFBS)	NS	ng/L	<1.8 J*	13	13	16	<1.8	<1.8	<1.8	1.3 J	10	0.81 J*	4.4	<1.7
Perfluorodecanoic acid (PFDA)	NS	ng/L	<1.8 J*	5.0	5.2	<1.8	<1.8	1.0 J	<1.8	0.96 J	<1.8	<1.8 J*	<1.8	<1.7
Perfluoroundecanoic acid (PFUnA)	NS	ng/L	<1.8 J*	1.0 J	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
Perfluorododecanoic acid (PFDoA)	NS	ng/L	<1.8 J*	3.1	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
Perfluorotridecanoic acid (PFTrDA)	NS	ng/L	<1.8 J*	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
Perfluorotetradecanoic acid (PFTeA)	NS	ng/L	<1.8 J*	0.85 J	<1.8	<1.8 J*	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	ng/L	<4.5 J*	<4.5	<4.5	<4.6	<4.6	<4.5	<4.5	<4.4	<4.6	<4.4 J*	<4.5	<4.3
N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	ng/L	<4.5 J*	<4.5	<4.5	<4.6	<4.6	<4.5	<4.5	<4.4	<4.6	<4.4 J*	<4.5	<4.3
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	ng/L	<1.8 J*	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	ng/L	<1.8 J*	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	ng/L	<1.8 J*	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8 J*	<1.8	<1.7
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	ng/L	<3.6 J*	<3.6	<3.6	<3.7	<3.6	<3.6	<3.6	<3.5	<3.7	<3.6 J*	<3.6	<3.4 B*
Perfluorooctanesulfonic acid (PFOS)	400	ng/L	<1.8 J*	380	380	**450**	12	13	<1.8	15	**450**	4.8 J*	23	1.8
Perfluorooctanoic acid (PFOA)	400	ng/L	<1.8 J*	35	30	4.6	15	15	<1.8	4.0	7.7	1.6 J*	9.7	0.85 J

Notes: Results reported from Eurofins TestAmerica, Sacramento work orders 320-76363 and 320-79756.
Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.345 Table C. Groundwater Cleanup Levels.

ng/L nanograms per liter, equivalent to parts per trillion (ppt)

NS Not specified; action level not established.

< Analyte was not detected; reported as <RL.

Bold The detected concentration exceeds the regulatory limit for the associated analyte.

J Estimated concentration, detected greater than the detection limit (DL) and less than the reporting limit (RL). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

B* Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon & Wilson, Inc. (*)

Table 9 - Surface Water Petroleum Results

Analytical Method	Analyte	Regulatory Limit	Units	SW-02	SW-02	SW-03	SW-04	SW-04	SW-05	SW-06	SW-07	SW-08	SW-09
				9/13/21	Duplicate	9/13/21	9/14/21	Duplicate	9/14/21	9/14/21	9/14/21	9/14/21	9/14/21
AK101	Gasoline Range Organics	2.2	mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
AK102	Diesel Range Organics	1.5	mg/L	0.455 J	<0.595 B*	0.371 J	0.652	0.830	0.180 J	<0.588 B*	<0.588 B*	<0.588 B*	<0.600 B*
AK103	Residual Range Organics	1.1	mg/L	0.717	0.943	0.342 J	0.722	0.862	<0.240	0.165 J	0.251 J	0.324 J	<0.250
SW 8260D (BTEX)	Benzene	4.6	µg/L	<0.200	0.121	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
	Ethylbenzene	15	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	o-Xylene	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	p&m-Xylenes		µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Toluene	1,100	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Total aromatic hydrocarbons (TAH) †	10 †	µg/L	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
SW 8260D (full VOCs)	1,1,1,2-Tetrachloroethane	5.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	1,1,1-Trichloroethane	8,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1,2,2-Tetrachloroethane	0.76	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	1,1,2-Trichloroethane	0.41	µg/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
	1,1-Dichloroethane	28	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1-Dichloroethene	280	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1-Dichloropropene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2,3-Trichlorobenzene	7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2,3-Trichloropropane	0.0075	µg/L	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**	**<0.500**
	1,2,4-Trichlorobenzene	4	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2,4-Trimethylbenzene	56	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2-Dibromo-3-chloropropane	NS	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	1,2-Dibromoethane	0.075	µg/L	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375
	1,2-Dichlorobenzene	300	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2-Dichloroethane	1.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	1,2-Dichloropropane	8.2	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,3,5-Trimethylbenzene	60	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,3-Dichlorobenzene	300	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,3-Dichloropropane	NS	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	1,4-Dichlorobenzene	4.8	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	2,2-Dichloropropane	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	2-Butanone (MEK)	5,600	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	2-Chlorotoluene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	2-Hexanone	38	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	4-Chlorotoluene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Benzene	4.6	µg/L	<0.200	0.121 J	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
	Bromobenzene	62	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromochloromethane	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromodichloromethane	1.3	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	Bromoform	33	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromomethane	7.5	µg/L	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
	Carbon disulfide	810	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	Carbon tetrachloride	4.6	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Chlorobenzene	78	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	Chloroethane	21,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Chloroform	2.2	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Chloromethane	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	cis-1,2-Dichloroethene	36	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	cis-1,3-Dichloropropene	4.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	Dibromochloromethane	8.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
	Dibromomethane	8.3	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Dichlorodifluoromethane	200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Ethylbenzene	15	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Hexachlorobutadiene	1.4	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Isopropylbenzene	450	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	p&m-Xylenes	190	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Methyl isobutyl ketone	6,300	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	Methylene chloride	110	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	Methyl-t-butyl ether (MTBE)	140	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	Naphthalene	1.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	n-Butylbenzene	1,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	n-Propylbenzene	660	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	o-Xylene	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	p-Isopropyltoluene	NS	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	sec-Butylbenzene	2,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Styrene	1,200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	tert-Butylbenzene	690	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Tetrachloroethene	41	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Toluene	1,100	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Total Xylenes	190	µg/L	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50
	trans-1,2-Dichloroethene	360	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	trans-1,3-Dichloropropene	4.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Trichloroethene	2.8	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500

Table 9 - Surface Water Petroleum Results

Analytical Method	Analyte	Regulatory Limit	Units	SW-02		SW-03	SW-04		SW-05	SW-06	SW-07	SW-08	SW-09
				9/13/21	Duplicate	9/13/21	9/14/21	Duplicate	9/14/21	9/14/21	9/14/21	9/14/21	9/14/21
	Trichlorofluoromethane	5,200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Trichlorotrifluoroethane	10,000	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	Vinyl acetate	410	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
	Vinyl chloride	0.19	µg/L	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750
8270D SIM LV (PAHs)	1-Methylnaphthalene	11	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	2-Methylnaphthalene	36	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Acenaphthene	530	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Acenaphthylene	260	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Anthracene	43	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Benzo(a)anthracene	0.3	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Benzo(a)pyrene	0.25	µg/L	<0.0100	<0.00960	<0.00980	<0.00960	<0.00980	<0.00960	<0.00960	<0.0100	<0.00960	<0.00945
	Benzo(b)fluoranthene	2.5	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Benzo(g,h,i)perylene	0.26	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Benzo(k)fluoranthene	0.8	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Chrysene	2	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Dibenzo(a,h)anthracene	0.25	µg/L	<0.0100	<0.00960	<0.00980	<0.00960	<0.00980	<0.00960	<0.00960	<0.0100	<0.00960	<0.00945
	Fluoranthene	260	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Fluorene	290	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Indeno(1,2,3-cd)pyrene	0.19	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Naphthalene	1.7	µg/L	<0.0500	<0.0481	<0.0490	<0.0481	<0.0490	<0.0481	<0.0481	<0.0500	<0.0481	<0.0471
	Phenanthrene	170	µg/L	<0.0250	<0.0240	<0.0490 B*	<0.0481 B*	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Pyrene	120	µg/L	<0.0250	<0.0240	<0.0245	<0.0240	<0.0245	<0.0240	<0.0240	<0.0250	<0.0240	<0.0236
	Total aqueous hydrocarbons (TAqH) †	15 †	µg/L	0.445	0.427	0.461	0.451	0.436	0.427	0.427	0.445	0.427	0.420

Notes: Results reported from SGS North America work order 1214332.

Department of Environmental Conservation (DEC) regulatory limits from 18 AAC 75.345 Table C. Groundwater Cleanup Levels and 18 AAC 70.990(59) and (60).

BTEX benzene, toluene, ethylbenzene and xylenes

VOCs volatile organic compounds

TAH total aromatic hydrocarbons, or the sum of benzene, ethylbenzene, toluene, and the xylenes isomers, commonly called BTEX.

PAHs polynuclear aromatic hydrocarbons

TAqH total aqueous hydrocarbons, or the sum of EPA 625M SIM (PAH) and BTEX analyte concentrations.

† TAH and TAqH sums are calculated in accordance with DEC's April 2017 Technical Memorandum - Guidelines for Treatment of Non-Detect Values, Data Reduction for Multiple Detections and Comparison of Quantitation Limits to Cleanup Values.

mg/L milligrams per liter; equivalen to parts per million (ppm)

µg/L micrograms per liter; equivalent to parts per billion (ppb)

NS Not specified; no applicable regulatory limit exists for the associated analyte.

< Analyte was not detected; reported as <LOD.

<Bold The laboratory's limit of detection (LOD) is greater than the regulatory limit.

J Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by the laboratory.

B* Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon & Wilson, Inc. (*)

Table 10 - Sediment PFAS Results

Analytical Method	Analyte	Cleanup Level	Units	SED-01	SED-02		SED-03	SED-04		SED-05	SED-06	SED-07	SED-08	SED-09
				9/13/21	9/13/21	Duplicate	9/13/21	9/14/21	Duplicate	9/14/21	9/14/21	9/14/21	9/14/21	9/14/21
EPA 537(Mod)	Perfluorohexanesulfonic acid (PFHxS)	NS	µg/kg	<1.3	0.10 J	0.079 J	0.14 J	<0.22	<0.23	<0.23	0.17 J	0.35	0.36 J	0.038 J
	Perfluorohexanoic acid (PFHxA)	NS	µg/kg	<1.3	<0.25	0.052 J	<0.19	0.12 J	0.11 J	<0.23	<0.52	<0.33	<1.3	<0.23
	Perfluoroheptanoic acid (PFHpA)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	Perfluorononanoic acid (PFNA)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	Perfluorobutanesulfonic acid (PFBS)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	Perfluorodecanoic acid (PFDA)	NS	µg/kg	<1.3	0.080 J	0.082 J	<0.19	<0.22	<0.23	<0.23	0.20 J*	0.040 J	<1.3	<0.23
	Perfluoroundecanoic acid (PFUnA)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	0.31 J	<0.33	<1.3	<0.23
	Perfluorododecanoic acid (PFDoA)	NS	µg/kg	<1.3	0.55	0.36	<0.19	<0.22	<0.23	<0.23	0.42 J	<0.33	<1.3	<0.23
	Perfluorotridecanoic acid (PFTrDA)	NS	µg/kg	<1.3	0.18 J	0.12 J	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	Perfluorotetradecanoic acid (PFTeA)	NS	µg/kg	<1.3	0.61	0.42	<0.19	<0.22	<0.23	<0.23	0.20 J	<0.33	<1.3	<0.23
	N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NS	µg/kg	<13	<2.5	<2.3	<1.9	<2.2	<2.3	<2.3	<5.2	<3.3	<13	<2.3
	N-Ethyl perfluorooctane sulfonamidoacetic acid (N-EtFOSAA)	NS	µg/kg	<13	<2.5	<2.3	<1.9	<2.2	<2.3	<2.3	<5.2	<3.3	<13	<2.3
	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	4,8-Dioxa-3H-perfluorononanoic acid (DONA)	NS	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23
	Hexafluoropropylene oxide dimer acid (HFPO-DA)	NS	µg/kg	<1.6	<0.32	<0.29	<0.24	<0.27	<0.29	<0.29	<0.65	<0.41	<1.7	<0.29
	Perfluorooctanesulfonic acid (PFOS)	3.0	µg/kg	**<3.2**	0.83 J*	0.54 J*	1.9	<0.54	<0.59	<0.58	1.5 J*	**14**	**3.2 J***	<0.58
	Perfluorooctanoic acid (PFOA)	1.7	µg/kg	<1.3	<0.25	<0.23	<0.19	<0.22	<0.23	<0.23	<0.52	<0.33	<1.3	<0.23

Notes: Results reported from Eurofins TestAmerica, Sacramento work order 320-76365.

Regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

µg/kg micrograms per kilogram

NS Not specified; no applicable regulatory limit exists for the associated analyte.

< Analyte was not detected; reported as <RL.

<Bold The laboratory's reporting limit (RL) is greater than the regulatory limit.

Bold The detected concentration exceeds the regulatory limit for the associated analyte.

J Estimated concentration, detected greater than the detection limit (DL) and less than the RL. Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 11 - Sediment Petroleum Results

Analytical Method	Analyte	Cleanup Level	Units	SED-02 9/13/21	SED-02 Duplicate	SED-03 9/13/21	SED-04 9/14/21	SED-04 Duplicate	SED-05 9/14/21	SED-06 9/14/21	SED-07 9/14/21	SED-08 9/14/21	SED-09 9/14/21
AK101	Gasoline Range Organics	300	mg/kg	<4.82 B*	<4.09 B*	<3.73 B*	<3.85 B*	<4.19 B*	<3.88 B*	<13.7 B*	<11.2 B*	<56.3 B*	<4.31 B*
AK102	Diesel Range Organics	250	mg/kg	<79.3 B*	<74.4 B*	<71.9 B*	<35.0 B*	<30.3 B*	<23.7 B*	**299**	**509**	**307**	<23.0 B*
AK103	Residual Range Organics	11,000	mg/kg	367	333	712	150 J*	66.8 J*	60.3 J	925	2,520	1,760	87.4 J
SM21 2540G	Total Solids	NS	%	77.5	79.1	86.3	82.0	83.6	83.5	45.5	55.2	17.1	85.7
SW8260D (VOCs)	1,1,1,2-Tetrachloroethane	0.022	mg/kg	<0.0193	<0.0164	<0.0150	<0.0154	<0.0168	<0.0156	**<0.0550**	**<0.0449**	**<0.225**	<0.0173
	1,1,1-Trichloroethane	32	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	1,1,2,2-Tetrachloroethane	0.003	mg/kg	<0.00193	<0.00164	<0.00150	<0.00154	<0.00168	<0.00156	**<0.00550**	**<0.00449**	**<0.0225**	<0.00173
	1,1,2-Trichloroethane	0.0014	mg/kg	<0.000770	<0.000655	<0.000595	<0.000615	<0.000670	<0.000620	**<0.00220**	**<0.00179**	**<0.00900**	<0.000690
	1,1-Dichloroethane	0.092	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	**<0.281**	<0.0216
	1,1-Dichloroethene	1.2	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	1,1-Dichloropropene	NS	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	1,2,3-Trichlorobenzene	0.15	mg/kg	<0.0483	<0.0410	<0.0373	<0.0384	<0.0418	<0.0388	<0.138	<0.112	**<0.565**	<0.0431
	1,2,3-Trichloropropane	0.000031	mg/kg	**<0.00193**	**<0.00164**	**<0.00150**	**<0.00154**	**<0.00168**	**<0.00156**	**<0.00550**	**<0.00449**	**<0.0225**	**<0.00173**
	1,2,4-Trichlorobenzene	0.082	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	**<0.281**	<0.0216
	1,2,4-Trimethylbenzene	0.61	mg/kg	<0.0483	<0.0410	<0.0373	<0.0384	<0.0418	<0.0388	<0.138	<0.112	<0.565	<0.0431
	1,2-Dibromo-3-chloropropane	NS	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	<1.13	<0.0860
	1,2-Dibromoethane	0.00024	mg/kg	**<0.000965**	**<0.000820**	**<0.000745**	**<0.000770**	**<0.000835**	**<0.000775**	**<0.00275**	**<0.00225**	**<0.0113**	**<0.000860**
	1,2-Dichlorobenzene	2.4	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	1,2-Dichloroethane	0.0055	mg/kg	<0.00193	<0.00164	<0.00150	<0.00154	<0.00168	<0.00156	**<0.00550**	<0.00449	**<0.0225**	<0.00173
	1,2-Dichloropropane	0.03	mg/kg	<0.00965	<0.00820	<0.00745	<0.00770	<0.00835	<0.00775	<0.0275	<0.0225	**<0.113**	<0.00860
	1,3,5-Trimethylbenzene	0.66	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	1,3-Dichlorobenzene	2.3	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	1,3-Dichloropropane	NS	mg/kg	<0.00965	<0.00820	<0.00745	<0.00770	<0.00835	<0.00775	<0.0275	<0.0225	<0.113	<0.00860
	1,4-Dichlorobenzene	0.037	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	**<0.0685**	**<0.0560**	**<0.281**	<0.0216
	2,2-Dichloropropane	NS	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	2-Butanone (MEK)	15	mg/kg	<0.241	<0.204	<0.187	<0.193	<0.209	<0.194	<0.685	<0.560	<2.81	<0.216
	2-Chlorotoluene	NS	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	2-Hexanone	0.11	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	**<0.275**	**<0.225**	**<1.13**	<0.0860
	4-Chlorotoluene	NS	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	Acetone	38	mg/kg	<0.241	<0.204	<0.187	<0.193	<0.209	<0.194	0.456J	<0.560	<2.81	<0.216
	Benzene	0.022	mg/kg	<0.0121	<0.0103	<0.00935	<0.00960	<0.0104	<0.00970	**<0.0343**	**<0.0280**	**<0.141**	<0.0108
	Bromobenzene	0.36	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	Bromochloromethane	NS	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	Bromodichloromethane	0.0043	mg/kg	<0.00193	<0.00164	<0.00150	<0.00154	<0.00168	<0.00156	**<0.00550**	**<0.00449**	**<0.0225**	<0.00173
	Bromoform	0.1	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	**<0.281**	<0.0216
	Bromomethane	0.024	mg/kg	<0.0193	<0.0164	<0.0150	<0.0154	<0.0168	<0.0156	**<0.0550**	**<0.0449**	**<0.225**	<0.0173
	Carbon disulfide	2.9	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	<1.13	<0.0860
	Carbon tetrachloride	0.021	mg/kg	<0.0121	<0.0103	<0.00935	<0.00960	<0.0104	<0.00970	**<0.0343**	**<0.0280**	**<0.141**	<0.0108
	Chlorobenzene	0.46	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	Chloroethane	72	mg/kg	<0.193	<0.164	<0.149	<0.154	<0.168	<0.156	<0.550	<0.449	<2.25	<0.172
	Chloroform	0.0071	mg/kg	<0.00386	<0.00328	<0.00298	<0.00308	<0.00335	<0.00311	**<0.0110**	**<0.00895**	**<0.0451**	<0.00345
	Chloromethane	0.61	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	cis-1,2-Dichloroethene	0.12	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	**<0.281**	<0.0216
	cis-1,3-Dichloropropene	0.018	mg/kg	<0.0121	<0.0103	<0.00935	<0.00960	<0.0104	<0.00970	**<0.0343**	**<0.0280**	**<0.141**	<0.0108
	Dibromochloromethane	0.0027	mg/kg	**<0.00483**	**<0.00409**	**<0.00373**	**<0.00384**	**<0.00419**	**<0.00388**	**<0.0138**	**<0.0112**	**<0.0565**	**<0.00431**
	Dibromomethane	0.025	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	**<0.0685**	**<0.0560**	**<0.281**	<0.0216
	Dichlorodifluoromethane	3.9	mg/kg	<0.0483	<0.0410	<0.0373	<0.0384	<0.0418	<0.0388	<0.138	<0.112	<0.565	<0.0431
	Ethylbenzene	0.13	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	**<0.281**	<0.0216
	Hexachlorobutadiene	0.02	mg/kg	<0.0193	<0.0164	<0.0150	<0.0154	<0.0168	<0.0156	**<0.0550**	**<0.0449**	**<0.225**	<0.0173
	Isopropylbenzene	5.6	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	m,p-xylenes	1.5	mg/kg	<0.0483	<0.0410	<0.0373	<0.0384	<0.0418	<0.0388	<0.138	<0.112	<0.565	<0.0431
	Methyl isobutyl ketone	18	mg/kg	<0.241	<0.204	<0.187	<0.193	<0.209	<0.194	<0.685	<0.560	<2.81	<0.216

	Methylene chloride	0.33	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	**<1.13**	<0.0860
	Methyl-t-butyl ether (MTBE)	0.4	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	**<1.13**	<0.0860
	Naphthalene	0.038	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	**<0.0685**	**<0.0560**	**<0.281**	<0.0216
	n-Butylbenzene	23	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	n-Propylbenzene	9.1	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	o-Xylene	1.5	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	p-Isopropyltoluene	NS	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	<1.13	<0.0860
	sec-Butylbenzene	42	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	Styrene	10	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	tert-Butylbenzene	11	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	Tetrachloroethene	0.19	mg/kg	<0.0121	<0.0103	<0.00935	<0.00960	<0.0104	<0.00970	<0.0343	<0.0280	<0.141	<0.0108
	Toluene	6.7	mg/kg	<0.0241	<0.0204	0.0470	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	0.197 J	<0.0216
	Total Xylenes	1.5	mg/kg	<0.0725	<0.0615	<0.0560	<0.0575	<0.0630	<0.0580	<0.206	<0.168	<0.845	<0.0645
	trans-1,2-Dichloroethene	1.3	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0216
	trans-1,3-Dichloropropene	0.018	mg/kg	<0.0121	<0.0103	<0.00935	<0.00960	<0.0104	<0.00970	**<0.0343**	**<0.0280**	**<0.141**	<0.0108
	Trichloroethene	0.011	mg/kg	<0.00483	<0.00409	<0.00373	<0.00384	<0.00419	<0.00388	**<0.0138**	**<0.0112**	**<0.0565**	<0.00431
	Trichlorofluoromethane	41	mg/kg	<0.0483	<0.0410	<0.0373	<0.0384	<0.0418	<0.0388	<0.138	<0.112	<0.565	<0.0431
	Trichlorotrifluoroethane	310	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	<1.13	<0.0860
	Vinyl acetate	1.1	mg/kg	<0.0965	<0.0820	<0.0745	<0.0770	<0.0835	<0.0775	<0.275	<0.225	**<1.13**	<0.0860
	Vinyl chloride	0.0008	mg/kg	<0.000770	<0.000655	<0.000595	<0.000615	<0.000670	<0.000620	**<0.00220**	**<0.00179**	**<0.00900**	<0.000690
8270D SIM (PAHs)	1-Methylnaphthalene	0.41	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	2-Methylnaphthalene	1.3	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Acenaphthene	37	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Acenaphthylene	18	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Anthracene	390	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Benzo(a)anthracene	0.7	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Benzo(a)pyrene	1.9	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Benzo(b)fluoranthene	20	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Benzo(g,h,i)perylene	15,000	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Benzo(k)fluoranthene	190	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Chrysene	600	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Dibenzo(a,h)anthracene	6.3	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Fluoranthene	590	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Fluorene	36	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Indeno(1,2,3-cd)pyrene	65	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Naphthalene	0.038	mg/kg	**<0.0630**	<0.0126	—	—	—	—	—	—	—	—
	Phenanthrene	39	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—
	Pyrene	87	mg/kg	<0.0790	<0.0157	—	—	—	—	—	—	—	—

Notes: Results reported from SGS North America work order 1214339.

Regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater).

VOCs volatile organic compounds

PAHs polynuclear aromatic hydrocarbons

mg/kg miligrams per kilogram

— No applicable regulatory limit exists for the associated analyte.

NS Not specified; no applicable regulatory limit exists for the associated analyte.

< Analyte was not detected; reported as <LOD.

<Bold The laboratory's limit of detection (LOD) is greater than the regulatory limit.

Bold The detected concentration exceeds the regulatory limit for the associated analyte.

J Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by the laboratory.

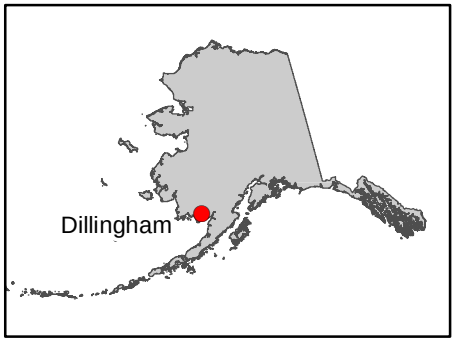
B* Result is included in the same preparatory batch as a blank detection for the associated analyte. Flag applied by Shannon & Wilson, Inc. (*)

LEGEND

Airport Boundary

0 0.25 0.5

Miles



N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

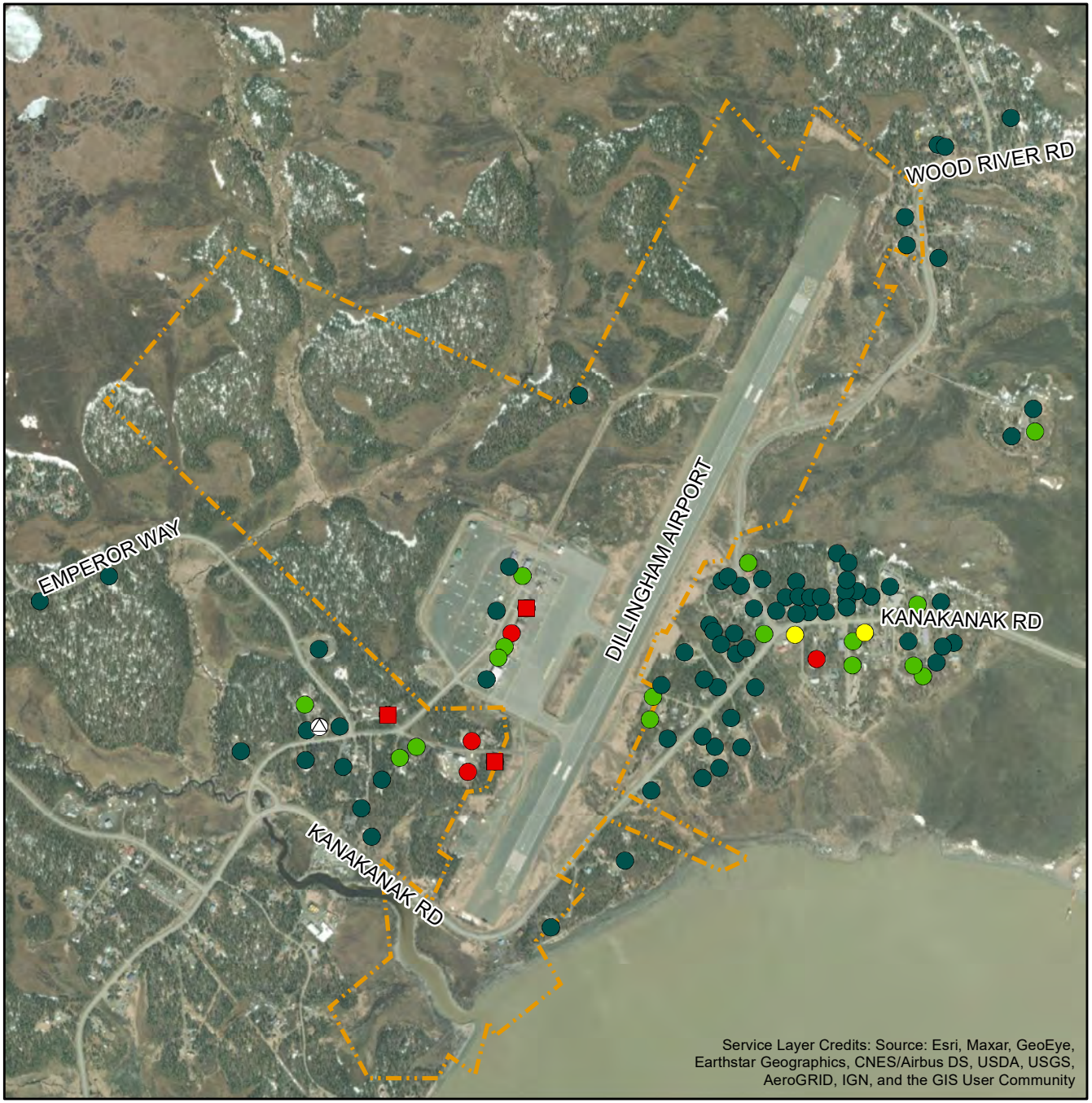
VICINITY MAP

May 2023

102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1



LEGEND

- Sum of PFOS + PFOA ≤ 17 nanograms per liter (ng/L)
- 2.1 to 17 ng/L
- 18 to 34 ng/L
- 35 to 69 ng/L
- ≥ 70 ng/L (over EPA advisory)
- Refusal
- Property considered affected before April 2019, compared to former DEC action level*
- Airport Boundary

0 0.25 0.5

Miles

N

*Sum of PFOS, PFOA, PFHxS, PFHpA and PFNA

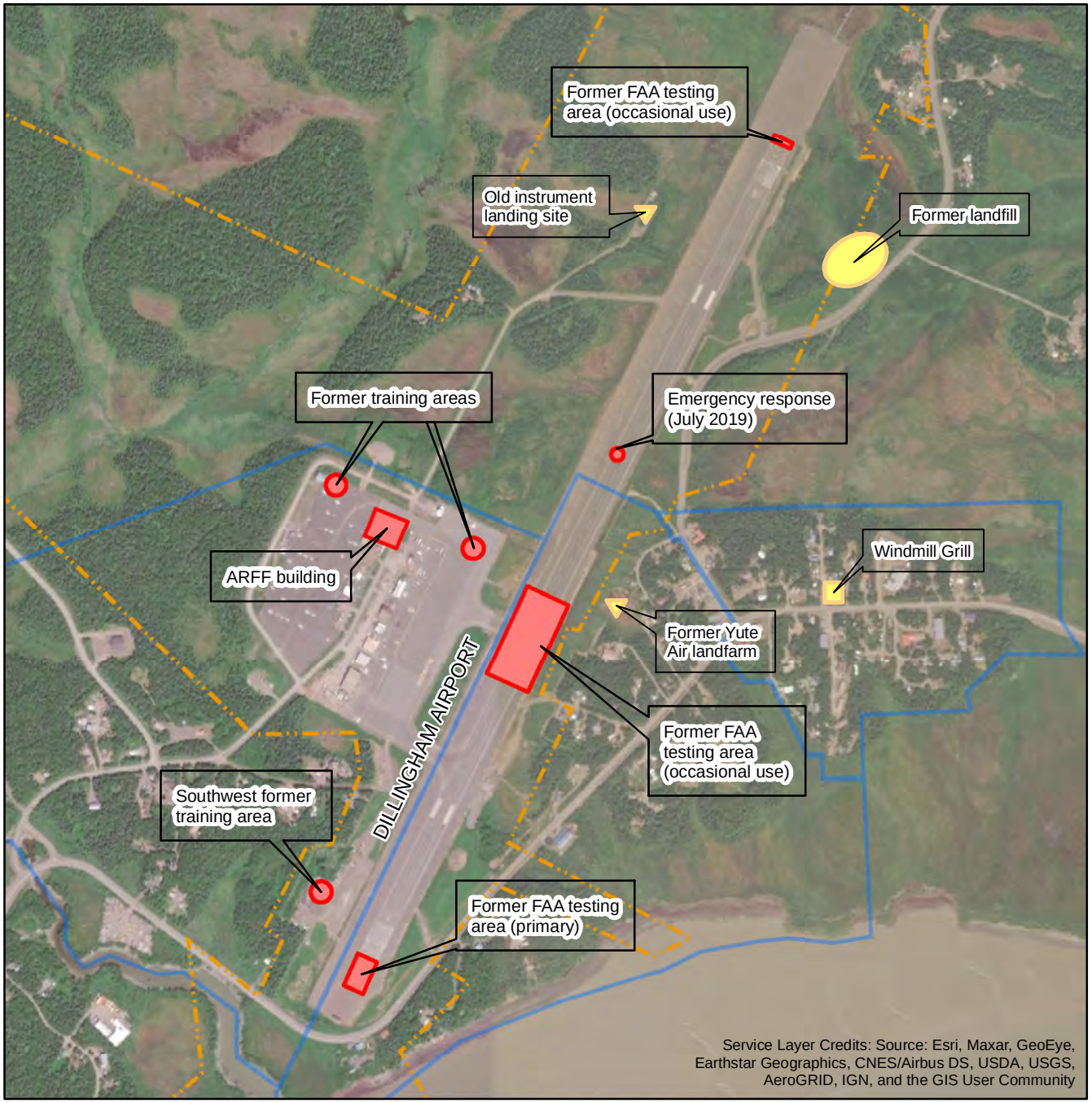
Dillingham Airport
Dillingham, Alaska

HIGHEST WATER SUPPLY WELL RESULTS

May 2023 102581

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 2



LEGEND

- Aircraft Rescue and Firefighting (ARFF) Site
- Potential Secondary PFAS Source
- Well Search Areas
- Airport Boundary

0 1,000 2,000

Feet

N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

AFFF RELEASE AREAS

May 2023 102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 3

LEGEND

2021 Site Characterization Sample Locations

- Soil Boring
- Soil Boring and Monitoring Well
- Surface Water and Sediment
- Surface Soil
- Surface Soil Grid
- Airport Boundary

N

0 1,000 2,000

Feet

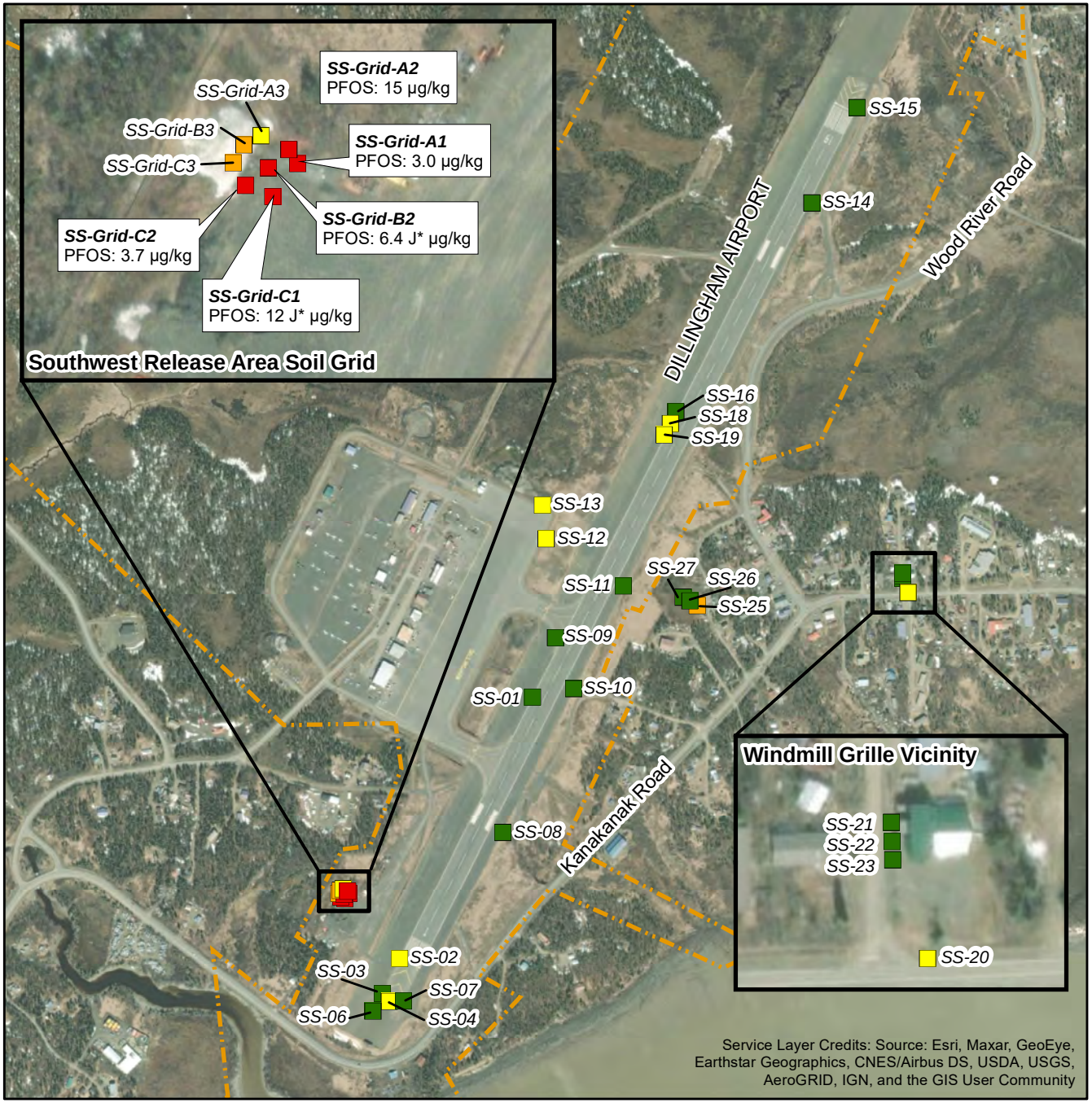
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SAMPLE LOCATIONS OVERVIEW

May 2023 102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 4



LEGEND

PFOS Analytical Result

- Not Detected
- ≤ 1.4 microgram per kilogram (µg/kg)
- 1.5 to 2.9 µg/kg
- ≥ 3.0 µg/kg (DEC Cleanup Level)
- Airport Boundary

NOTES:
See Table 1 through Table 3 for Analytical Results.
Highest of duplicate pair result displayed.
The concentrations are called out for samples with analyte exceedance(s).
J*: Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

0 1,000 2,000
Feet

N

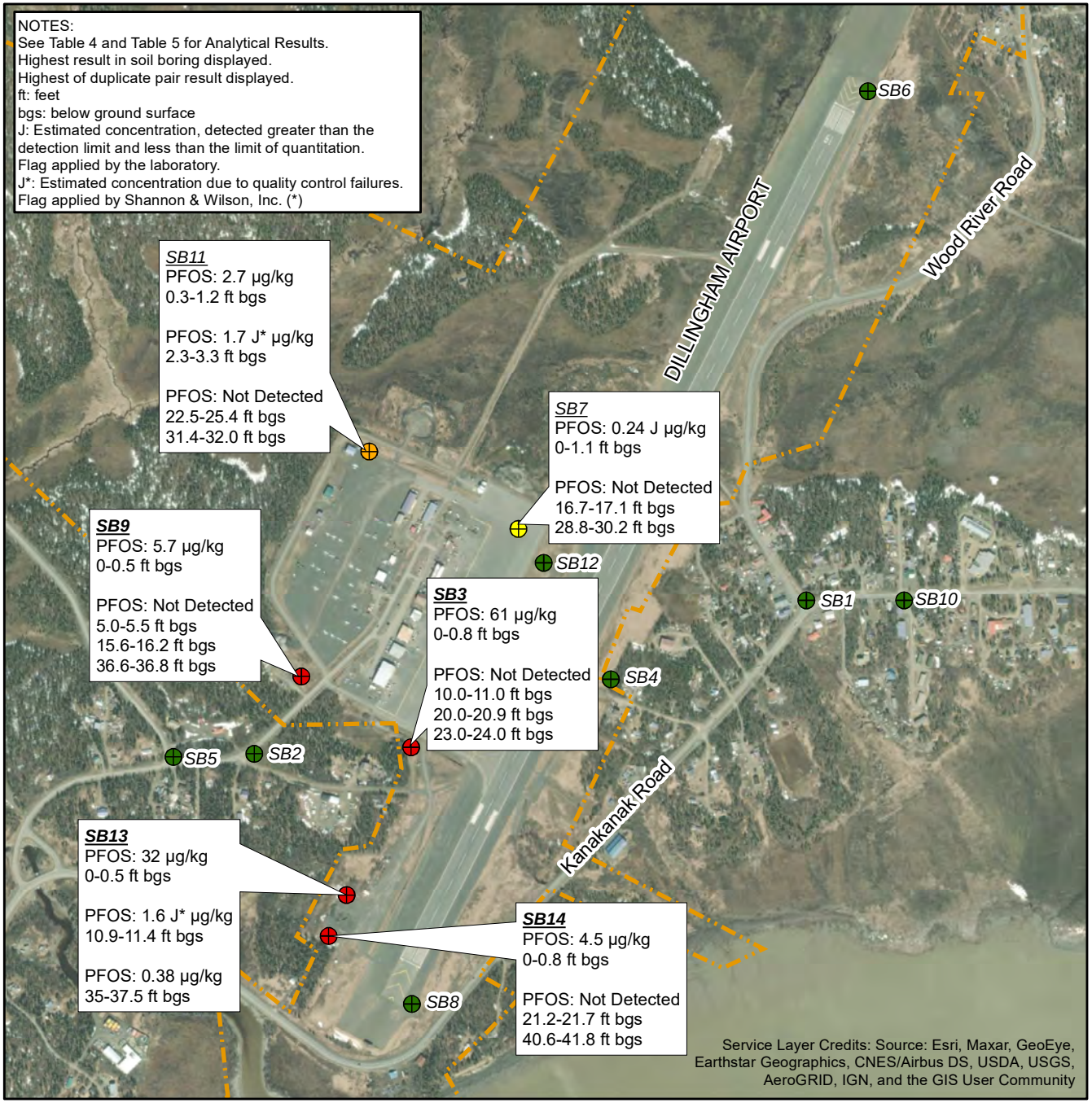
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SURFACE SOIL PFOS SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 5



LEGEND

PFOS Analytical Result

- Not Detected
- ≤ 1.4 microgram per kilogram (µg/kg)
- 1.5 to 2.9 µg/kg
- ≥ 3.0 µg/kg (DEC Cleanup Level)
- Airport Boundary

0 1,000 2,000

Feet

N

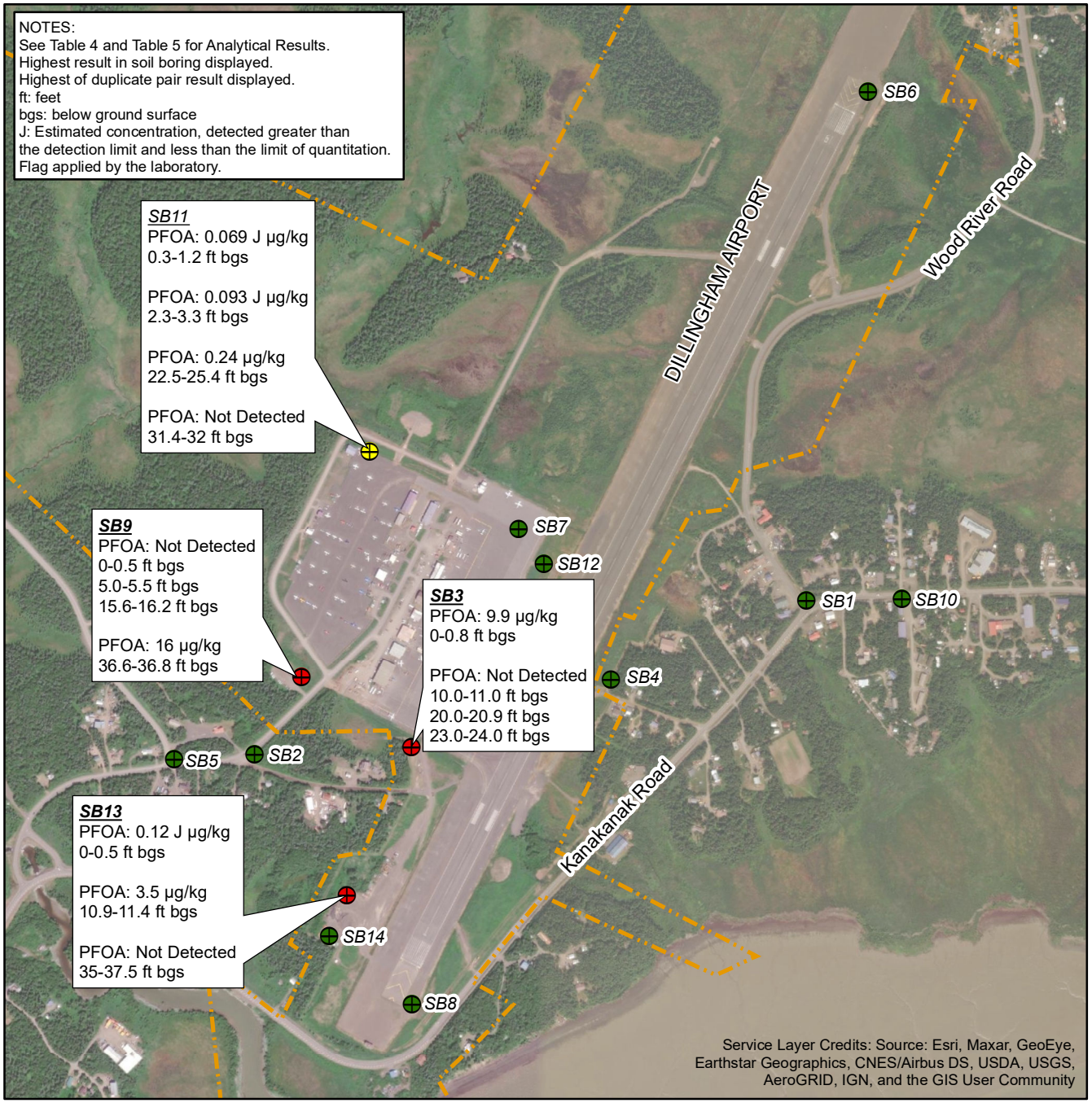
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SOIL BORING PFOS SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 6



LEGEND

PFOA Analytical Result

- Not Detected
- ≤ 1.6 microgram per kilogram (µg/kg)
- ≥ 1.7 µg/kg (DEC Cleanup Level)
- Airport Boundary

0 1,000 2,000

Feet

N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SOIL BORING PFOA SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 7

LEGEND

Analytical Result for Any PFAS Compound

- ≤ 2.0 nanograms per liter (ng/L)
- 2.1 to 34 ng/L
- 35 to 399 ng/L
- ≥ 400 ng/L (DEC Cleanup Level for PFOS and PFOA)
- Airport Boundary

0 1,000 2,000

Feet

N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SHALLOW MONITORING WELL PFAS & DRO SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 8

LEGEND

Analytical Result for Any PFAS Compound

- ≤ 2.0 nanograms per liter (ng/L)
- 2.1 to 34 ng/L
- 35 to 399 ng/L
- ≥ 400 ng/L (DEC Cleanup Level for PFOS and PFOA)
- Airport Boundary

0 1,000 2,000

Feet

N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

MID-DEPTH MONITORING WELL PFAS SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 9

LEGEND

Analytical Result for Any PFAS Compound

- ≤ 2.0 nanograms per liter (ng/L)
- 2.1 to 34 ng/L
- 35 to 399 ng/L
- Airport Boundary

0 1,000 2,000

Feet

N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

DEEP MONITORING WELL PFAS SAMPLE RESULTS

May 2023

102581-009

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 10

LEGEND

Analytical Result for Any PFAS Compound

- ≤ 2.0 nanograms per liter (ng/L)
- 2.1 to 34 ng/L
- 35 to 399 ng/L
- ≥ 400 ng/L (DEC Cleanup Level for PFOS and PFOA)
- Airport Boundary

0 1,000 2,000

Feet

N

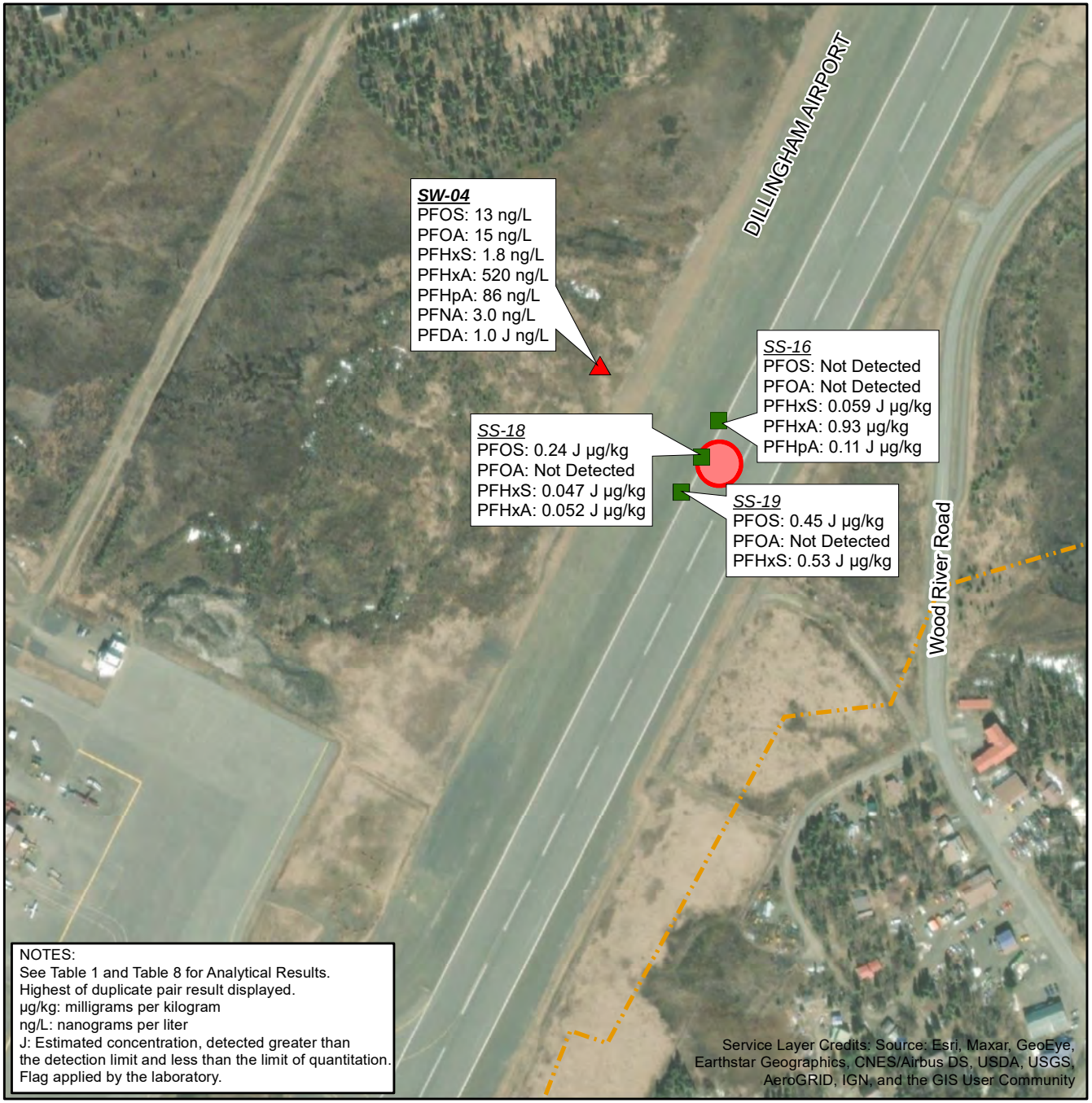
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SURFACE WATER PFAS SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 11



LEGEND

Analytical Result for Any PFAS Compound

Surface Water Sample

≥ 400 nanograms per liter (ng/L; DEC Cleanup Level for PFOS and PFOA)

Surface Soil Sample

≤ 2.0 micrograms per kilogram (µg/kg)

Aircraft Rescue and Firefighting (ARFF) Site

Airport Boundary

0 250 500

Feet

N

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

EMERGENCY RESPONSE AREA SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 12

LEGEND

PFOS Analytical Result

- Not Detected
- ≤ 1.4 microgram per kilogram (µg/kg)
- 1.5 to 2.9 µg/kg
- ≥ 3.0 µg/kg (DEC Cleanup Level)
- Airport Boundary

0 1,000 2,000

Feet

N

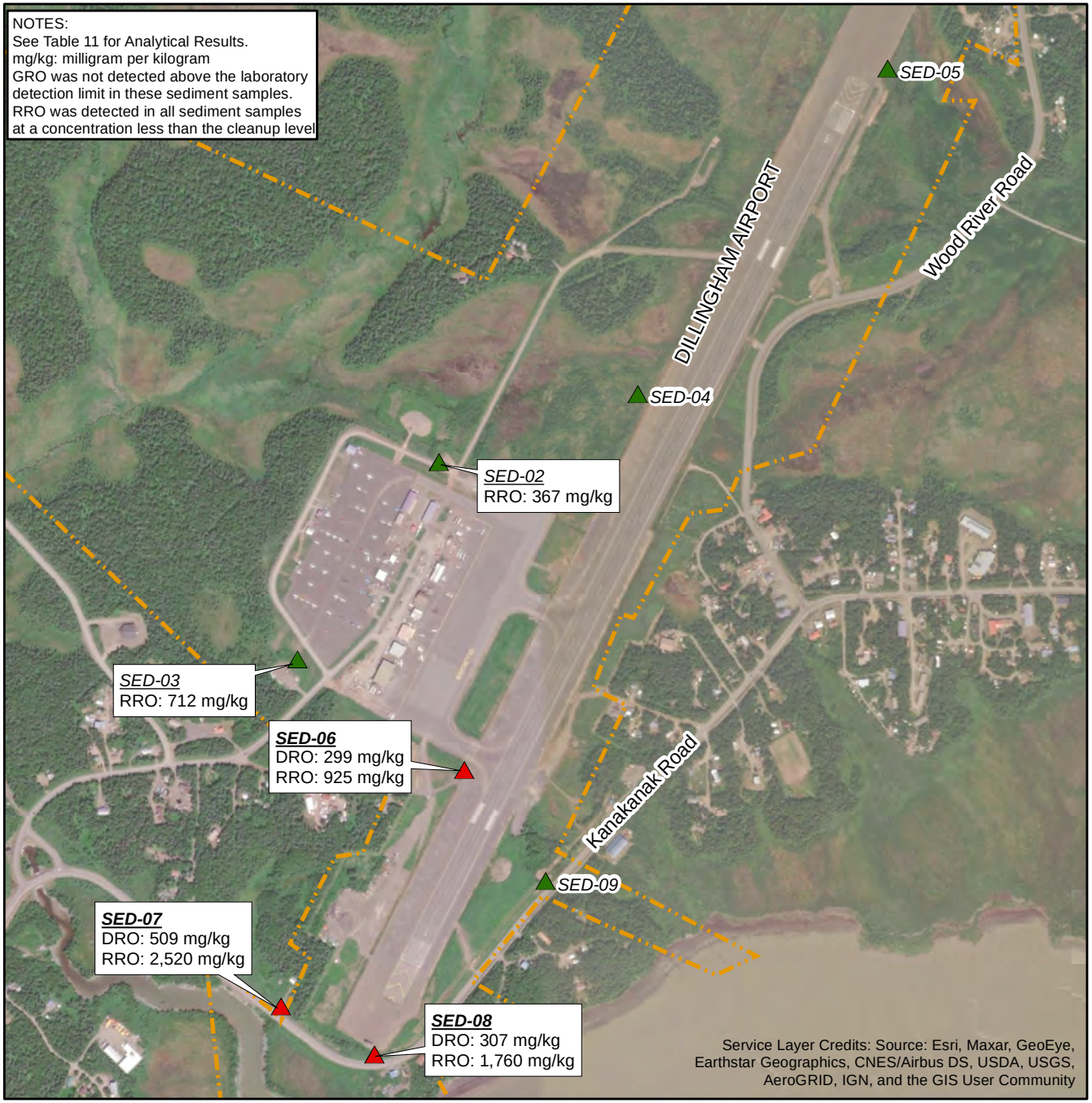
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SEDIMENT PFOS SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 13



LEGEND

Petroleum Compound Analytical Result

- Analyte(s) Do Not Exceed DEC Cleanup Levels
- Analyte(s) Exceed DEC Cleanup Level for DRO
- Airport Boundary

0 1,000 2,000

Feet

N

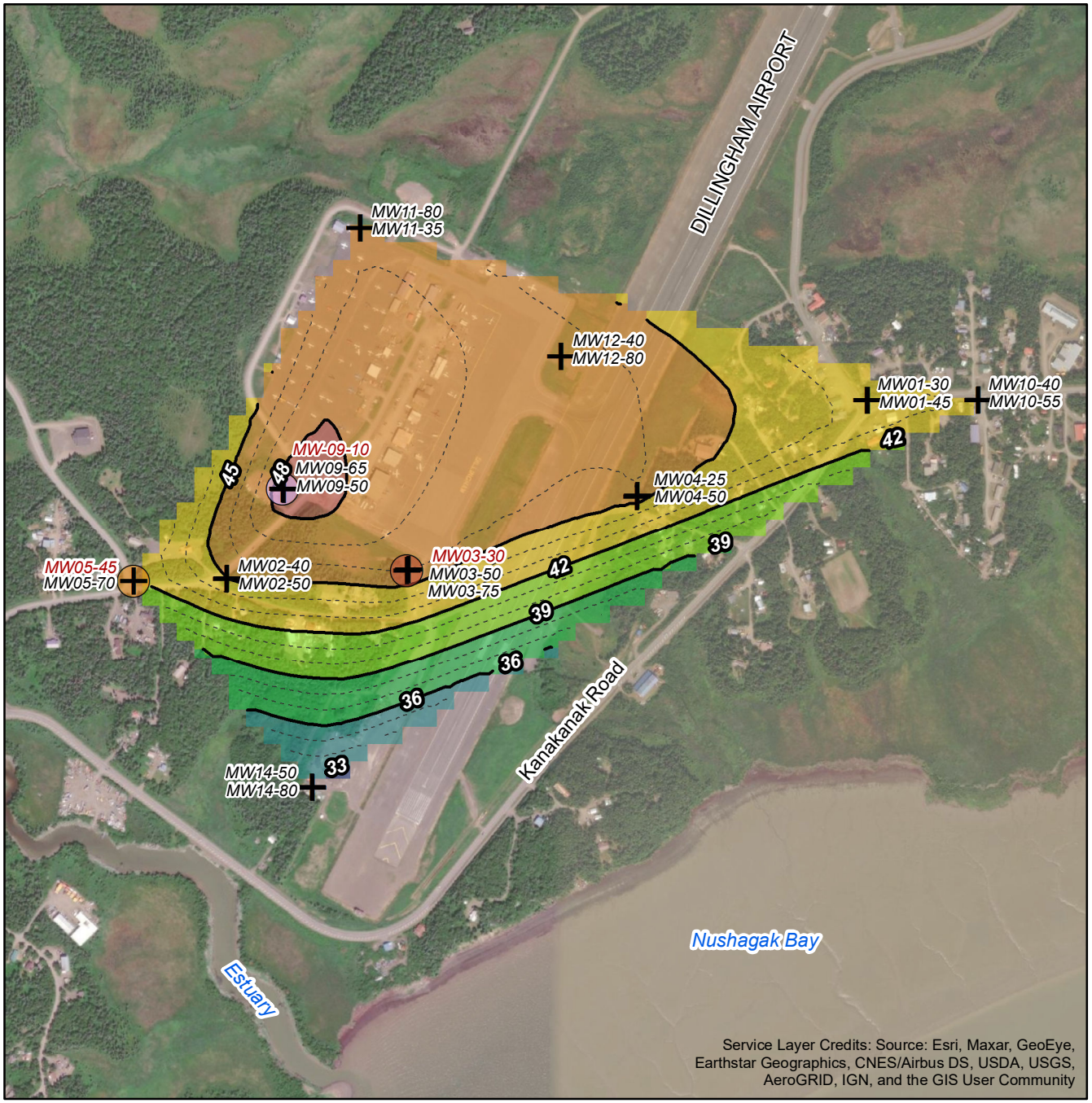
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SEDIMENT PETROLEUM SAMPLE RESULTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 14



LEGEND

Elevation of Groundwater Surface in July 2021

- 32.6 to 33 feet
- 33.1 to 36 feet
- 36.1 to 39 feet
- 39.1 to 42 feet
- 42.1 to 45 feet
- 45.1 to 48 feet
- 48.1 to 51 feet
- >51.1 feet
- Well Cluster
- Possible Perched Zone (well names in red)

0 500 1,000 1,500

Feet

N

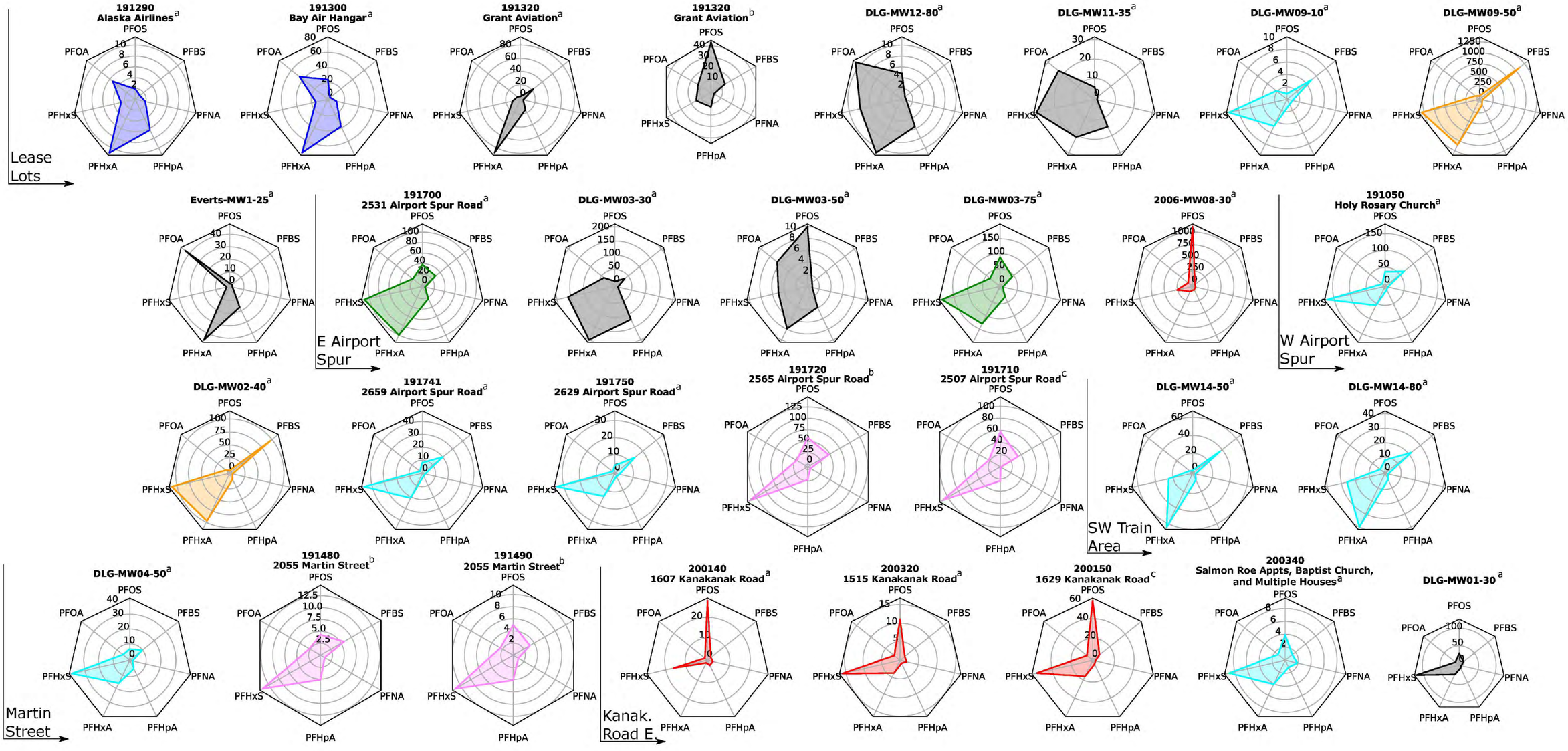
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

GROUNDWATER SURFACE ELEVATIONS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 15



NOTES

a. Analytical data from June/July 2021.
b. Analytical data from Feb/March 2019, PFHxA results unavailable.
c. Analytical data from November 2019, PFHxA results unavailable.

Spider plots are colorized based on interpretation of similar chemical signatures; gray plots indicated individual or non-repeating chemical signatures (no associated signatures).

Concentrations are displayed in nanograms per liter (ng/L)

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

PFAS SPIDER PLOTS

May 2023 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure16

Filename: C:\Users\jrs\CAD Group Dropbox\JDrive_SEA\102581\009\102581-009 PFAS Spider Plots.dwg Layout: Figure 16 Date: 12-13-2021 Login: JRS

APPENDIX A: PERMITS AND APPROVALS

Appendix A

Permits and Approvals

CONTENTS

- FAA 7460-1 Airspace Permit
- DEC Revised GWP Addendum Approval Letter
- DOT&PF Aviation Leasing Building Permit
- DOT&PF Lane Closure Permit
- DEC Contaminated Media Transport and Treatment or Disposal Approval Form
- Clean Harbors Non-Hazardous Waste Manifest

Federal Aviation Administration

June 15, 2021

TO:
DOT&PF Central Region
Attn: Michael Cook
PO Box 196900
Anchorage, AK 99519
michael.cook@alaska.gov

CC:
ALASKA DOT&PF CENTRAL REGION
P O BOX 196900
ANCHORAGE, AK 99519-6900
jenelle.brinkman@alaska.gov

CC:
Shannon & Wilson, Inc.
Attn: Marcy Nadel
2355 Hill Road
Fairbanks, AK 99709
mdn@shanwil.com

RE: *(See attached Table 1 for referenced case(s))*
FINAL DETERMINATION

Table 1 - Letter Referenced Case(s)

ASN	Prior ASN	Location	Latitude (NAD83)	Longitude (NAD83)	AGL (Feet)	AMSL (Feet)
2021-AAL-133-NRA		DILLINGHAM,AK	59-02-40.80N	158-30-19.80W	16	96

Description: Shannon & Wilson, Inc. is contracted to DOT&PF to conduct an environmental site characterization effort for per- and polyfluorinated alkyl substances (PFAS) at and near the Dillingham Airport. This effort will require the use of a drill rig at two locations within the Runway Safety Area for up to one hour each (Figure 1). Additional drilling is planned to install nests of groundwater monitoring wells outside movement areas (Figure 2). We anticipate monitoring well installation within the Dillingham Airport fence will take about 10 days. There will be no permanent height change after project completion.

We do not object to the construction described in this proposal provided:

You comply with the requirements set forth in FAA Advisory Circular 150/5370-2, "Operational Safety on Airports During Construction."

Operation of the drill rig during Phase 1 will occur inside the Runway Safety Area (RSA) at each threshold end of PADL RW-01/19. Given the location of the drill rig and the duration of operation, the sponsor is encouraged to request a temporary runway closure through the Dillingham Airport Manager. If DLG RW-01/19 is closed to accommodate Phase 1 drilling operations inside the RSA, FAA policy requires shutdown of the associated runway navigational aids, including DLG LOC RW-19 for the duration of the runway closure period. The purpose of this policy is to minimize pilot risk of landing to a closed or altered runway by inadvertent use of operational landing aids. While the drill rig is set up and operating at the RW-01 threshold, it will be inside the ILS Critical Area associated with DLG LOC RW-19. Therefore, it will be necessary to shutdown DLG LOC RW-19 until the drill rig vacates the site. When the runway is open and the drill rig is clear of the LOC Critical Area, DLG LOC RW-19 may be returned to service. Coordinate navaid outages for FAA equipment with the FAA King Salmon System Support Center (AKN SSC) Manager, Krista Jeppson at 907-301-9892. Recommend 30 days advance notice for runway closure and visaid outages to AKN SSC Manager to arrange the schedule for the navaid outage, assign on-site technical support, and ensure timely issuance of all required NOTAMs. Surveillance: No Objection; Weather: The proposal, drilling the phase 2 monitoring well nest by taxiway A, violates the criteria given in the siting standard, Federal Aviation Administration (FAA) Order 6560.20, for

the Automated Weather Observing System (AWOS) serving Dillingham Airport (DLG), Dillingham, Alaska (AK). The proposal is expected to generate significant dust or smoke in the vicinity of the facility. Appropriate measures should be implemented that will prohibit significant dust or smoke from intruding upon the AWOS facility. If not possible, a Notice to Airmen (NOTAM) should be issued warning pilots of the potential for inaccurate or unreliable DLG AWOS data. In addition, the facility may require extra maintenance, calibration, and/or general cleaning with special attention being paid to the visibility sensors and the Motor Aspirated Radiation Shield (MARS) unit. Contact the Network Enterprise Management Center System Operations Center (NEMC SOC) prior to the start of the project in order to schedule any necessary service outages and/ or maintenance. NEMC SOC: 855-FAA-NEMC (855-322-6362), Option #1 for an NEMC and then Option #3 for a Team Lead. Operation of the drill rig during Phase 1 will occur inside the Runway Safety Area (RSA) at each threshold end of PADL RW-01/19. Given the location of the drill rig and the duration of operation, the sponsor is encouraged to request a temporary runway closure through the Dillingham Airport Manager. If DLG RW-01/19 is closed to accommodate Phase 1 drilling operations inside the RSA, FAA policy requires shutdown of the associated runway navigational aids, including DLG PAPI RW-01, DLG ODALS RW-19, and DLG-A VASI RW-19 for the duration of the runway closure period. The purpose of this policy is to minimize pilot risk of landing to a closed or altered runway by inadvertent use of operational landing aids. Coordinate outages for FAA visaid equipment with the FAA King Salmon System Support Center (AKN SSC) Manager, Krista Jeppson at 907-301-9892. Recommend 30 days advance notice for runway closure and visaid outages to AKN SSC Manager to arrange the schedule for the outage, assign on-site technical support, and ensure timely issuance of all required NOTAMs.

You comply with Chapters 3, 4, 5 of Advisory Circular 70/7460-1M, Obstruction Marking and Lighting.

A separate notice to the FAA is required for any construction equipment, such as temporary cranes, whose working limits would exceed the height and lateral dimensions of your proposal.

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

This determination expires on December 15, 2022 unless:
(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for the completion of construction, or the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be obtained at least 15 days prior to expiration date specified in this letter.

If you have any questions concerning this determination contact Ryan Feil (907) 271-5202 Ryan.Feil@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-AAL-133-NRA.

Ryan Feil
Specialist
Signature Control No: 479412418-484869291

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

SPILL PREVENTION & RESPONSE
Contaminated Sites Program

610 University Avenue
Fairbanks, Alaska 99709
Main: 907.451.2143
Fax: 907.451.2155
www.dec.alaska.gov

File: 2540.38.023

June 23, 2021

electronic transmittal only
Ms. Samantha Cummings
Alaska Department of Transportation and Public Facilities
PO Box 627
Delta Junction, AK 99737

RE: ADOT&PF Dillingham Airport Sitewide PFAS; Revised Initial Site Characterization Work Plan Addendum 005-DLG-01

Dear Ms. Cummings:

The Alaska Department of Environmental Conservation (DEC) has received and reviewed the revised Initial Site Characterization Work Plan Addendum to the DOT&PF Statewide General PFAS Work Plan, which describes planned work at the ADOT&PF Dillingham Airport Sitewide PFAS contaminated site. The addendum describes the planned installation of several soil borings and monitoring well nests of varying depths, along with sampling of surface and subsurface soil, groundwater, surface water, and sediment.

Comments to the work plan addendum were submitted to DOT on April 23, 2021. Following brief discussion and clarification, the DEC received responses to comments and a revised addendum on May 26. The DEC has two additional comments, both regarding the analytical methods to be employed at the site.

1) Water Quality Standards that apply to surface water require analysis for TAH and TAqH when petroleum related compounds are COCs or COPCs. Please add this analysis to surface water samples.
2) DEC recommends to expand the VOC analytes list to include the whole list for method 8260 or 8021 (for all media) rather than reporting BTEX only, as it is likely that DEC will require analysis for other VOCs prior to site closure.

Following email and verbal confirmation that DOT accepts these comments, the DEC approves the addendum on the condition that the analyses described above are completed.

If you or your consultants have any questions or concerns, please feel free to contact me at (907)451-2153 or via email at robert.burgess@alaska.gov.

Sincerely,

Robert Burgess
Environmental Program Specialist

cc (via email):
Michael Cook; ADOT&PF
Renee Goentzel; ADOT&PF
Marcy Nadel; Shannon & Wilson, Inc.
Kristen Freiburger; Shannon & Wilson, Inc.
Bill O'Connell; ADEC

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
AVIATION LEASING
CENTRAL REGION

Building Permit Certificate

By this Permit, Shannon & Wilson, Inc. is authorized to perform the following work on MISC: PFAS CHARACTERIZATION at Dillingham Airport under Lease ADA # 09485:

Authorized Activities

Sampling existing monitoring wells; collecting surface soil samples; installing two (2) groundwater monitoring wells; and advancing a soil boring.

No construction or demolition other than that specifically stated above is authorized by this Permit. For construction changes or additions, contact the State of Alaska, Department of Transportation and Public Facilties.

These activities must comply with all provisions provided in the enclosed addendum and letter.

Signed: Willie L Duran

Title: Chief, Aviation Leasing

Date: July 07, 2021

THIS PERMIT EXPIRES AT MIDNIGHT ON JULY 31, 2021.

Post This Building Permit Certificate and addendum at the Construction Site

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Transportation and Public Facilities

STATEWIDE AVIATION LEASING
Central Region

Main: (907) 269-0740
Fax: (907) 269-0489

July 07, 2021

Re: Dillingham
Lease ADA # 09485
Building Permit Exp.: 07/31/2021
Transmittal of Building Permit Certificate

Shannon & Wilson, Inc.
2355 Hill Road
Fairbanks AK 99709

Dear Shannon & Wilson, Inc.:

Enclosed is the approved Building Permit Certificate approving the following activities:
sampling existing monitoring wells; collecting surface soil samples; installing two (2) groundwater monitoring wells; and advancing a soil boring..

Please post the certificate and the enclosed addendum on your site in a conspicuous location at the work site, preferably under a clear plastic cover to protect it from damage, until work completion.

Be sure you or your contractor coordinates activities with the Airport Manager. Please call me if you have questions.

Sincerely,

Brandon Tucker
Airport Leasing Specialist
(907) 269-0742
brandon.tucker@alaska.gov

Enc. Building Permit Certificate
cc.: Dillingham Airport Manager

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
ANCHORAGE OFFICE OF
AVIATION LEASING
JULY 07, 2021

BUILDING PERMIT ADDENDUM

This addendum must be posted with the Building Permit certificate.

Shannon & Wilson, Inc. under Lease ADA # 09485 shall meet the following requirements during the work on MISC: PFAS CHARACTERIZATION at Dillingham. The associated certificate expires at MIDNIGHT on July 31, 2021.

Please review the "Improvements" section of your Lease or Permit agreement to ensure you comply with the provisions and restrictions regarding building on your lease lot.

Only construction or demolition that is specifically stated on the Building Permit Certificate is authorized.

Prior to commencing work, coordinate your proposed access and activities on the Airport with the Airport Manager.

All work must be approved by the State of Alaska Airport Safety & Security Officer and be in compliance with the Airport Security Plan.

Keep all personnel and equipment clear of the Runway Safety Area.

As-builts are due no more than 90 days after completion of construction.

All demolition and/or construction must be performed in compliance with applicable portions of the TSA-approved Airport Safety Program and the FAA-approved Airport Certification Manual.

For construction changes or additions to your Building Permit application, please contact the State of Alaska, Department of Transportation & Public Facilities, Statewide Aviation Leasing office.

State of Alaska
Department of Transportation and Public Facilities

Lane Closure Permit (LCP) 31020

This permit allows the permittee to use a State owned highway Right of Way for access to, or construction and maintenance activities related to, physically contiguous land during construction, alteration, or maintenance improvements, or to allow access to utility facilities for which a permit has been issued.

Applicant:	**Shannon and Wilson Inc.**
Mailing Address:	2355 Hill Road
	Fairbanks, AK 99709
Contact Name:	Marcy Nadel
E-mail Address:	mdn@shanwil.com
Phone:	(907) 458-3150

Traffic Control Provided by: Marcy Nadel

Phone: (907) 458-3149

24 hour Traffic Control contact person: Andrew Frick

Phone: (907) 799-6239

Permit activity location (includes all routes which will be affected):
Shoulder work with minor encroachment at four locations near the Dillingham Airport. Please see enclosed map. Wells will be located on Airport Road, Kanakanak Road, and Martin Street.

Reason for permit: Groundwater monitoring well installation on behalf of DOT&PF. The wells will be located within the road right-of-way, as far from the traveled way and road shoulder as possible.

Start Date: 06/21/2021 End Date: 07/19/2021

Schedule details (start times, end times, days of the week, exceptions, continuous or daily operation):

Monitoring well installation will take two to four days per location. Work will occur between 0700 and 2100 each day including weekends, or as requested by DOT&PF in Dillingham.

Permittee upon signing this permit acknowledges and agrees to the following provisions:

PROVIDE EMERGENCY VEHICLE ACCESS AT ALL TIMES.

Permittee shall notify the following public agencies a minimum seven (7) days in advance: ~~Municipal Traffic Engineer~~, Alaska State Troopers, Local Police, Fire Department, Emergency Medical Services, ~~People Mover~~, School Bus Dispatch, ~~Anchorage School District~~, and ADOT Traffic Control Engineer.

This Permit is not a property right but a temporary authorization, revocable by the State upon violation of any Permit terms. In addition, the State reserves the right to cancel this permit, for any reason, including emergencies, with advance notice. All reasonable attorney's fees and costs associated with legal or enforcement actions related to the terms and conditions of this permit will be borne by the permittee.

All signs installed in State rights of way shall be fabricated, located and installed in conformance with the Alaska Traffic Manual (ATM), Alaska Sign Design Manual (ASDS), and standard drawings and specifications. Our Traffic & Safety section shall approve all variable message signs (i.e. street name signs) prior to installation.

Implement the traffic control plan and maintain traffic control devices in accordance with the Alaska Traffic Manual and any provisions and conditions noted.

Permittee shall indemnify, defend and hold harmless the State, and its officers, employees, and contractors, from any and all claims or actions resulting from injury, death, loss, or damage sustained by any person or personal property resulting directly or indirectly from Permittee's use of or activities in the permitted area.

The Permittee will obtain all necessary Federal, State, and Municipal permits and licenses required by law, pay all taxes and special assessments lawfully imposed upon the permitted area, and pay other fees and charges assessed under applicable law.

If you damage any improvements within the state owned right of way, you will be responsible to return them to their previous condition. The Department's Maintenance and Operations section will inspect and approve the restored improvements. Improvements may include: pavement structures, sidewalks, curb and gutter, pathways, driveways, signs, traffic markings, guardrail, delineators, highway lighting systems, traffic signal systems, drainage structures and mailboxes.

If your permitted use interferes with the public's safety and/or use of facilities within State owned right of way, you will be directed to adjust or remove your traffic control.

A copy of this permit must be on site. If any of the conditions of this permit are violated, the State reserves the right to require the removal of all activities from the area.

All sign layouts shall conform to the Alaska Sign Design Specifications.

~~Fabricate special signs from type 8 or 9 orange fluorescent reflective sheeting on either sheet aluminum or plywood panels.~~

Adjust sign locations in the field to provide adequate separation from existing signs. All signs shall be visible.

Remove all traffic control devices when no longer needed.

Permittee shall clean up litter or debris generated as a result of this permit.

Attachments included as part of this permit are:

Traffic Control Plan

I, Marcy Nadel, acknowledge that I am acting on behalf of the above named organization with the full authority to do so. I further acknowledge and accept that Shannon and Wilson Inc. shall comply with all the provisions and conditions that the Department of Transportation and Public Facilities has included as a condition of issuing this permit.

M. Nadel

Permittee Signature

6/16/21

Date

Thurn

DOT&PF Signature

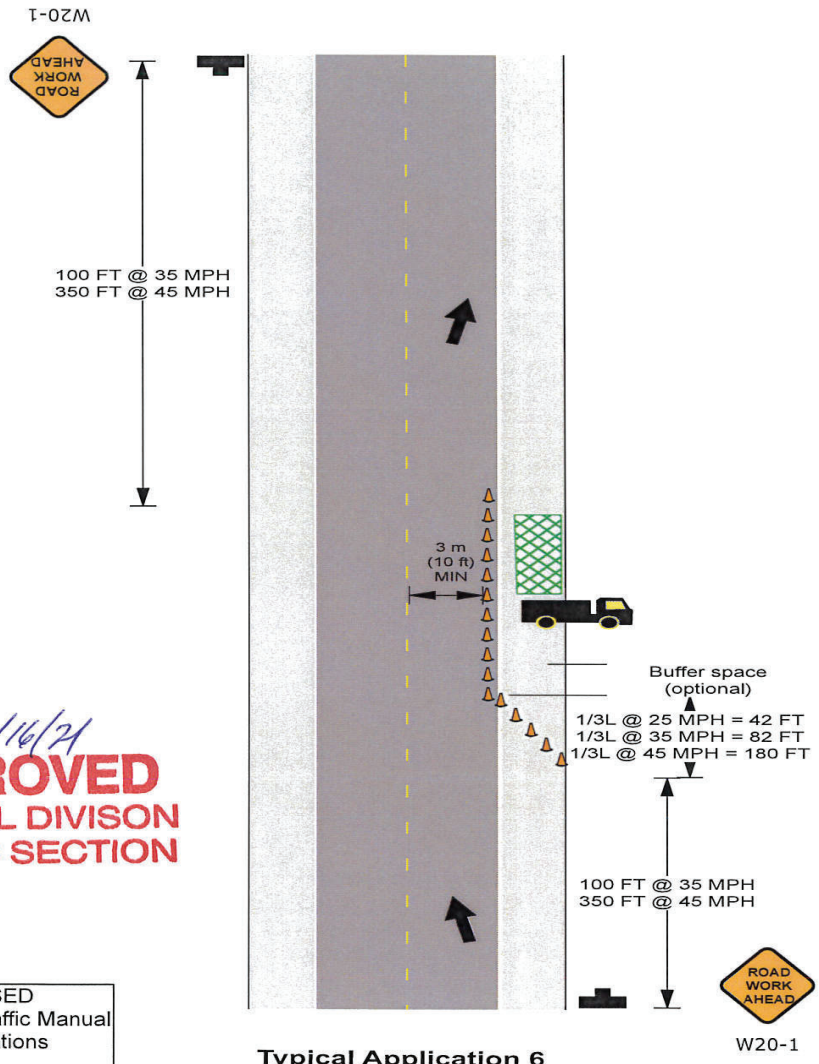
6/16/2021

Date

Legend
Cone
Work Area

Shoulder Work with Minor Encroachment (TA-6)

www.invarion.com
TCP 1
REVISED 6-15-2021



6/16/21
APPROVED
CENTRAL DIVISON
TRAFFIC SECTION

Typical Application 6

I certify TCP # 1 REVISED
Conforms to Alaska Traffic Manual
and Standard Specifications

Stacey Coy 6-15-2021
TCP Author Date

northern dame

Date: 6-14-2021 **Author:** Stacey Coy, Cert # 244948, Exp. 12/09/2024

Comments:
Contractor: Shannon & Wilson
Project: Dillingham Airport - proposed soil boring and monitoring well
Project # 102581-008
Contact: Marcy Nadel (907) 458-3150 MDN@shanwil.com
Location: Airport Rd., Airport Spur Rd., Martin St., Kanakanak Rd.
Date(s) TBD
Time/Duration: TBD
Traffic Control: Shannon and Wilson 907-458-3150

Notes:
1. Work, Soil borings and monitoring wells
2. Speed Limit is 25, 35 and 45 mph
3. Sign spacing is 100 ft. & 350 FT
4. Advanced warning signs are 48"x48"
5. All signs & devices to conform to MUTCD & ATM and, be topped with high level warning devices
6. Field adjustments may be required due to field conditions.

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention Preparedness and Response Programs

Contaminated Media Transport and Treatment or Disposal Approval Form

DEC HAZARD/SPILL ID #	NAME OF CONTAMINATED SITE OR SPILL	
26971	ADOT&PF Dillingham Airport Sitewide PFAS	
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION		
Southwest portion of the Dillingham Airport, see enclosed map		
CURRENT PHYSICAL LOCATION OF MEDIA	**SOURCE OF THE CONTAMINATION (DAY TANK, WASH BAY, FIRE TRAINING PIT, LUST, ETC.)**	
Drummed soil, temporary offsite storage	Historic fire training with AFFF	
CONTAMINANTS OF CONCERN	**ESTIMATED VOLUME**	**DATE(S) GENERATED**
PFOS, PFOA	23, 55-gallon drums	7/7 to 7/31/21
POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)*		
Analysis per Clean Harbors Environmental Services permits for Aragonite Incineration Facility		
COMMENTS OR OTHER IMPORTANT INFORMATION		
Analytical results are enclosed. Drummed soil is associated with SB3, SB9, SB13, SB14, or all drilling sites.		

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
Clean Harbors Aragonite Incineration Facility	11600 North Aptus Road, Dugway, UT 84022
RESPONSIBLE PARTY	**ADDRESS/PHONE NUMBER**
DOT&PF Dillingham Airport	803 Airport Rd, Dillingham, AK 99576 / (907) 842-5511
WASTE MANAGEMENT CO. / ORGANIZER	**ADDRESS/PHONE NUMBER**
Clean Harbors Envi. Services, Inc. / Eric Orwoll	2231 Cinnabar Loop, Anchorage, AK 99507

***Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.**

Marcy Nadel
Name of the Person Requesting Approval (printed)

M. Nadel
Signature

Geologist, Shannon & Wilson, Inc.
Title/Association

9/27/21
Date

(907) 458-3150
Phone Number

----------DEC USE ONLY----------

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Robert Burgess
DEC Project Manager Name (printed)

Robert A. Burgess
Digitally signed by Robert Burgess
Date: 2021.09.28 09:54:42 -08'00'
Signature

EPSIV
Project Manager Title

9/28/21
Date

907-451-2153
Phone Number

LEGEND

- Soil Boring
- Monitoring Well Nest
- Airport Boundary

Labeled drilling locations indicate subsurface soil exceedances for PFOS or PFOA. Drummed soil is intended for offsite disposal.

0 1,000 2,000

Feet

N

Dillingham Airport
PFAS Site Characterization
Dillingham, Alaska

SOIL BORING AND MONITORING WELL LOCATIONS

August 2021 102581-009

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1

Table 1 - Soil Boring PFAS Results for Disposal

Analyte	Cleanup Level	Units	SB3 0-0.8 7/6/21	SB3 10.0-11.0 7/6/21	SB3 10.0-11.0 Duplicate	SB3 20.0-20.9 7/6/21	SB3 23.0-24.0 7/6/21	SB9 0-0.5 7/13/21	SB9 5.0-5.5 7/13/21	SB9 15.6-16.2 7/13/21	SB9 36.6-36.8 7/13/21	SB13 0-0.5 7/22/21	SB13 10.9-11.4 7/22/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	SB14 0-0.8 7/22/21	SB14 21.2-21.7 7/22/21	SB14 40.6-41.8 7/22/21	SB14 40.6-41.8 Duplicate
Perfluorohexanesulfonic acid (PFHxS)	NS	ug/kg	4.8	0.18 J	0.14 J	0.084 J	0.14 J	0.68	<0.23	<0.25	<0.24	3.5	25	0.16 J	0.15 J	0.28	<0.21	<0.24	<0.25
Perfluorohexanoic acid (PFHxA)	NS	ug/kg	3.9 J*	0.10 J*	0.10 J	0.067 J	0.079 J	0.085 J	<0.23	<0.25	0.23 J	0.26	6.4	0.054 J	0.042 J	0.037 J	<0.21	<0.24	<0.25
Perfluoroheptanoic acid (PFHpA)	NS	ug/kg	3.3	0.087 J	0.090 J	0.043 J	0.070 J	0.054 J	<0.23	<0.25	0.25	<0.20	1.5	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorononanoic acid (PFNA)	NS	ug/kg	15 J*	<0.24	<0.24	<0.22	<0.22	0.074 J	<0.23	<0.25	<0.24	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorobutanesulfonic acid (PFBS)	NS	ug/kg	0.078 J*	<0.24	<0.24	<0.22	<0.22	<0.31	<0.23	<0.25	<0.24	0.21	0.57	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorodecanoic acid (PFDA)	NS	ug/kg	0.18 J	<0.24	<0.24	<0.22	<0.22	0.086 J	<0.23	<0.25	<0.24	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluoroundecanoic acid (PFUnA)	NS	ug/kg	<0.27	<0.24	<0.24	<0.22	<0.22	<0.31	<0.23	<0.25	<0.24	<0.20	<0.33	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25
Perfluorooctanesulfonic acid (PFOS)	3.0	ug/kg	**61**	<0.61	<0.60	<0.55	<0.55	**5.7**	<0.63	<0.62	<0.61	**32**	1.6 J*	0.35	0.38	**4.5**	<0.21	<0.24	<0.25
Perfluorooctanoic acid (PFOA)	1.7	ug/kg	**9.9**	<0.24	<0.24	<0.22	<0.22	<0.31	<0.23	<0.25	**16**	0.12 J	**3.5**	<0.21	<0.21	<0.19	<0.21	<0.24	<0.25

Notes: Results reported from Eurofins TestAmerica, Sacramento work orders 76026, 76143, 76365, 76677, and 76864.

ug/kg micrograms per kilogram

NS Not specified; action level not established.

< Analyte was not detected; reported as <LOQ.

Bold The detected concentration exceeds the regulatory limit for the associated analyte.

J Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by the laboratory.

J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)

Table 2 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
AK101	Gasoline Range Organics (GRO)	300	mg/kg	<2.81 B*	<1.48	<2.06 B*	<2.56 B*	—	—
AK102	Diesel Range Organics (DRO)	250	mg/kg	9.32 J	<23.8 B*	<23.1 B*	<22.8 B*	—	—
AK103	Residual Range Organics (RRO)	11,000	mg/kg	<58.0	<59.5	<58.0	<57.0	—	—
SM21 2540G	Total Solids	NS	%	85.3	83.3	86.0	86.8	84.2	84.0
SW 8260D (VOCs)	1,1,1,2-Tetrachloroethane	0.022	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	—	—
	1,1,1-Trichloroethane	32	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,1,2,2-Tetrachloroethane	0.003	mg/kg	<0.00112	<0.00118	<0.000825	<0.00103	—	—
	1,1,2-Trichloroethane	0.0014	mg/kg	<0.000449	<0.000472	<0.000329	<0.000409	—	—
	1,1-Dichloroethane	0.092	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,1-Dichloroethene	1.2	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,1-Dichloropropene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,2,3-Trichlorobenzene	0.15	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	1,2,3-Trichloropropane	0.000031	mg/kg	**<0.00112**	**<0.00118**	**<0.000825**	**<0.00103**	—	—
	1,2,4-Trichlorobenzene	0.082	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,2,4-Trimethylbenzene	0.61	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	1,2-Dibromo-3-chloropropane	NS	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	1,2-Dibromoethane	0.00024	mg/kg	**<0.000560**	**<0.000590**	**<0.000411**	**<0.000510**	—	—
	1,2-Dichlorobenzene	2.4	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,2-Dichloroethane	0.0055	mg/kg	<0.00112	<0.00118	<0.000825	<0.00103	—	—
	1,2-Dichloropropane	0.03	mg/kg	<0.00560	<0.00590	<0.00411	<0.00510	—	—
	1,3,5-Trimethylbenzene	0.66	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,3-Dichlorobenzene	2.3	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	1,3-Dichloropropane	NS	mg/kg	<0.00560	<0.00590	<0.00411	<0.00510	—	—
	1,4-Dichlorobenzene	0.037	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	2,2-Dichloropropane	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	2-Butanone (MEK)	15	mg/kg	<0.141	<0.147	<0.103	<0.128	—	—
	2-Chlorotoluene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	2-Hexanone	0.11	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	4-Chlorotoluene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Acetone	38	mg/kg	<0.141	<0.147	<0.103	<0.128	—	—
	Benzene	0.022	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Bromobenzene	0.36	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Bromochloromethane	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Bromodichloromethane	0.0043	mg/kg	<0.00112	<0.00118	<0.000825	<0.00103	—	—
	Bromoform	0.1	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Bromomethane	0.024	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	—	—
	Carbon disulfide	2.9	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Carbon tetrachloride	0.021	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Chlorobenzene	0.46	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Chloroethane	72	mg/kg	<0.113	<0.118	<0.0825	<0.102	—	—
	Chloroform	0.0071	mg/kg	<0.00225	<0.00236	<0.00165	<0.00205	—	—
	Chloromethane	0.61	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	cis-1,2-Dichloroethene	0.12	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	cis-1,3-Dichloropropene	0.018	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Dibromochloromethane	0.0027	mg/kg	**<0.00281**	**<0.00295**	<0.00206	<0.00256	—	—
	Dibromomethane	0.025	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Dichlorodifluoromethane	3.9	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	Ethylbenzene	0.13	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Hexachlorobutadiene	0.02	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	—	—
	Isopropylbenzene	5.6	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	m,p-xylenes	1.5	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	Methyl isobutyl ketone	18	mg/kg	<0.141	<0.147	<0.103	<0.128	—	—
	Methylene chloride	0.33	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Methyl-t-butyl ether (MTBE)	0.4	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—

Table 2 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
SW 8260D (VOCs continued)	Naphthalene	0.038	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	n-Butylbenzene	23	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	n-Propylbenzene	9.1	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	o-Xylene	1.5	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	p-Isopropyltoluene	NS	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	sec-Butylbenzene	42	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Styrene	10	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	tert-Butylbenzene	11	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Tetrachloroethene	0.19	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Toluene	6.7	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	Total Xylenes	1.5	mg/kg	<0.0422	<0.0442	<0.0308	<0.0384	—	—
	trans-1,2-Dichloroethene	1.3	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	—	—
	trans-1,3-Dichloropropene	0.018	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	—	—
	Trichloroethene	0.011	mg/kg	<0.00281	<0.00295	<0.00206	<0.00256	—	—
	Trichlorofluoromethane	41	mg/kg	<0.0281	<0.0295	<0.0205	<0.0256	—	—
	Trichlorotrifluoroethane	310	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Vinyl acetate	1.1	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	—	—
	Vinyl chloride	0.0008	mg/kg	<0.000449	<0.000472	<0.000329	<0.000409	—	—
8270D SIM (PAH)	1-Methylnaphthalene	0.41	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	2-Methylnaphthalene	1.3	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Acenaphthene	37	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Acenaphthylene	18	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Anthracene	390	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(a)anthracene	0.7	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(a)pyrene	1.9	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(b)fluoranthene	20	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(g,h,i)perylene	15,000	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Benzo(k)fluoranthene	190	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Chrysene	600	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Dibenzo(a,h)anthracene	6.3	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Fluoranthene	590	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Fluorene	36	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Indeno(1,2,3-cd)pyrene	65	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Naphthalene	0.038	mg/kg	<0.0117	—	<0.0115	<0.0114	—	—
	Phenanthrene	39	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
	Pyrene	87	mg/kg	<0.0146	—	<0.0144	<0.0142	—	—
SW 8270D (SVOCs)	1,2,4-Trichlorobenzene	0.082	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	1,2-Dichlorobenzene	2.4	mg/kg	—	—	—	—	<0.740	<0.740
	1,3-Dichlorobenzene	2.3	mg/kg	—	—	—	—	<0.740	<0.740
	1,4-Dichlorobenzene	0.037	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	1-Chloronaphthalene	NS	mg/kg	—	—	—	—	<0.740	<0.740
	1-Methylnaphthalene	0.41	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,4,5-Trichlorophenol	28	mg/kg	—	—	—	—	<0.740	<0.740
	2,4,6-Trichlorophenol	0.092	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,4-Dichlorophenol	0.21	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,4-Dimethylphenol	3.2	mg/kg	—	—	—	—	<0.740	<0.740
	2,4-Dinitrophenol	0.34	mg/kg	—	—	—	—	**<8.90**	**<8.85**
	2,4-Dinitrotoluene	0.024	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2,6-Dichlorophenol	NS	mg/kg	—	—	—	—	<0.740	<0.740
	2,6-Dinitrotoluene	0.005	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2-Chloronaphthalene	26	mg/kg	—	—	—	—	<0.740	<0.740
	2-Chlorophenol	0.71	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	2-Methylnaphthalene	1.3	mg/kg	—	—	—	—	<0.740	<0.740
	2-Methylphenol	6.2	mg/kg	—	—	—	—	<0.740	<0.740

Table 2 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21	SB13 35-37.5 7/22/21	SB13 35-37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 14 7/26/21
SW 8270D (SVOCs continued)	2-Nitroaniline	NS	mg/kg	—	—	—	—	<0.740	<0.740
	2-Nitrophenol	NS	mg/kg	—	—	—	—	<0.740	<0.740
	3&4-Methylphenol (p&m-Cresol)	NS	mg/kg	—	—	—	—	<2.96	<2.96
	3,3'-Dichlorobenzidine	0.056	mg/kg	—	—	—	—	**<1.49**	**<1.48**
	3-Nitroaniline	NS	mg/kg	—	—	—	—	<1.49	<1.48
	4,6-Dinitro-2-Methylphenol	NS	mg/kg	—	—	—	—	<5.95	<5.90
	4-Bromophenyl phenyl ether	NS	mg/kg	—	—	—	—	<0.740	<0.740
	4-Chloro-3-methylphenol	NS	mg/kg	—	—	—	—	<0.740	<0.740
	4-Chloroaniline	0.015	mg/kg	—	—	—	—	**<2.96**	**<2.96**
	4-Chlorophenyl-phenylether	NS	mg/kg	—	—	—	—	<0.740	<0.740
	4-Nitroaniline	NS	mg/kg	—	—	—	—	<8.90	<8.85
	4-Nitrophenol	NS	mg/kg	—	—	—	—	<5.95	<5.90
	Acenaphthene	37	mg/kg	—	—	—	—	<0.740	<0.740
	Acenaphthylene	18	mg/kg	—	—	—	—	<0.740	<0.740
	Aniline	NS	mg/kg	—	—	—	—	<5.95	<5.90
	Anthracene	390	mg/kg	—	—	—	—	<0.740	<0.740
	Azobenzene	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(a)anthracene	0.7	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Benzo(a)pyrene	1.9	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(b)fluoranthene	20	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(g,h,i)perylene	15,000	mg/kg	—	—	—	—	<0.740	<0.740
	Benzo(k)fluoranthene	190	mg/kg	—	—	—	—	<0.740	<0.740
	Benzoic acid	200	mg/kg	—	—	—	—	<4.45	<4.43
	Benzyl alcohol	5.7	mg/kg	—	—	—	—	<0.740	<0.740
	Bis (2-Chloroethoxy) Methane	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Bis (2-Chloroethyl) Ether	0.00042	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Bis (2-ethylhexyl) phthalate	88	mg/kg	—	—	—	—	<0.740	<0.740
	Bis(2-chloro-1-methylethyl) ether	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Butylbenzylphthalate	16	mg/kg	—	—	—	—	<0.740	<0.740
	Carbazole	NS	mg/kg	—	—	—	—	<0.740	<0.740
	Chrysene	600	mg/kg	—	—	—	—	<0.740	<0.740
	Dibenzo(a,h)anthracene	6.3	mg/kg	—	—	—	—	<0.740	<0.740
	Dibenzofuran	0.97	mg/kg	—	—	—	—	<0.740	<0.740
	Diethylphthalate	60	mg/kg	—	—	—	—	<0.740	<0.740
	Dimethylphthalate	48	mg/kg	—	—	—	—	<0.740	<0.740
	Di-n-butylphthalate	16	mg/kg	—	—	—	—	<0.740	<0.740
	Di-n-octyl phthalate	370	mg/kg	—	—	—	—	<1.49	<1.48
	Fluoranthene	590	mg/kg	—	—	—	—	<0.740	<0.740
	Fluorene	36	mg/kg	—	—	—	—	<0.740	<0.740
	Hexachlorobenzene	0.0082	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Hexachlorobutadiene	0.02	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Hexachlorocyclopentadiene	0.0093	mg/kg	—	—	—	—	**<2.08**	**<2.07**
	Hexachloroethane	0.018	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Indeno(1,2,3-cd)pyrene	65	mg/kg	—	—	—	—	<0.740	<0.740
	Isophorone	2.7	mg/kg	—	—	—	—	<0.740	<0.740
	Naphthalene	0.038	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	Nitrobenzene	0.0079	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	N-Nitrosodimethylamine	0.0000033	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	n-Nitrosodi-n-propylamine	0.00068	mg/kg	—	—	—	—	**<0.740**	**<0.740**
	N-Nitrosodiphenylamine	4.6	mg/kg	—	—	—	—	<0.740	<0.740
	Pentachlorophenol	0.0043	mg/kg	—	—	—	—	**<5.95**	**<5.90**
	Phenanthrene	39	mg/kg	—	—	—	—	<0.740	<0.740
	Phenol	29	mg/kg	—	—	—	—	<0.740	<0.740
	Pyrene	87	mg/kg	—	—	—	—	<0.740	<0.740

Table 2 - Soil Boring Petroleum and Metals Results

Analytical Method	Analyte	Cleanup Level	Units	*SB7 28.8-30.2 7/12/21*	*SB11 22.5-25.4 7/17/21*	*SB13 35-37.5 7/22/21*	*SB13 35-37.5 Duplicate*	*Drum 40 SB11 7/26/21*	*Drum 55 SB13, SB 14 7/26/21*
SW 6020B TCLP	Arsenic	5.0	mg/L	—	—	—	—	<0.150	<0.150
	Barium	100	mg/L	—	—	—	—	0.239	0.278
	Cadmium	1.0	mg/L	—	—	—	—	<0.0500	<0.0500
	Chromium	5.0	mg/L	—	—	—	—	<0.100	0.314
	Lead	5.0	mg/L	—	—	—	—	<0.0250	<0.0250
	Mercury	0.2	mg/L	—	—	—	—	<0.0125	<0.0125
	Selenium	1.0	mg/L	—	—	—	—	<0.500	<0.500
	Silver	5.0	mg/L	—	—	—	—	<0.0500	<0.0500

Notes:
Results reported from SGS North America, Inc. work orders 1214339 and 1214673.
Regulatory limits from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table (Migration to Groundwater), except TCLP Metals.
Regulatory limits were obtained from the EPAs 40 CFR 261.24 Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

mg/kg milligrams per kilogram
mg/kg milligrams per kilogram
mg/L milligrams per liter
NS Not specified; action level not established.
PAHs polynuclear aromatic hydrocarbons
SVOCs semi-volatile organic compounds
TCLP Toxicity Characteristic Leaching Procedure
VOCs volatile organic compounds
< Analyte was not detected; reported as <LOQ.
Bold Reporting limit (LOQ) exceeds regulatory limit for the associated analyte.
Bold Detected concentration exceeds the regulatory limit for the associated analyte.
J Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by the laboratory.
B* Result is considered not detected due to quality control failures; see checklist for details. Flag applied by Shannon & Wilson, Inc.

Non – Negotiable Bill of Lading

AML

PRO No.

FREIGHT BILL PRO NUMBER
(CARRIER USE ONLY)

Mailing Address
PO Box 24348
Seattle, WA 98124

Toll Free Customer Service
Seattle (Central/SE Alaska) 1-800-326-8346
Seattle (Western AK/Hawaii) 1-800-426-3113
Ketchikan 1-800-809-7660
Juneau 1-800-585-6102

____ of ____

Date Received:	Voyage No:	Bkng #/Conf Code:	Origin:	Destination:	Container No:	Seal#:	Byd Carrier:
	W10095	RG19	Dillingham	Seattle			

SHIPPER	CONSIGNEE	BILL TO
Name: Cleanharbors Environmental	Name: Cleanharbors Environmental	Name: Cleanharbors
Street Address: 311 N. Sitka	Street Address: 26338 79th Ave S.	Street Address: 42 Longwater Cir
City, State: Anchorage AK 99501	City, State: Kent WA	City, State: Norwell, MA 02061
Ref No: PO# 0001264738 Phone:	Ref No: Jack Mefi Phone: 206-786-1110	Ref No: Phone: 781-792-5000

Processor/Supplier:

All goods shall have an agreed released value of **$500** per package/cfu, unless Shipper declares and Carrier accepts a higher released value directly below. ***An additional charge may be applicable to any such declaration.*** Shipper and Carrier's signatures on this bill shall constitute acceptance of the declaration.

DECLARED VALUE $_____

It is understood and agreed all household goods/personal effects will be released at **$.10/lb.**

INITIAL _____

FREIGHT CHARGES:

COLLECT ☐
PREPAID ☒
OTHER ☐
(COD's not accepted)

LOAD TYPE Palletized: ☒ Hand Stacked: ☐ Mixed or other (please describe): _____

No. of Pieces	Kind of Package	HM* X	Description provided by Shipper *(For Hazmat - UN/NA Number, Proper Shipping Name, Hazard Class, and Packing Group)*	Net Weight in lbs.	Gross Weight in lbs.
23	DR		Material Not Regulated by DOT	5,750	
23	TOTAL PIECES		TOTAL WEIGHT	0	0

SHIPPER'S CERTIFICATIONS	Placards Required: N/A	Emergency Telephone: 1-800-483-3718	ERG No. N/A

In the event of hazardous goods the Shipper's signature on this bill certifies that the above named materials are properly classified, described, packaged, marked, labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation (49 C.F.R. 172.204).

Shipper must identify in writing prior to shipment any perishable, temperature controlled, keep from freezing, chilled or frozen goods. **Carrier shall not be responsible for freezing down or reducing the core temperature of goods.**

Refrigerated Temp Loads:

Requested Temp _____F_____C

Temp at Receiving: _____F_____C

Date _____ Time _____

RECEIVED $ _____

To apply in prepayment of charges on the property described hereon

Cash/MC/VISA/Check#_____

SHIPPER (SIGNATURE REQUIRED)	CARRIER
Brenda JSheets	AML
PER Brenda JSheets DATE 9/30/21	PER DA DATE 9/30/21

Shipper agrees that the custody and carriage of goods identified shall be subject to the terms and conditions on the reverse (or page 2) as well as the Carrier's tariff, which may be reviewed at: www.aml.lynden.com

(Rev 11-19-2020)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter) 09210500028 3

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. CESQG

Manifest Document No. 02831

2. Page 1 of 2

3. Generator's Name and Mailing Address
Alaska DOT - Dillingham
803 Airport Rd
Dillingham, AK 99576

Site Address : SAME

4. Generator's Phone (907) 842-9600

5. Transporter 1 Company Name: Alaska Marine Lines

6. US EPA ID Number: WAD991281809

A. State Transporter's ID

B. Transporter 1 Phone: (206) 763-4244

7. Transporter 2 Company Name: Lynden Transportation

8. US EPA ID Number: WAD002799260

C. State Transporter's ID

D. Transporter 2 Phone: (800) 326-5702

9. Designated Facility Name and Site Address
Clean Harbors Environmental Services, Inc.
2247 South Highway 71
Kimball, NE 69145

10. US EPA ID Number: NED981723513

E. State Facility's ID

F. Facility's Phone: (308) 235-4012

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. MATERIAL NOT REGULATED BY DOT, (PFAS SOIL)	023	DM	5,750	P
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above
11a CH2239347 23X55

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EMERGENCY PHONE #: (800) 483-3718
GENERATOR: Alaska DOT - Dillingham

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Jon Taylor — Signature — Date: Month 10 Day 01 Year 2021

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Domica Robertson — Signature — Date: Month 10 Day 01 Year 2021

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name — Signature — Date: Month Day Year

NON-HAZARDOUS WASTE

2105000283

NON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)	19. Generator ID Number	20. Page	21. Waste Tracking Number
	CESQG	2 / X	2831

22. Generator's Name: Alaska DOT- Dillingham

23. Transporter 3 Company Name: Clean Harbors Environmental Services — U.S. EPA ID Number: MAD039322250

24. Transporter _____ Company Name: _____ — U.S. EPA ID Number: _____

GENERATOR

	25. Waste Shipping Name and Description	26. Containers No.	26. Containers Type	27. Total Quantity	28. Unit Wt./Vol.	

29. Special Handling Instructions and Additional Information

TRANSPORTER

30. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Domico Robinson		10	1	20

31. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

32. Discrepancy

PO BOX 24348
SEATTLE, WA 98106
1-800-326-8346

Booking Conf # RG19

Date:	September 29, 2021
Prepared For:	BRENDA SHEETS
Phone:	907 206-0834
Fax:	
Email:	sheets.brenda@cleanharbors.com
Prepared By:	Victoria Iritsky Hardin
	viritsky@lynden.com
Phone:	206 892-2591
Fax:	206 508-7615

Voyage #:	W1009S
Sailing Date:	October 6, 2021
Origin City:	Dock
Origin Port:	Dillingham
Destination Port:	Seattle
Destination City:	Kent,Wa,98032-7327
Route:	Dock to Door
PO Number:	
BL #:	
Project Name:	
Quote #:	
Temperature:	
Shipment Type:	T
Equip. Type:	D20.STD
Unit #:	

Shipper:	Consignee:	Bill To:
CLEAN HARBORS	CLEAN HARBORS ENVIRO	CLEAN HARBORS
C/O DOCK	26328 79TH AVE S	1010 COMMERCIAL ST
DILLINGHAM,AK 99576	KENT,WA 98032-7327	SAN JOSE,CA 95112
907-863-5107	253-639-4240	253-638-3550

Qty	UOM	Freight Description	Dimensions (LxWxH)	Weight
1	D20	NON-HAZARDOUS CONTAMINATED SOIL IN DRUMS		15,000

AML equipment will be subject to detention charges after allowed free days at the destination port. Please refer to AML Rules Tariff AKMR 100A (available at http://www.lynden.com/aml/tools/tariffs-and-forms.html) for applicable rates.

Green is good! Do your part in saving the environment by accessing documents electronically. Go to http://www.lynden.com/signup and sign up for EZ Commerce, making it easier to conduct business at your fingertips. You can request pickups, generate shipping documents, track shipments, receive invoices and make payments electronically. Service is free, sign up today!

APPENDIX B: BORING LOGS

Appendix B

Boring Logs

CONTENTS

- Soil Classification and Log Key
- Boring Logs for SB1 through SB14

Shannon & Wilson, Inc. (S&W), uses a soil classification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on this and the following page. Soil descriptions are based on visual-manual procedures (ASTM D 2488-93) unless otherwise noted.

S&W CLASSIFICATION OF SOIL CONSTITUENTS

- MAJOR constituents compose more than 50 percent, by weight, of the soil. Major consituents are capitalized (i.e., SAND).
- Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (i.e., silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (i.e., slightly silty SAND).
- Trace constituents compose 0 to 5 percent of the soil (i.e., slightly silty SAND, trace of gravel).

MOISTURE CONTENT DEFINITIONS

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

ABBREVIATIONS

ATD	At Time of Drilling
Elev.	Elevation
ft	feet
FeO	Iron Oxide
MgO	Magnesium Oxide
HSA	Hollow Stem Auger
ID	Inside Diameter
in	inches
lbs	pounds
Mon.	Monument cover
N	Blows for last two 6-inch increments
NA	Not applicable or not available
NP	Non plastic
OD	Outside diameter
OVA	Organic vapor analyzer
PID	Photo-ionization detector
ppm	parts per million
PVC	Polyvinyl Chloride
SS	Split spoon sampler
SPT	Standard penetration test
USC	Unified soil classification
WOH	Weight of hammer
WOR	Weight of drill rods
WLI	Water level indicator

GRAIN SIZE DEFINITION

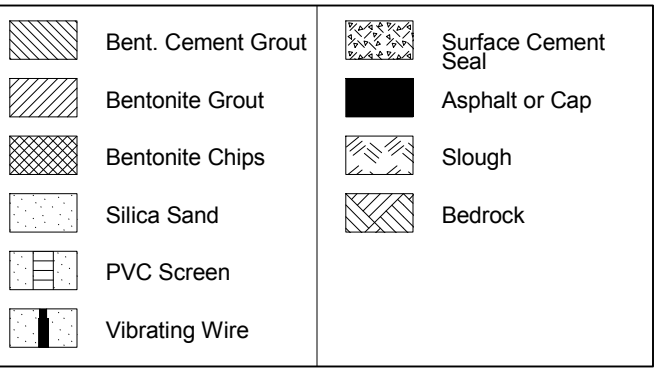
DESCRIPTION	SIEVE NUMBER AND/OR SIZE
FINES	< #200 (0.08 mm)
SAND* - Fine - Medium - Coarse	 #200 to #40 (0.08 to 0.4 mm) #40 to #10 (0.4 to 2 mm) #10 to #4 (2 to 5 mm)
GRAVEL* - Fine - Coarse	 #4 to 3/4 inch (5 to 19 mm) 3/4 to 3 inches (19 to 76 mm)
COBBLES	3 to 12 inches (76 to 305 mm)
BOULDERS	> 12 inches (305 mm)

* Unless otherwise noted, sand and gravel, when present, range from fine to coarse in grain size.

RELATIVE DENSITY / CONSISTENCY

COARSE-GRAINED SOILS		FINE-GRAINED SOILS	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
0 - 4	Very loose	Under 2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
Over 50	Very dense	15 - 30	Very stiff
		Over 30	Hard

WELL AND OTHER SYMBOLS



Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SOIL CLASSIFICATION AND LOG KEY

May 2023 102581-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Figure B-1

BORING_CLASS1 31-11612.GPJ SWNEW.GDT 11/20/12

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)
(From ASTM D 2487-98 & 2488-93)

MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL		TYPICAL DESCRIPTION
COARSE-GRAINED SOILS *(more than 50% retained on No. 200 sieve)*	Gravels *(more than 50% of coarse fraction retained on No. 4 sieve)*	Clean Gravels *(less than 5% fines)*	GW		Well-graded gravels, gravels, gravel/sand mixtures, little or no fines.
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with Fines *(more than 12% fines)*	GM		Silty gravels, gravel-sand-silt mixtures
			GC		Clayey gravels, gravel-sand-clay mixtures
	Sands *(50% or more of coarse fraction passes the No. 4 sieve)*	Clean Sands *(less than 5% fines)*	SW		Well-graded sands, gravelly sands, little or no fines
			SP		Poorly graded sand, gravelly sands, little or no fines
		Sands with Fines *(more than 12% fines)*	SM		Silty sands, sand-silt mixtures
			SC		Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS *(50% or more passes the No. 200 sieve)*	Silts and Clays *(liquid limit less than 50)*	Inorganic	ML		Inorganic silts of low to medium plasticity, rock flour, sandy silts, gravelly silts, or clayey silts with slight plasticity
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Organic	OL		Organic silts and organic silty clays of low plasticity
	Silts and Clays *(liquid limit 50 or more)*	Inorganic	MH		Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
			CH		Inorganic clays or medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	OH		Organic clays of medium to high plasticity, organic silts
HIGHLY-ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT		Peat, humus, swamp soils with high organic content (see ASTM D 4427)

NOTE: No. 4 size = 5 mm; No. 200 size = 0.075 mm

NOTES

1. Dual symbols *(symbols separated by a hyphen, i.e., SP-SM, slightly silty fine SAND)* are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

2. Borderline symbols *(symbols separated by a slash, i.e., CL/ML, silty CLAY/clayey SILT; GW/SW, sandy GRAVEL/gravelly SAND)* indicate that the soil may fall into one of two possible basic groups.

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

SOIL CLASSIFICATION AND LOG KEY

May 2023 102581-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Figure B-1

LOG OF GEOPROBE

Date Started *6/29/21*	**Location** *Wood River and Kanakanak Roads*	**Ground Elevation:** *Approx. 71.6 feet*
Date Completed *7/1/21*		**Typical Run Length** *5 feet*
Total Depth (ft) *74.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Soil Description

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

Soil Description	Depth, ft.	PID, ppm	Sample Number, Description, and Results
Red-brown, *Gravelly Silt (ML)*; moist; fine to coarse gravel; fine sand; nonplastic fines; trace organics (roots).		0.6	
Red-brown to olive, *Silt to Elastic Silt (ML to MH)*; moist to wet; fine gravel; fine sand; low to high plasticity fines; trace organics.	2.1	1 2 2	SB1-15.7-16.3
Red-brown with iron laminations, *Silty Sand (SM)*; moist; fine gravel; fine to coarse sand; nonplastic fines.	20.8		
Dark brown, *Poorly-Graded Sand with Gravel to Poorly-Graded Sand (SP)*; moist to wet below 27 feet; fine to coarse gravel; fine to coarse sand.	23.2		

Depth (ft): 5, 10, 15, 20

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

LOG OF SB01 / MW01-30

May 2023 102581-009

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. B-2
Sheet 1 of 3

REV 3

LOG OF GEOPROBE

Date Started *6/29/21*	**Location** *Wood River and Kanakanak Roads*	**Ground Elevation:** *Approx. 71.6 feet*
Date Completed *7/1/21*		**Typical Run Length** *5 feet*
Total Depth (ft) *74.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
					1	During Drilling	SB1-27.3-28	
30								30
		Dark brown to red-brown, *Poorly-Graded Gravel with Sand (GP)*; wet; fine to coarse gravel; fine to coarse sand.	32.0					
35								35
		Dark brown to red, *Poorly-Graded Sand with Gravel (SP)*; wet; gravel; fine to medium sand.	39.5					
40								40
		Red-brown, *Silt with Sand (ML)*; wet; fine gravel; fine sand; nonplastic fines; trace organics.	43.7					
45		Red-brown, *Silty Sand (SM) to Silt with Sand (ML)*; wet; fine sand; trace organics.	46.1					45
		Olive brown to dark gray, *Elastic Silt (MH) to Lean Clay (CL) with Sand*; wet; fine gravel; fine sand.	48.7				CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-2
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/21/23 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *6/29/21*	**Location** *Wood River and Kanakanak Roads*	**Ground Elevation:** *Approx. 71.6 feet*	
Date Completed *7/1/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *74.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
55								55
60		Dark gray, *Silt with Sand (ML)*; wet; fine sand.	59.6					60
65		Dark gray, *Lean Clay to Lean Clay with Sand (CL)* with less than 1-foot layers of *Silt or Silty Sand (ML)*; moist to wet; fine sand.	64.1					65
70		BORING COMPLETED 7/1/2021	74.0					70

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-2
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REV 3

GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/21/23 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *6/29/21*	**Location** *Wood River and Kanakanak Roads*	**Ground Elevation:** *Approx. 71.6 feet*	
Date Completed *7/1/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *74.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
0		Red-brown, *Gravelly Silt (ML)*; moist; fine to coarse gravel; fine sand; nonplastic fines; trace organics (roots).	2.1		0.6			0
5		Red-brown to olive, *Silt to Elastic Silt (ML to MH)*; moist to wet; fine gravel; fine sand; low to high plasticity fines; trace organics.			1			5
10					2			10
15					2		SB1-15.7-16.3	15
20			20.8					20
		Red-brown with iron laminations, *Silty Sand (SM)*; moist; fine gravel; fine to coarse sand; nonplastic fines.	23.2					
25		Dark brown, *Poorly-Graded Sand with Gravel to Poorly-Graded Sand (SP)*; moist to wet below 27 feet; fine to coarse gravel; fine to coarse sand.			1	During Drilling		25
30							SB1-27.3-28	30
		Dark brown to red-brown, *Poorly-Graded Gravel with Sand (GP)*; wet; fine to coarse gravel; fine to coarse sand.	32.0					
35								35
40		Dark brown to red, *Poorly-Graded Sand with Gravel (SP)*; wet; gravel; fine to medium sand.	39.5					40
		Red-brown, *Silt with Sand (ML)*; wet; fine gravel; fine sand; nonplastic fines; trace organics.	43.7 46.1					
45		Red-brown, *Silty Sand (SM) to Silt with Sand (ML)*; wet; fine sand; trace organics.	48.7					45
50		Olive brown to dark gray, *Elastic Silt (MH) to Lean Clay (CL) with Sand*; wet; fine gravel; fine sand.						50
55								55
60		Dark gray, *Silt with Sand (ML)*; wet; fine sand.	59.6					60
65		Dark gray, *Lean Clay to Lean Clay with Sand (CL)* with less than 1-foot layers of *Silt or Silty Sand (ML)*; moist to wet; fine sand.	64.1					65
70								70
75		BORING COMPLETED 7/1/2021	74.0					75

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-3

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/2/21	Location *Airport and Airport Spur Roads*	Ground Elevation: *Approx. 70.3 feet*
Date Completed 7/4/21		Typical Run Length *5 feet*
Total Depth (ft) 74.0	Drilling Company: *Discovery Drilling*	Hole Diameter: *6 inches*

Soil Description

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

Soil Description	Depth, ft.	PID, ppm
Brown, *Organic Soil (OL)*; moist to wet; fibrous organics (grass).	0.2	
Red-brown, *Poorly-Graded Gravel with Sand (GP-GM)*; moist; few organics (roots).	1.2	
Brown to red-brown with iron laminations, *Silt with Sand (ML)*; moist; few organics (fine, roots).		0 (at ~2.5 ft); 0 (at 10 ft)
Dark red-brown to red, *Poorly-Graded Gravel with Silt and Sand (GP-GM) to Silty Gravel (GM)*; moist.	14.4	0 (at ~16 ft); 0.1 (at ~21.8 ft)
Brown, *Silt (ML)*; moist.	22.9	

Ground Water: ▽ During Drilling (at ~24 ft)

Depth (ft): 5, 10, 15, 20

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-4
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REV 3

LOG OF GEOPROBE

Date Started 7/2/21	**Location** Airport and Airport Spur Roads	**Ground Elevation:** Approx. 70.3 feet
Date Completed 7/4/21		**Typical Run Length** 5 feet
Total Depth (ft) 74.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Red-brown, *Silty Gravel (GM)*; moist.	25.9					
		Red-brown to brown, *Silt with Gravel (ML)*; moist to wet below 32 feet.	28.6					
30							SB2-31.7-32.3	30
35		Dark brown to red-brown, *Silty Sand with Gravel (SM)*, interbedded with less than 2-inch layers of *Silt (ML)*; wet.	35.4					35
		Gray-brown to red-brown with iron staining, *Sandy Silt to Sandy Silt with Gravel (ML)*; wet.	38.4				SB2-37.5-38.4	
40								40
		Gray to olive brown with occassional iron staining, *Silty Sand with Gravel (SM)*; wet.	43.4					
45							SB2-45.3-46.0	45
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-4
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/21/23 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/2/21	**Location** Airport and Airport Spur Roads	**Ground Elevation:** Approx. 70.3 feet
Date Completed 7/4/21		**Typical Run Length** 5 feet
Total Depth (ft) 74.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
			52.2					
		Gray, *Elastic Silt (MH) to Lean Clay (CL)*; moist to wet; trace fine organics.						
55								55
			60.5					
60		Gray to dark gray, *Gravelly Clay with Sand to Lean Clay (CL)*; moist to wet; few fine organics.						60
65								65
70								70
			74.0					
		BORING COMPLETED 7/4/2021						

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-4
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REV 3

GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/21/21	**Location** Airport and Airport Spur Roads	**Ground Elevation:** Approx. 70.3 feet
Date Completed 7/21/21		**Typical Run Length** 5 feet
Total Depth (ft) 74.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
0		Brown, *Organic Soil (OL)*; moist to wet; fibrous organics (grass).	0.2					0
		Red-brown, *Poorly-Graded Gravel with Sand (GP-GM)*; moist; few organics (roots).	1.2		0			
5		Brown to red-brown with iron laminations, *Silt with Sand (ML)*; moist; few organics (fine, roots).						5
10					0			10
15		Dark red-brown to red, *Poorly-Graded Gravel with Silt and Sand (GP-GM) to Silty Gravel (GM)*; moist.	14.4		0			15
20					0.1			20
		Brown, *Silt (ML)*; moist.	22.9					
25		Red-brown, *Silty Gravel (GM)*; moist.	25.9					25
		Red-brown to brown, *Silt with Gravel (ML)*; moist to wet below 32 feet.	28.6					
30							SB2-31.7-32.3	30
35		Dark brown to red-brown, *Silty Sand with Gravel (SM)*, interbedded with less than 2-inch layers of *Silt (ML)*; wet.	35.4					35
			38.4				SB2-37.5-38.4	
40		Gray-brown to red-brown with iron staining, *Sandy Silt to Sandy Silt with Gravel (ML)*; wet.	43.4					40
45		Gray to olive brown with occassional iron staining, *Silty Sand with Gravel (SM)*; wet.					SB2-45.3-46.0	45
50			52.2					50
55		Gray, *Elastic Silt (MH) to Lean Clay (CL)*; moist to wet; trace fine organics.						55
60			60.5					60
65		Gray to dark gray, *Gravelly Clay with Sand to Lean Clay (CL)*; moist to wet; few fine organics.						65
70								70
75		BORING COMPLETED 7/4/2021	74.0					75

During Drilling

Soil Description: Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-5

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/6/21	**Location** Southeast of DLG Lease Lots	**Ground Elevation:** Approx. 72.0 feet
Date Completed 7/7/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Dark brown, *Organic Soil (OL)*.	0.6		0			
		Dark brown to gray with iron laminations, *Silt (ML)* with 1- to 2-inch layers of fine organics from 16.4 to 17.3 feet.; moist; few to trace organics (fine, woody, roots).			0		SB3-0.0-0.8	
5					0			5
10					0		SB3-10.0-11.0 and SB31-10.0-11.0	10
15					0.1			15
		Red brown to gray, *Poorly-Graded Sand with Gravel (SP)*; moist.	18.1					
20		Red-brown to gray to gray-brown, interbedded less than 1-foot layers of *Silty Gravel (GM)* with *Poorly-Graded Sand with Gravel or Poorly-Graded Sand (SP)*.	21.3			During Drilling	SB3-20.0-20.9	20
							SB3-23.0-24.0	
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-6
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/21/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/6/21	**Location** Southeast of DLG Lease Lots	**Ground Elevation:**	Approx. 72.0 feet
Date Completed 7/7/21		**Typical Run Length**	2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:**	6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
			28.5					
		Gray, *Lean Clay to Lean Gravely Clay with Sand (CL)*; moist.						
30								30
			33.5					
		Gray with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; moist to wet below 35 feet.						
35								35
			36.6					
		Gray-brown; *Clayey Sand (SC)*; wet.						
			38.0					
		Gray with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; wet.						
			39.8					
40		Dark brown to gray-brown, *Poorly-Graded Sand with Clay and Gravel (SP-SC) to Poorly-Graded Sand with Gravel (SP)*; wet.						40
45								45
			48.0					
		Brown, *Poorly-Graded Gravel with Sand (GP)*; wet.						
			49.6				CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-6
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/21 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/6/21*	**Location** *Southeast of DLG Lease Lots*	**Ground Elevation:** *Approx. 72.0 feet*	
Date Completed *7/7/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *77.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description *Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.*	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Light gray, *Lean Clay (CL)*; moist.						
		Gray to olive brown, *Poorly-Graded Sand with Silt and Gravel (SP-SM); moist.*	51.6					
55								55
60								60
65								65
		Gray to dark gray, *Poorly-Graded Gravel with Sand (GP-GM).*	68.5					
70							CONTINUED NEXT PAGE	70

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-6
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Typ: MED Rev:

LOG OF GEOPROBE

Date Started *7/6/21*	**Location** *Southeast of DLG Lease Lots*	**Ground Elevation:** *Approx. 72.0 feet*	
Date Completed *7/7/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *77.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Gray, *Poorly-Graded Gravel with Sand (GP)*; wet.	75.2					
		Gray, *Lean Clay with Sand (CL)*; wet.	76.4					
		BORING COMPLETED 7/7/2021	77.5					
80								80
85								85
90								90
95								95

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-6
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/7/21	**Location** Southeast of DLG Lease Lots	**Ground Elevation:** Approx. 72.0 feet
Date Completed 7/7/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
0		Dark brown, *Organic Soil (OL)*.	0.6		0		SB3-0.0-0.8	0
5		Dark brown to gray with iron laminations, *Silt (ML)* with 1- to 2-inch layers of fine organics from 16.4 to 17.3 feet.; moist; few to trace organics (fine, woody, roots).			0			5
10					0		SB3-10.0-11.0 and SB31-10.0-11.0	10
15					0.1			15
20		Red brown to gray, *Poorly-Graded Sand with Gravel (SP)*; moist.	18.1					20
25		Red-brown to gray to gray-brown, interbedded less than 1-foot layers of *Silty Gravel (GM)* with *Poorly-Graded Sand with Gravel or Poorly-Graded Sand (SP)*.	21.3			During Drilling	SB3-20.0-20.9 SB3-23.0-24.0	25
30		Gray, *Lean Clay to Lean Gravely Clay with Sand (CL)*; moist.	28.5					30
35		Gray with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; moist to wet below 35 feet.	33.5 36.6					35
40		Gray-brown; *Clayey Sand (SC)*; wet.	38.0					40
45		Gray with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; wet.	39.8					45
50		Dark brown to gray-brown, *Poorly-Graded Sand with Clay and Gravel (SP-SC) to Poorly-Graded Sand with Gravel (SP)*; wet.	48.0					50
55		Brown, *Poorly-Graded Gravel with Sand (GP)*; wet.	49.6					55
60		Light gray, *Lean Clay (CL)*; moist.	51.6					60
65		Gray to olive brown, *Poorly-Graded Sand with Silt and Gravel (SP-SM); moist.*						65
70		Gray to dark gray, *Poorly-Graded Gravel with Sand (GP-GM)*.	68.5					70
75		Gray, *Poorly-Graded Gravel with Sand (GP)*; wet.	75.2					75
		Gray, *Lean Clay with Sand (CL)*; wet.	76.4 77.5					
80		BORING COMPLETED 7/7/2021						80

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-7

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/21/21	**Location** Southeast of DLG Lease Lots	**Ground Elevation:** Approx. 72.0 feet
Date Completed 7/21/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
0		Dark brown, *Organic Soil (OL)*.	0.6		0		SB3-0.0-0.8	0
5		Dark brown to gray with iron laminations, *Silt (ML)* with 1- to 2-inch layers of fine organics from 16.4 to 17.3 feet.; moist; few to trace organics (fine, woody, roots).			0			5
10					0		SB3-10.0-11.0 and SB31-10.0-11.0	10
15					0.1			15
20		Red brown to gray, *Poorly-Graded Sand with Gravel (SP)*; moist.	18.1					20
25		Red-brown to gray to gray-brown, interbedded less than 1-foot layers of *Silty Gravel (GM)* with *Poorly-Graded Sand with Gravel or Poorly-Graded Sand (SP)*.	21.3			During Drilling	SB3-20.0-20.9 SB3-23.0-24.0	25
30		Gray, *Lean Clay to Lean Gravely Clay with Sand (CL)*; moist.	28.5					30
35		Gray with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; moist to wet below 35 feet.	33.5 36.6					35
40		Gray-brown; *Clayey Sand (SC)*; wet.	38.0					40
45		Gray with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; wet.	39.8					45
50		Dark brown to gray-brown, *Poorly-Graded Sand with Clay and Gravel (SP-SC) to Poorly-Graded Sand with Gravel (SP)*; wet.	48.0					50
55		Brown, *Poorly-Graded Gravel with Sand (GP)*; wet.	49.6					55
60		Light gray, *Lean Clay (CL)*; moist.	51.6					60
65		Gray to olive brown, *Poorly-Graded Sand with Silt and Gravel (SP-SM); moist.*						65
70		Gray to dark gray, *Poorly-Graded Gravel with Sand (GP-GM)*.	68.5					70
75		Gray, *Poorly-Graded Gravel with Sand (GP)*; wet.	75.2					75
		Gray, *Lean Clay with Sand (CL)*; wet.	76.4					
80		BORING COMPLETED 7/7/2021	77.5					80

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-8

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/8/21	**Location** West End of Martin Street, Inside DLG Fence	**Ground Elevation:** Approx. 67.2 feet
Date Completed 7/9/21		**Typical Run Length** 5 feet
Total Depth (ft) 60.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Organic Soil (OL).	0.5					
		Red-yellow to red-brown with iron laminations, *Silt (ML)*; moist; trace organics (roots, wood).			0		SB4-0.5-1.2	
5					0			5
10			11.8		0			10
		Red-brown to light gray-brown, *Silty Gravel (GM) to Poorly-Graded Sand with Silty and Gravel (SP-SM)* with 6-inch beds of *Silt (ML)*; moist.						
15			15.5		0		SB4-15.5-17.0	15
		Red to dark red-brown, *Poorly-Graded Gravel with Sand (GP)*; moist to wet below 20.5 feet bgs.						
20			22.0			During Drilling	SB4-20.0-21.5	20
		Red-brown to dark brown, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)* with 3-foot-bed of *Poorly-Graded Gravel with Sand (GP)* at 25 feet; wet.						
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-9
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/21/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/8/21	**Location** West End of Martin Street, Inside DLG Fence	**Ground Elevation:** Approx. 67.2 feet
Date Completed 7/9/21		**Typical Run Length** 5 feet
Total Depth (ft) 60.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
30		*Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.*					SB4-27.8-28.5	30
35								35
		Brown to light gray-brown, *Silt to Silty Sand (ML)*	38.3					
40		Interbedded with 6-inch to 1-foot layers of *Poorly-Graded Sand with Silt (SP-SM)*; moist to wet.						40
45		Dark brown, *Poorly-Graded Sand (SP)*; wet.	45.0				CONTINUED NEXT PAGE	45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/8/21*	**Location** *West End of Martin Street, Inside DLG Fence*	**Ground Elevation:** *Approx. 67.2 feet*
Date Completed *7/9/21*		**Typical Run Length** *5 feet*
Total Depth (ft) *60.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Dark gray, *Silty Sand (SM)*; wet.	50.0					
55		Light gray, *Lean Clay with Sand (CL)*; moist.	55.0					55
60		BORING COMPLETED 7/9/2021	60.0					60
65								65
70								70

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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LOG OF GEOPROBE

Date Started 7/9/21	**Location** West End of Martin Street, Inside DLG Fence	**Ground Elevation:**	Approx. 67.2 feet
Date Completed 7/9/21		**Typical Run Length**	5 feet
Total Depth (ft) 60.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:**	6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Organic Soil (OL).	0.5		0		SB4-0.5-1.2	
		Red-yellow to red-brown with iron laminations, *Silt (ML)*; moist; trace organics (roots, wood).			0			
		Red-brown to light gray-brown, *Silty Gravel (GM) to Poorly-Graded Sand with Silty and Gravel (SP-SM)* with 6-inch beds of *Silt (ML)*; moist.	11.8		0			
		Red to dark red-brown, *Poorly-Graded Gravel with Sand (GP)*; moist to wet below 20.5 feet bgs.	15.5		0		SB4-15.5-17.0	
		Red-brown to dark brown, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)* with 3-foot-bed of *Poorly-Graded Gravel with Sand (GP)* at 25 feet; wet.	22.0			During Drilling	SB4-20.0-21.5	
							SB4-27.8-28.5	
		Brown to light gray-brown, *Silt to Silty Sand (ML)* Interbedded with 6-inch to 1-foot layers of *Poorly-Graded Sand with Silt (SP-SM)*; moist to wet.	38.3					
		Dark brown, *Poorly-Graded Sand (SP)*; wet.	45.0					
		Dark gray, *Silty Sand (SM)*; wet.	50.0					
		Light gray, *Lean Clay with Sand (CL)*; moist.	55.0					
		BORING COMPLETED 7/9/2021	60.0					

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-10

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/10/21	**Location** Emperor Way and Airport Road, Near Holy Rosary Church	**Ground Elevation:** Approx. 71.5 feet
Date Completed 7/11/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Brown, *Poorly-Graded Gravel with Silty and Sand (GP-GM)*; moist.	0.6					
		Red-brown to light-gray brown, *Silt (ML)*; moist; nonplastic fines; trace to few organics (roots, wood).			0.3			
		Interbedded with less than 6-inch layers of dark brown, *Silty Gravel with Sand (GM)*.			0.2			
5					0			5
10					0			10
15					0			15
		Dark brown with iron staining, *Poorly-Graded Sand to Sand with Gravel (SP)*; moist.	17.5					
20					0.1			20
		Yellow-brown to red-brown with iron staining, *Gravelly Silt with Sand (ML)*; moist.	22.3					
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-11
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/10/21	**Location** Emperor Way and Airport Road, Near Holy Rosary Church	**Ground Elevation:** Approx. 71.5 feet
Date Completed 7/11/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
			26.0					
		Dark brown, *Poorly-Graded Gravel to Poorly-Graded Gravel with Sand (GP)*; moist.	27.0					
		Brown with iron laminations, *Gravelly Silt with Sand to Silt (ML)*; moist to wet.			0	During Drilling		
30								30
35		Brown to dark red-brown, *Silty Gravel to Silty Gravel with Sand (GM)* with 1-foot-layers of *Poorly-Graded Sand with Gravel (SP)*; wet.	35.0				SB5-35.0-35.5	35
40		Dark brown, *Poorly-Graded Sand (SP)*; wet.	40.0					40
		Dark brown, *Poorly-Graded Gravel with Sand (GP)*; wet.	41.0				SB5-40.0-41.5	
45		Brown to gray, *Poorly-Graded Sand with Gravel (SP) to Clayey Gravel with Sand (SC)*; moist to wet.	44.4					45
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/10/21*	**Location** *Emperor Way and Airport Road, Near Holy Rosary Church*	**Ground Elevation:** *Approx. 71.5 feet*
Date Completed *7/11/21*		**Typical Run Length** *2.5 and 5 feet*
Total Depth (ft) *77.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Gray, *Lean Clay (CL)*; moist.	51.6					
55		Dark brown to gray, *Poorly-Graded Sand with Silt and Gravel (SP-SM) to Clayey Gravel with Sand (GC)*; moist to wet.	55.0					55
60								60
65								65
70		Dark gray to gray, *Sandy Lean Clay (CL)*; moist.	70.4					70
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
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- Piezometer Screen and Sand Filter
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- Bentonite Chips/Pellets
- Bentonite Grout

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/10/21*	**Location** *Emperor Way and Airport Road, Near Holy Rosary Church*	**Ground Elevation:** *Approx. 71.5 feet*
Date Completed *7/11/21*		**Typical Run Length** *2.5 and 5 feet*
Total Depth (ft) *77.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		BORING COMPLETED 7/11/2021	77.0					
80								80
85								85
90								90
95								95

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
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- Bentonite Grout

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/11/21	**Location** Emperor Way and Airport Road, Near Holy Rosary Church	**Ground Elevation:** Approx. 71.5 feet
Date Completed 7/11/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 77.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Brown, *Poorly-Graded Gravel with Silty and Sand (GP-GM)*; moist.	0.6		0.3			
5		Red-brown to light-gray brown, *Silt (ML)*; moist; nonplastic fines; trace to few organics (roots, wood).			0.2			5
10		Interbedded with less than 6-inch layers of dark brown, *Silty Gravel with Sand (GM)*.			0			10
15					0			15
			17.5		0			
20		Dark brown with iron staining, *Poorly-Graded Sand to Sand with Gravel (SP)*; moist.						20
		Yellow-brown to red-brown with iron staining, *Gravelly Silt with Sand (ML)*; moist.	22.3		0.1			
25			26.0					25
		Dark brown, *Poorly-Graded Gravel to Poorly-Graded Gravel with Sand (GP)*; moist.	27.0		0	During Drilling		
30		Brown with iron laminations, *Gravelly Silt with Sand to Silt (ML)*; moist to wet.						30
35			35.0				SB5-35.0-35.5	35
		Brown to dark red-brown, *Silty Gravel to Silty Gravel with Sand (GM)* with 1-foot-layers of *Poorly-Graded Sand with Gravel (SP)*; wet.						
40			40.0					40
		Dark brown, *Poorly-Graded Sand (SP)*; wet.	41.0				SB5-40.0-41.5	
		Dark brown, *Poorly-Graded Gravel with Sand (GP)*; wet.	44.4					
45		Brown to gray, *Poorly-Graded Sand with Gravel (SP) to Clayey Gravel with Sand (SC)*; moist to wet.						45
50								50
		Gray, *Lean Clay (CL)*; moist.	51.6					
55		Dark brown to gray, *Poorly-Graded Sand with Silt and Gravel (SP-SM) to Clayey Gravel with Sand (GC)*; moist to wet.	55.0					55
60								60
65								65
70		Dark gray to gray, *Sandy Lean Clay (CL)*; moist.	70.4					70
75								75
		BORING COMPLETED 7/11/2021	77.0					

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-12

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/12/21*	**Location** *North End of Runway*	**Ground Elevation:** *Approx. NA feet*	
Date Completed *7/12/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *20.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *2.25 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Red-brown, *Poorly-Graded Sand with Gravel (SP)*; moist.			0		SB6-0.0-0.5	
5			5.9					5
		Brown to gray, *Poorly-Graded Gravel with Silt and Sand (GP-GM)*; moist to wet below 12 feet; trace organics.			0.2		SB6-6.9-7.9 and SB61-69-7.9	
10								10
					0.3	During Drilling	SB6-11.8-12.4	
15		Red, *Organic Soil (OL)*; moist; organic peat.	15.1					15
20		BORING COMPLETED 7/12/2021	20.0					20

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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FIG. B-13

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/12/01*	**Location** *Northeast Corner of Apron*	**Ground Elevation:** *Approx. NA feet*	
Date Completed *7/12/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *35.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *2.25 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Brown, *Poorly-Graded Sand with Gravel (SP)*; moist.			1		SB7-0.0-1.1	
		Light gray-brown to red-yellow, with iron staining, *Silt to Silt with Gravel (ML)*, with 8-inch bed of *Poorly-Graded Sand with Silt and Gravel (SP-SM)* at 10.3 feet; moist; organics at 18.3 and 18.7 feet.	2.3					
5					0.9			5
10					1			10
15					0.9		SB7-16.7-17.1	15
20		Gray, *Poorly-Graded Sand with Silt and Gravel (SP-SM)*, with 2-inch bed of *Silt (ML)* at 23 feet; moist.	21.6		0			20
		Red-brown to brown, *Poorly-Graded Gravel with Silt and Sand (GP-GM)* with 4-inch bed of *Silt (ML)* at 26 feet.	23.0				CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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FIG. B-14
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/12/01*	**Location** *Northeast Corner of Apron*	**Ground Elevation:** *Approx. NA feet*	
Date Completed *7/12/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *35.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *2.25 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Gray to brown, *Sandy Silt (ML)* moist; few organics (fine).			0			
30		Dark red-brown, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; wet.	30.0			During Drilling	SB7-28.8-30.2	30
35		BORING COMPLETED 7/12/2021	35.0					35
40								40
45								45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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FIG. B-14
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/12/21*	**Location** *South End of Runway*	**Ground Elevation:** *Approx. NA feet*	
Date Completed *7/13/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *35.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *2.25 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Dark brown, *Poorly-Graded Sand with Silt and Gravel (SP-SM)*; moist.			0		SB8-0.0-0.6	
		Brown to red-brown, with iron laminations, *Silt* with less than 1-foot beds of *Sandy Silt with Gravel (ML)* or *Silty Gravel with Sand (GM)* at 5 and 10 feet; moist; few organics at 7.9 feet, mostly organics at 13.5 feet.	2.7					
5					0.4			5
10					0.3			10
15					0		SB8-16.4-16.8	15
20					0			20

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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FIG. B-15
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/12/21*	**Location** *South End of Runway*	**Ground Elevation:** *Approx. NA feet*	
Date Completed *7/13/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *35.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *2.25 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
					0.1			
30						During Drilling	SB8-30.0-30.5	30
		Brown to red, *Poorly-Graded Sand with Gravel (SP)*; wet.	31.3					
35		BORING COMPLETED 7/13/2021	35.0					35
40								40
45								45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/13/21	**Location** North of Airport Longterm Parking, Southwest of Lease Lots	**Ground Elevation:** Approx. 76.0 feet
Date Completed 7/14/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 80.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Red-brown to gray-brown, *Silt (ML)*; moist; few organics (roots).			0.1		SB9-0.0-0.5	
		Red-brown, *Organic Soil (OL)*; moist; with 5-inch bed of peat at 3 feet.	2.6					
5		Brown to light gray, with iron staining, *Silt (ML)*; moist to wet below 6.5 feet; with 2-inch bed of peat at 5.3 feet.	5.0		0.7		SB9-5.0-5.5	5
10								10
15					0.5 0.1		SB9-15.6-16.2	15
20							CONTINUED NEXT PAGE	20

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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LOG OF GEOPROBE

Date Started 7/13/21	**Location** North of Airport Longterm Parking, Southwest of Lease Lots	**Ground Elevation:** Approx. 76.0 feet
Date Completed 7/14/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 80.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Gray, *Lean Clay to Lean Clay with Sand (CL)*, with 8-inch bed of red-brown, *Organic Soil with Sand (OL)* at 36.5 feet; moist to wet below 36.5 feet.	25.6			During Drilling		
30								30
35							SB9-36.6-36.8	35
40		Dark gray to red-brown, *Poorly-Graded Sand with Gravel (SP)*, interbedded with *Poorly-Graded Sand with Silt and Gravel (SP-SM)*; wet.	40.8					40
45							CONTINUED NEXT PAGE	45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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LOG OF GEOPROBE

Date Started *7/13/21*	**Location** *North of Airport Longterm Parking, Southwest of Lease Lots*	**Ground Elevation:** *Approx. 76.0 feet*	
Date Completed *7/14/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *80.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
55		Gray, *Silt (ML)*; moist.	55.2					55
60		Dark gray, *Poorly-Graded Sand with Gravel (SP)*; wet.	60.8					60
65		Gray, *Claey Gravel with Sand (GC)*; moist.	65.0					65
70								70

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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LOG OF GEOPROBE

Date Started *7/13/21*	**Location** *North of Airport Longterm Parking, Southwest of Lease Lots*	**Ground Elevation:** *Approx. 76.0 feet*	
Date Completed *7/14/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *80.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
80		BORING COMPLETED 7/23/2021	80.0					80
85								85
90								90
95								95

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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LOG OF GEOPROBE

Date Started 7/14/21	**Location** North of Airport Longterm Parking, Southwest of Lease Lots	**Ground Elevation:** Approx. 76.0 feet
Date Completed 7/14/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 80.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
0		Red-brown to gray-brown, *Silt (ML)*; moist; few organics (roots).			0.1		SB9-0.0-0.5	0
		Red-brown, *Organic Soil (OL)*; moist; with 5-inch bed of peat at 3 feet.	2.6					
5			5.0		0.7		SB9-5.0-5.5	5
10		Brown to light gray, with iron staining, *Silt (ML)*; moist to wet below 6.5 feet; with 2-inch bed of peat at 5.3 feet.						10
15					0.5 0.1		SB9-15.6-16.2	15
20								20
25		Gray, *Lean Clay to Lean Clay with Sand (CL)*, with 8-inch bed of red-brown, *Organic Soil with Sand (OL)* at 36.5 feet; moist to wet below 36.5 feet.	25.6			During Drilling		25
30								30
35							SB9-36.6-36.8	35
40			40.8					40
45		Dark gray to red-brown, *Poorly-Graded Sand with Gravel (SP)*, interbedded with *Poorly-Graded Sand with Silt and Gravel (SP-SM)*; wet.						45
50								50
55		Gray, *Silt (ML)*; moist.	55.2					55
60		Dark gray, *Poorly-Graded Sand with Gravel (SP)*; wet.	60.8					60
65		Gray, *Claey Gravel with Sand (GC)*; moist.	65.0					65
70								70
75								75
80		BORING COMPLETED 7/23/2021	80.0					80

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-17

REV 3

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LOG OF GEOPROBE

Date Started 7/14/21	**Location** North of Airport Longterm Parking, Southwest of Lease Lots	**Ground Elevation:** Approx. 76.0 feet
Date Completed 7/14/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 80.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
0		Red-brown to gray-brown, *Silt (ML)*; moist; few organics (roots).			0.1		SB9-0.0-0.5	0
		Red-brown, *Organic Soil (OL)*; moist; with 5-inch bed of peat at 3 feet.	2.6					
5			5.0		0.7		SB9-5.0-5.5	5
10		Brown to light gray, with iron staining, *Silt (ML)*; moist to wet below 6.5 feet; with 2-inch bed of peat at 5.3 feet.						10
15					0.5 0.1		SB9-15.6-16.2	15
20								20
25		Gray, *Lean Clay to Lean Clay with Sand (CL)*, with 8-inch bed of red-brown, *Organic Soil with Sand (OL)* at 36.5 feet; moist to wet below 36.5 feet.	25.6			During Drilling		25
30								30
35							SB9-36.6-36.8	35
40			40.8					40
45		Dark gray to red-brown, *Poorly-Graded Sand with Gravel (SP)*, interbedded with *Poorly-Graded Sand with Silt and Gravel (SP-SM)*; wet.						45
50								50
55		Gray, *Silt (ML)*; moist.	55.2					55
60		Dark gray, *Poorly-Graded Sand with Gravel (SP)*; wet.	60.8					60
65		Gray, *Claey Gravel with Sand (GC)*; moist.	65.0					65
70								70
75								75
80		BORING COMPLETED 7/23/2021	80.0					80

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-18

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/15/21	**Location** Fairview Drive and Kanakanak Road	**Ground Elevation:** Approx. 75.3 feet
Date Completed 7/16/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 75.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Brown, *Poorly-Graded Sand with Silt and Gravel (SP-SM)*; moist.						
		Brown to light gray-brown, with 2- to 4-foot beds with iron staining or laminations, *Silt to Gravelly Silt with Sand (ML)*; moist.	1.0		0.2			
5					0.4			5
10					0.6			10
15					0.2			15
20		Red-brown, *Organic Soil (OL)*; moist.	20.0					20
		Ligh gray, *Silt (ML)*; moist.	21.7		1			
		Gray, *Clayey Sand (SC) to Lean Clay (CL)*; moist.	23.3				CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-19
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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/15/21*	**Location** *Fairview Drive and Kanakanak Road*	**Ground Elevation:** *Approx. 75.3 feet*	
Date Completed *7/16/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *75.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Dark brown, *Poorly-Graded Sand with Gravel (SP)*; moist.	26.7		1			
30		Dark brown to red, with iron staning, *Poorly-Graded Gravel with Sand (GP)*; moist to wet below 32 feet.	30.0			During Drilling	SB10-26.8-32.0 and SB101-26.8-32.0	30
35							SB10-36.0-37.1	35
40		Dark brown to red, with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; wet.	40.9					40
45		Red, *Poorly-Graded Gravel with Sand (GP)*; wet.	45.8				CONTINUED NEXT PAGE	45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-19
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/15/21*	**Location** *Fairview Drive and Kanakanak Road*	**Ground Elevation:** *Approx. 75.3 feet*
Date Completed *7/16/21*		**Typical Run Length** *2.5 and 5 feet*
Total Depth (ft) *75.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Dark brown to red-brown, *Poorly-Graded Sand with Silt (SP-SM)*; wet.	50.0					
55		Dark brown to gray, *Silty Sand (SM)*; wet.	56.0					55
60								60
65		Gray, *Lean Clay to Sandy Lean Clay (CL)*; moist.	65.0					65
70								70
		BORING COMPLETED 7/15/2021	75.0					

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-19
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/15/21*	**Location** *Fairview Drive and Kanakanak Road*	**Ground Elevation:** *Approx. 75.3 feet*
Date Completed *7/16/21*		**Typical Run Length** *2.5 and 5 feet*
Total Depth (ft) *75.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Brown, *Poorly-Graded Sand with Silt and Gravel (SP-SM)*; moist.	1.0		0.2			
5		Brown to light gray-brown, with 2- to 4-foot beds with iron staining or laminations, *Silt to Gravelly Silt with Sand (ML)*; moist.			0.4			5
10					0.6			10
15					0.2			15
20		Red-brown, *Organic Soil (OL)*; moist.	20.0					20
			21.7		1			
25		Ligh gray, *Silt (ML)*; moist.	23.3					25
		Gray, *Clayey Sand (SC) to Lean Clay (CL)*; moist.	26.7					
		Dark brown, *Poorly-Graded Sand with Gravel (SP)*; moist.			1			
30		Dark brown to red, with iron staning, *Poorly-Graded Gravel with Sand (GP)*; moist to wet below 32 feet.	30.0			During Drilling	SB10-26.8-32.0 and SB101-26.8-32.0	30
35							SB10-36.0-37.1	35
40		Dark brown to red, with iron staining, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; wet.	40.9					40
45		Red, *Poorly-Graded Gravel with Sand (GP)*; wet.	45.8					45
50		Dark brown to red-brown, *Poorly-Graded Sand with Silt (SP-SM)*; wet.	50.0					50
55		Dark brown to gray, *Silty Sand (SM)*; wet.	56.0					55
60								60
65		Gray, *Lean Clay to Sandy Lean Clay (CL)*; moist.	65.0					65
70								70
75		BORING COMPLETED 7/15/2021	75.0					75

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-20

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started	7/17/21	Location	Northwest Corner of Lease Lots, Mulchatna Air	Ground Elevation:	Approx. 71.2 feet
Date Completed	7/18/21			Typical Run Length	2.5 and 5 feet
Total Depth (ft)	80.0	Drilling Company:	Discovery Drilling	Hole Diameter:	6 inches

Soil Description

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

Depth, ft.	Soil Description	PID, ppm	Sample Number, Description, and Results
0.3	Asphalt		
1.2	Dark brown, *Poorly-Graded Gravel with Sand (GP)*; moist.	0	SB11-0.2-1.3
15.0	Red-yellow to light gray-brown, with iron staining from 10 to 14 feet, *Silt (ML)*; moist.	0, 0, 0, 0	SB11-2.3-3.3 and SB111-2.3-3.3
	Dark red-brown to brown, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; with 1.5-foot bed of *Silty Sand (SM)* at 33.7 feet; moist to wet below 24 feet.	0.1, 0.3	

Ground Water: During Drilling (approx. 23.5 ft)

Depth (ft): 5, 10, 15, 20

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-21

REV 3

LOG OF GEOPROBE

Date Started *7/17/21*	**Location** *Northwest Corner of Lease Lots, Mulchatna Air*	**Ground Elevation:** *Approx. 71.2 feet*
Date Completed *7/18/21*		**Typical Run Length** *2.5 and 5 feet*
Total Depth (ft) *80.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
							SB11-22.5-25.4	
30								30
							SB11-31.4-32.0	
35		Gray, *Lean Clay and Sandy Lean Clay (CL)*; moist.	35.5					35
40		Gray to light gray-brown, *Silt with Sand (SM)*; interbedded with *Lean Clay (CL)*; moist to wet.	40.0					40
45		Dark brown, *Poorly-Graded Sand (SP)*; wet.	45.5				CONTINUED NEXT PAGE	45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-21
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REV 3

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LOG OF GEOPROBE

Date Started *7/17/21*	**Location** *Northwest Corner of Lease Lots, Mulchatna Air*	**Ground Elevation:** *Approx. 71.2 feet*	
Date Completed *7/18/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *80.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Brown to gray, *Silty Sand (SM)*; wet.						
55								55
60		Brown, *Sandy Silt (ML)*; moist.	60.0					60
65		Brown, *Poorly-Graded Sand with Silt (SP-SM)*; moist.	65.0					65
		Dark gray, *Poorly-Graded Sand with Gravel and Sand (SP)*; wet.	66.7					
70								70
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-21
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/17/21*	**Location** *Northwest Corner of Lease Lots, Mulchatna Air*	**Ground Elevation:** *Approx. 71.2 feet*	
Date Completed *7/18/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *80.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description *Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.*	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Dark gray, *Poorly-Graded Sand with Gravel and Sand (SP)*; wet.						
80			80.0					80
85								85
90								90
95								95

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-21
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/18/21	**Location** Northwest Corner of Lease Lots, Mulchatna Air	**Ground Elevation:** Approx. 71.2 feet
Date Completed 7/18/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 80.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
0		Asphalt	0.3		0		SB11-0.2-1.3	0
		Dark brown, *Poorly-Graded Gravel with Sand (GP)*; moist.	1.2		0		SB11-2.3-3.3 and SB111-2.3-3.3	
5		Red-yellow to light gray-brown, with iron staining from 10 to 14 feet, *Silt (ML)*; moist.			0			5
10					0			10
15		Dark red-brown to brown, *Poorly-Graded Sand to Poorly-Graded Sand with Gravel (SP)*; with 1.5-foot bed of *Silty Sand (SM)* at 33.7 feet; moist to wet below 24 feet.	15.0		0.1			15
20					0.3			20
25						During Drilling	SB11-22.5-25.4	25
30							SB11-31.4-32.0	30
35		Gray, *Lean Clay and Sandy Lean Clay (CL)*; moist.	35.5					35
40		Gray to light gray-brown, *Silt with Sand (SM)*; interbedded with *Lean Clay (CL)*; moist to wet.	40.0					40
45		Dark brown, *Poorly-Graded Sand (SP)*; wet.	45.5					45
50		Brown to gray, *Silty Sand (SM)*; wet.						50
55								55
60		Brown, *Sandy Silt (ML)*; moist.	60.0					60
65		Brown, *Poorly-Graded Sand with Silt (SP-SM)*; moist.	65.0					65
			66.7					
70		Dark gray, *Poorly-Graded Sand with Gravel and Sand (SP)*; wet.						70
75								75
80			80.0					80

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-22

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/19/21*	**Location** *Windsock, North of Taxiway B*	**Ground Elevation:** *Approx. 76.8 feet*
Date Completed *7/20/21*		**Typical Run Length** *2.5 and 5 feet*
Total Depth (ft) *87.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Topsoil.	0.2		2		SB12-0.3-0.8	
		Red-brown to gray-brown, *Silt (ML)*, with 10-inch bed of *Organic Soil (OL)* at 3 feet, and a 2.5-foot bed at 21 feet; moist to wet from 6 to 18 feet.			2			
5					0.5			5
10					0.1			10
15					0.5		SB12-15.0-16.0 and SB121-15.0-16.0	15
20					0.3			20
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-23
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/19/21	**Location** Windsock, North of Taxiway B	**Ground Elevation:**	Approx. 76.8 feet
Date Completed 7/20/21		**Typical Run Length**	2.5 and 5 feet
Total Depth (ft) 87.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:**	6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
			26.0					
		Gray, *Lean Clay to Lean Clay with Sand and Gravel (CL)*; moist to wet below 29 feet bgs.			0.8	During Drilling		
30								30
			34.8					
35		Red-brown to gray, *Poorly-Graded Gravel with Sand (GP)*; wet.					SB12-35.0-35.7	35
40							SB12-40.0-40.6	40
			41.2					
		Dark gray, *Poorly-Graded Sand (SP)*; wet; fine to medium sand.	41.4					
		Gray to brown, *Silt (ML)*, interbedded with less than 8-inch beds of *Poorly-Graded Sand or Poorly-Graded Sand with Gravel (SP)* at 41.2 and 45.3 feet.; wet.						
45								45

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/19/21*	**Location** *Windsock, North of Taxiway B*	**Ground Elevation:** *Approx. 76.8 feet*	
Date Completed *7/20/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *87.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description *Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.*	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
			50.4					
		Dark gray, *Poorly-Graded Sand with Gravel (SP)*; wet.						
55								55
			57.5					
		Dark gray, *Poorly-Graded Gravel with Sand (GP)*, interbedded with less than 1-foot beds of *Poorly-Graded Gravel with Sand (SP)* at 65 and 70 feet; wet.						
60								60
65								65
70								70
							CONTINUED NEXT PAGE	

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/19/21*	**Location** *Windsock, North of Taxiway B*	**Ground Elevation:** *Approx. 76.8 feet*	
Date Completed *7/20/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *87.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Dark gray, *Poorly-Graded Sand to Sand with Gravel (SP)*; wet.	75.0					
80								80
		BORING COMPLETED 7/20/2021	82.5					
85								85
90								90
95								95

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/20/21	**Location** Windsock, North of Taxiway B	**Ground Elevation:** Approx. 76.8 feet
Date Completed 7/20/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 87.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
0		Topsoil.	0.2		2		SB12-0.3-0.8	0
		Red-brown to gray-brown, *Silt (ML)*, with 10-inch bed of *Organic Soil (OL)* at 3 feet, and a 2.5-foot bed at 21 feet; moist to wet from 6 to 18 feet.			2			
5					0.5			5
10					0.1			10
15					0.5		SB12-15.0-16.0 and SB121-15.0-16.0	15
20					0.3			20
25		Gray, *Lean Clay to Lean Clay with Sand and Gravel (CL)*; moist to wet below 29 feet bgs.	26.0		0.8			25
30								30
35		Red-brown to gray, *Poorly-Graded Gravel with Sand (GP)*; wet.	34.8			During Drilling	SB12-35.0-35.7	35
40		Dark gray, *Poorly-Graded Sand (SP)*; wet; fine to medium sand.	41.2				SB12-40.0-40.6	40
45		Gray to brown, *Silt (ML)*, interbedded with less than 8-inch beds of *Poorly-Graded Sand or Poorly-Graded Sand with Gravel (SP)* at 41.2 and 45.3 feet.; wet.	41.4					45
50		Dark gray, *Poorly-Graded Sand with Gravel (SP)*; wet.	50.4					50
55								55
60		Dark gray, *Poorly-Graded Gravel with Sand (GP)*, interbedded with less than 1-foot beds of *Poorly-Graded Gravel with Sand (SP)* at 65 and 70 feet; wet.	57.5					60
65								65
70								70
75		Dark gray, *Poorly-Graded Sand to Sand with Gravel (SP)*; wet.	75.0					75
80								80
		BORING COMPLETED 7/20/2021	82.5					

Typ: MED
Rev:
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-24

REV 3

LOG OF GEOPROBE

Date Started 7/22/21	**Location** Southwest Fire Training Area	**Ground Elevation:** Approx. NA feet
Date Completed 7/22/21		**Typical Run Length** 5 feet
Total Depth (ft) 40.0	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 2.25 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Dark gray to brown, *Silty Gravel with Sand (GM)*; moist.					SB13-0.0-0.5	
		Brown to gray, *Silt (ML)*, with 2-inch beds of *Silty Gravel with Sand (GM)* at 5.3 and 10 feet; moist to wet.	1.4		0.3			
5					0.7	During Drilling		5
10		Dark brown, *Organic Soils (OL)*; moist; peat.	10.9					10
		Gray-brown, *Silt (ML)*; wet; few organics.	11.4		0.6		SB13-10.9-11.4	
		Red-brown to gray, *Silty Gravel with Sand (GM)*; wet.	13.0					
15		Red-brown to gray, *Gravelly Silt with Sand (ML)*; wet.	16.2		0.8			15
		Dark brown, *Poorly-Graded Sand with Silt (SP-SM)*, with 5-inch bed of laminated *Silt with Sand (ML)* at 17.8 feet.; moist to wet.	17.0					
20					0.3			20

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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FIG. B-25
Sheet 1 of 2

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/22/21*	**Location** *Southwest Fire Training Area*	**Ground Elevation:** *Approx. NA feet*	
Date Completed *7/22/21*		**Typical Run Length** *5 feet*	
Total Depth (ft) *40.0*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *2.25 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
			27.0					
		Dark brown, interbedded *Poorly-Graded Sand with Gravel (SP)* and *Poorly-Graded Gravel with Sand (GP)*; wet.						
30					0.1			30
35					0.4		SB13-35.0-37.5 and SB13-135-137.5	35
40		BORING COMPLETED 7/22/2021	40.0					40
45								45

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery

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FIG. B-25
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/22/21	**Location** Near Southwest Fire Training Area	**Ground Elevation:** Approx. 71.2 feet
Date Completed 7/23/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 82.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Brown, *Poorly-Graded Gravel with Sand and Silt (GP-GM)*; moist.						
		Asphalt	0.7		0.3		SB14-0.0-0.8	
		Red-brown to gray-brown, *Silt (ML)*; moist to wet below 5.8 feet.	1.0					
5					0.6			5
10					0.2			10
15					0.3			15
20		Dark gray to dark red-brown, *Poorly-Graded Gravel with Sand (GW)*; wet.	21.1		1		SB14-21.2-21.7	20
		Red-brown to red, *Poorly-Graded Sand with Gravel (SP)*; moist to wet.	22.6				CONTINUED NEXT PAGE	

Soil Description: Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
- Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-26
Sheet 1 of 4

REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started 7/22/21	**Location** Near Southwest Fire Training Area	**Ground Elevation:** Approx. 71.2 feet
Date Completed 7/23/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 82.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Red-brown, *Poorly-Graded Gravel with Sand and Silt (GP-GM)*, with 6-inch bed of *Silt (ML)* at 25 feet; moist to wet.	25.0		0.7			
		Red to brown, *Sandy Silt with Gravel (ML)* interbedded with *Gravelly Silty with Sand (ML)*; moist.	26.7					
30		Red-brown, *Poorly-Graded Sand (SP)*, with 8-inch bed of *Silt with Sand (ML)*at 35 feet; moist.	30.7		1			30
35		Brown, *Sandy Silt (ML)*; moist.	36.7		0.1	During Drilling		35
40		Red-brown, *Silty Sand (SM)*, with 7-inch bed of *Sandy Silt (ML)* at 50 feet; moist to wet.	40.0		0.2		SB14-40.6-41.8 and SB14-140.6-141.8	40
45								45

CONTINUED NEXT PAGE

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
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- Bentonite Grout

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FIG. B-26
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/22/21*	**Location** *Near Southwest Fire Training Area*	**Ground Elevation:** *Approx. 71.2 feet*	
Date Completed *7/23/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *82.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
55		Gray to brown, *Silt with Sand (ML)*; wet.	55.0					55
60		Dark brown to brown, *Poorly-Graded Sand with Silt (SP-SM)* interbedded with *Silty Sand (SM)*; wet. With 7-inch bed of *Silt (ML)* at 70 feet.	60.0					60
65								65
70							CONTINUED NEXT PAGE	70

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

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FIG. B-26
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REV 3

GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4/27/22 Rev: Typ: MED

LOG OF GEOPROBE

Date Started *7/22/21*	**Location** *Near Southwest Fire Training Area*	**Ground Elevation:** *Approx. 71.2 feet*	
Date Completed *7/23/21*		**Typical Run Length** *2.5 and 5 feet*	
Total Depth (ft) *82.5*	**Drilling Company:** *Discovery Drilling*	**Hole Diameter:** *6 inches*	

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Gray, *Silt (ML)*; moist.	76.7					
80		Gray, *Silty Sand (SM)*; wet; trace organics.	80.0					80
		BORING COMPLETED 7/23/2021	82.5					
85								85
90								90
95								95

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
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FIG. B-26
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LOG OF GEOPROBE

Date Started 7/23/21	**Location** Near Southwest Fire Training Area	**Ground Elevation:** Approx. 71.2 feet
Date Completed 7/23/21		**Typical Run Length** 2.5 and 5 feet
Total Depth (ft) 82.5	**Drilling Company:** Discovery Drilling	**Hole Diameter:** 6 inches

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number, Description, and Results	Depth (ft)
		Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.						
		Brown, *Poorly-Graded Gravel with Sand and Silt (GP-GM)*; moist.	0.7		0.3		SB14-0.0-0.8	
		Asphalt	1.0					
5		Red-brown to gray-brown, *Silt (ML)*; moist to wet below 5.8 feet.			0.6			5
					0.2			
10								10
					0.3			
15								15
20			21.1		1		SB14-21.2-21.7	20
		Dark gray to dark red-brown, *Poorly-Graded Gravel with Sand (GW)*; wet.	22.6					
25		Red-brown to red, *Poorly-Graded Sand with Gravel (SP)*; moist to wet.	25.0		0.7			25
			26.7					
30		Red-brown, *Poorly-Graded Gravel with Sand and Silt (GP-GM)*, with 6-inch bed of *Silt (ML)* at 25 feet; moist to wet.	30.7		1			30
35		Red to brown, *Sandy Silt with Gravel (ML)* interbedded with *Gravelly Silty with Sand (ML)*; moist.	36.7		0.1			35
40		Red-brown, *Poorly-Graded Sand (SP)*, with 8-inch bed of *Silt with Sand (ML)*at 35 feet; moist.	40.0		0.2		SB14-40.6-41.8 and SB14-140.6-141.8	40
45		Brown, *Sandy Silt (ML)*; moist.						45
50		Red-brown, *Silty Sand (SM)*, with 7-inch bed of *Sandy Silt (ML)* at 50 feet; moist to wet.						50
55		Gray to brown, *Silt with Sand (ML)*; wet.	55.0					55
60		Dark brown to brown, *Poorly-Graded Sand with Silt (SP-SM)* interbedded with *Silty Sand (SM)*; wet.	60.0					60
65		With 7-inch bed of *Silt (ML)* at 70 feet.						65
70								70
75		Gray, *Silt (ML)*; moist.	76.7					75
80		Gray, *Silty Sand (SM)*; wet; trace organics.	80.0					80
		BORING COMPLETED 7/23/2021	82.5					

During Drilling

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

- 2" Plastic Sheath - No Soil Recovery
- 2" Plastic Sheath - Soil Recovery
- Piezometer Screen and Sand Filter
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- Bentonite Chips/Pellets
- Bentonite Grout

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FIG. B-27

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APPENDIX C: FIELD NOTES

Appendix C

Field Notes

CONTENTS

- Soil Sample Collection Logs
- Surface Water Sample Logs
- Soil Drum Logs
- Monitoring Well Construction Details
- Well Development Logs
- Monitoring Well Sampling Logs
- Monitoring Well Swing Ties
- Groundwater Elevation Measurements
- Investigation-Derived Waste Disposal Paperwork

SOIL SAMPLE COLLECTION LOG

Project Number: 102581-009 Project Name: Dillingham PFAS Site Characterization Page 1 of 4

Date: 6/29/21 – 7/8/21

Sampler: MDN / DHF / ALF

Sample Number	Location/Description	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
SB1-5.4-6.0	Wood Rv + Kanuk low-plasticity silt ~~@ GW interface~~ (lw)	6/29/21	0940	—	~~ES~~ FD	—	~~PFAS x18~~ None (canceled)
SB1-15.7-16.3	↓ organic-rich silt @ GW interface		1015	—	ES	—	↓ PFAS x18
SB1-27.3-28.0	↓ sandy gravel, no fines		1045	—	↓	—	↓ "
core 1			—	0-5	FS	0.6	None
core 2			—	5-10		1.1	
core 3			—	10-15		1.7	
core 4			—	15-20		2.4	
core 6	↓		—	25-30	↓	0.5	↓
core 7			—	30-35		0.1	
core 8	} below GW didn't need to measure w/ PID		—	35-40		0.2	
core 9			—	40-45		0.9	
core 10	↓	↓	—	45-50	↓	1.3	↓
~~core 1~~ (lw)	Airport + Airport Spur Rd	7/2/21	—	0-1.2		0.0	
core 1 (top)		core 1 →		1.2-EOB		0.0	
Core 1 (bottom)		~~N/A~~	—	~~15-20~~		~~0.0~~ (lw)	
core 4 (skip cores 2+3)			—	15-20		0.0	
core 5			—	20-25		0.1	
Core 6 (top)			—	25-25.9		0.0	
Core ~~6~~ (bottom)		↓	—	25.9-EOB	↓	0.0	↓
SB2-31.7-32.3	mostly fines ~20% gravel + sand	7/2/21	1322	—	~~ES~~	—	PFAS x18
SB2-37.5-38.4	gravel w/ fines + free water	↓	1430	—	ES	—	↓
Core ~~7~~ 7			—	30-35	FS	0.0	None
Core ~~8~~ 8			—	35-~~40~~	↓	0.0	↓
SB2-45.3-46.0		↓	1505	←	ES	—	PFAS x18
~~Core 2~~ SS 2	split spoons	7/4/21	—	7.5-10	FS	1.0	None } PID calibration incorrect, dies high
~~Core 3~~ SS 3			—	10-12.5		1.2	
~~Core~~ SS 4	↓	↓	—	12.5-15	↓	0.6	↓
core 1	SB-03, S. from apron next to airport fence	7/6/21	~~1100~~	~~0-4~~	~~ES~~	0.0	~~PFAS~~ —
SB3-~~0.0~~-0.8	sample near surface, organic-rich		410	0-0.8	ES	0.0	PFAS x18
core 2	↓		~~1~~ —	5-10	FS	0.0	—
core 3			—	10-15	↓	0.0	—
core 4			—	15-20	↓	0.1	—
SB3-10.0-11.0	from perched wet silt layer, midway btwn surface and gw		1227	10-11	ES	—	PFAS x18
SB3-10.0-11.0	At groundwater interface +		1217	10-11	~~ES~~ FD	—	PFAS x18
SB3-20.0-20.9	Dup of SB3-10.0-11.0 ← switch		1238	20-20.9	~~ES~~	—	PFAS x18
SB3-23.0-24.0	within screen interval of shallow well	↓	1255	23-24	ES	—	PFAS x18
SB4-0.5-1.2	SB4 location near Martin St. inside airport fence	7/8/21	1738	0.5-1.2	ES	0.1	PFAS x18
SB4-15.5-17.0	SB4, change in lithology and halfway to GW		1751	15.5-17	ES	0.0	PFAS x18
SB4-20.0-21.5	SB4 groundwater interface		1810	20-21.5	ES	—	PFAS x18
SB4-27.8-28.5	SB4 in well screen interval	↓	1831	27.8-28.5	ES	—	PFAS x18

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MDN 8/10

SOIL SAMPLE COLLECTION LOG

Project Number: 102581-009 Project Name: DLG PFAS Site Characterization Page 2 of 4

Date: 7/10/21 - 7/13/21

Sampler: DHF, VTY

Sample Number	Location	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
Core 1	SB4	7/9/21		0-5	FS	0.0	—
Core 2	↓			5-10	↓	0.0	—
Core 3				10-15		0.0	—
Core 4				15-20		0.0	—
Core 1	SB5	7/10/21		0-5		0.3	—
Core 2	↓			5-7		0.2	—
Core 3				7-10		0.0	—
Core 4				10-15		0.0	—
Core 5				15-20		0.0	—
Core 6				20-25		0.1	—
~~Core 7 SB5-35.0-35.5~~				25-30		0.0	—
Core 8				30-35	↓	0.0	
SB5-35.0-35.5	At groundwater interface		1833	35-35.5	ES	—	PFAS X18
SB5-40.0-41.5	↓ within screen interval		1908	40-41.5	ES	—	PFAS X18
SB6-0.0-0.5	At north end of runway, surface	7/12/21	2030	0-0.5	ES	—	~~PFAS X18~~
SB6-6.9-7.9	" ", middle		2050	6.9-7.9	ES	0.0	PFAS X18
SB6-6.9-7.9	Duplicate of SB6-6.9-7.9		2100	6.9-7.9	FD	0.0	PFAS X18
Core 1	At SB6 north end of runway		—	0-5	FS	2.0	—
Core 2	" "		—	5-10	↓	0.2	—
Core 3	" "		—	10-15	↓	0.3	—
SB6-11.8-12.4	At groundwater interface in SB6		2103	11.8-12.4	ES	—	PFAS X18
SB7-0.0-1.1	At SB7, NE corner of apron		2140	0-1.1	ES	1.1	PFAS X18
Core 1	↓			0-5	FS	1.1	—
Core 2				5-10		0.9	—
Core 3				10-15		1.4	—
Core 4				15-20		0.9	—
Core 5				20-25		0.0	—
Core 6				25-30	↓	0.0	—
SB7-28.8-30.2	At groundwater interface in SB7	7/12/21	2305	28.8-30.2	ES	—	PFAS X18, DRO, RRO, GRO, VOC
SB7-16.7-17.1	in silt in middle of boring	7/12/21	2320	16.7-17.1	ES	1.4	PFAS X18
SB8-0.0-0.6	SB8 at S. end of runway, surface sample	7/13/21	0004	0-0.6	ES	0.0	PFAS X18
Core 1	SB8, at south end of runway			0-5	FS	0.0	—
Core 2	↓			5-10		0.4	—
Core 3				10-15		0.3	—
Core 4				15-20		0.0	—
Core 5				20-25		0.0	—
Core 6				25-30	↓	0.1	—
SB8-30.0-30.5	groundwater interface in SB8		0106	30-30.5	ES	—	~~PFAS X18~~
SB8-16.4-16.8	Middle of boring SB8, from silt		0110	16.4-16.8	ES	0.0	~~PFAS X18~~
SB9-0.0-0.5	long-term airport parking (SB9) at surface	7/13/21	1300	0-0.5	ES	0.1	PFAS X18

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MDN 8/10

SOIL SAMPLE COLLECTION LOG

Project Number: 102581-009 Project Name: DLG PFAS Site Characterization Page 3 of 4

Date: 7/13/21 –

Sampler: DHF, VTY

Sample Number	Location	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
Core 1	SB9, At airport long term parking	7/13/21		0-5	FS	0.1	—
Core 2				5-10		0.7	—
Core 3				15-20		0.1	—
Core 4				~~25-30~~		0.5	—
Core 5				30-35	↓	0.5	—
SB9-5.0-5.5	SB9, at groundwater interface		1416	5-5.5	ES	0.7	PFAS x 18
SB9-36.6-36.8	SB9, at 2nd groundwater interface		1537	36.6-36.8	ES	—	PFAS x 18
SB9-15.6-16.2	SB9, in silt midway between groundwater layers	↓	1648	15.6-16.2	ES	0.1	PFAS x 18
Core 1	SB10, near Fairview Dr.	7/15/21		0-5	FS	0.2	—
Core 2				5-10		0.4	—
Core 3				10-15		0.6	—
Core 4				15-20		0.2	—
Core 5				20-25		1.2	—
Core 6	↓			25-30	↓	1.4	—
~~SB10-30.0-32.0~~	~~within screened interval for SB10~~		~~1330~~		ES	—	PFAS X 18
SB10-26.8-32.0	within groundwater interface for SB10		1326	26.8-32	↓	1	PFAS X 18
SB101-26.8-32.0	duplicate of SB10-26.8-32.0		1336	26.8-32	FD	1.0	PFAS X 18
SB10-36.0-37.1	within screen interval	↓	1659	36-37.1	ES	—	PFAS X 18
Core 1	At SB11, Mulchatna Air NW corner lease lot	7/17/21		0-5	FS	0	—
Core 2				5-10		0	—
Core 3				10-15		0	—
Core 4	↓			15-20	↓	0.1	—
SB11-0.3-1.2	At surface in SB11		934	0.2-1.3	ES	0	PFAS X 18
SB11-2.3-3.3	At beginning of silt in SB11		1058	2.3-3.3	ES	0	PFAS X 18
SB111-2.3-3.3	Duplicate of SB11-2.3-3.3		1048	2.3-3.3	FD	0	PFAS X 18
SB11-22.5-25.4	At groundwater interface		1336	22.5-25.4	ES	—	PFAS X 18, DRO, RRO, GRO, VOC
Core 5	SB11		—	20-25	FS	0.3	—
SB11-31.4-32.0	within screened interval		1508	31.4-32	ES	—	PFAS X 18
FB071721	Field Blank	7/17/21	1915	—	ES	—	PFAS X 18
Core 1	At SB12, wind sock	7/19/21		0-5	FS	1.6	—
Core 2				5-10		0.5	—
Core 3				10-15		0.1	—
Core 4				15-20		0.5	—
Core 5				~~20-25~~		0.3	—
Core 6				~~25-30~~		0.8	—
Core 7				~~30-35~~	↓	0.4	—
SB12-0.3-0.8	In SB12 (wind sock) at surface		1510	0.3-0.8	ES	1.6	PFAS X 18
SB12-15.0-16.0	From wet silt, above clay		1648	15-16	ES	0.5	PFAS X 18
SB121-15.0-16.0	Duplicate of SB12-15.0-16.0		1658	15-16	FD	0.5	PFAS X 18
SB12-35.0-35.7	SB12 GW ~~Interface~~		17:06	35-35.7	ES	—	PFAS X 18

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MDN 8/10 contd: SB12-40.0-40.6 SB12 ~~screened interval~~ w/in screened interval of MW12-40 1832 40-40.6 ES — PFAS x 18

SOIL SAMPLE COLLECTION LOG

Project Number: 102581-009 Project Name: DLG PFAS Site Characterization

Page 4 of 4

Date: 7-22-21

Sampler: ALF

Sample Number	Location	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
SB13-0-0.5	SB13	7-22-21	8:25		ES	0.3	PFAS
SB13-10.9-11.4			11:15		ES	0.6	PFAS
SB13-35-37.5			11:20		ES	0.4	PFAS, GRO, DRO, VOCs, PAH, RRO
SB13-135-137.5			11:10		EDUP	—	PFAS, GRO, DRO, VOCs, PAH, RRO
SB14-0-0.8	SB14		12:10		ES	0.3	PFAS
SB14-40.6-41.8			16:25		ES	0.2	PFAS, GRO, DRO, RRO, VOCs, PAH
SB14-140.6-141.8			16:15		FD	—	PFAS, GRO, DRO, RRO, VOCs, PAH
SB14-21.2-21.7			16:45		ES	1.2	PFAS
FB13	Field blank collected after SB13		11:45		—	—	PFAS

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MDN 6/10

SOIL SAMPLE COLLECTION LOG

Project Number: 102581-009 Project Name: Dillingham PFAS site characterization
Surface soil sampling (borings logged separately)

Date: 7/7 – 7/11/21
Sampler: MDN | VTY

see pg 2

Sample Number	Location	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analysis	~~Analyses~~ Description
SS-01	B/w Taxiways A+B, 10 ft west of RW in slight depression, vegetated	7/7/21	1040	0-1"	ES	6.8	PFAS	fill (f. dark gray)
SS-02	Near S end RW, near threshold light 2 ft W of RW		1100	0-1"	ES	0.0		fill (f. dark gravel)
—	in a small depression		—		—	—		fill
SS-03	Near SW corner RW pavement, 2 ft west of RW, vegetated		1115	0-1"	ES	0.0		~~silty fill 1/2 down~~, w/ roots
SS-04	Near far S end RW, 4 ft S of pavement		1135	0-1"	ES	0.0		fill
SS-05	DUP of SS-04		1140	0-1"	~~ES~~ FD	0.0		Same
SS-06	Low spot w/ veg'n SW of south end runway		1200	0-1"	ES	0.0		silty gravel, wet
SS-07	E of RW near S end, vegetated		1215	0-1'	ES	0.0		" " ~~moist~~ (not wet)
SS-08	East side RW, slope break - vegetated. Close		1235	~~0-2~~ 2-3"	ES	0.0		top 2" gravel and asphalt chunks
—	to RW is rock.		—		—	—		organic soil w/ roots
SS-09	Immediately S of Taxiway B @ junction, 3 ft from pavement		1415	0-1'	ES	0.1		tan silty fill 1/2" down, dif fill
—	slight depression, runoff path		—		—	—		(some yellow paint flecks) top
SS-10	Slope break, closer to RW is paved. Near marker, 75 ft from RW		1545	3-4"	ES	0.2		top 3" gravel + asphalt
SS-11	apron east of RW even w/ wind sock, 55 ft from pave		1600	0-1"	ES	0.7		mostly organics (fib) w/ gravel & sa
~~SS-12~~	~~NE fence lot, S side @ pavement edge (26 inches)~~		~~1435~~	~~0-1"~~	~~ES~~			~~native soil silt, saturated~~
SS-13	NE fence lot, N side in ditch, 15 ft from pavement		1450	1-2"	ES	0.0		~~fill (f. blk gravel)~~ w/ roots
SS-12	NE " ", E side in low spot w/ grasses		1500	0-1'	ES	1.2		attempt @ native soil
—	15 ft east of pavement		—		—	—		~60% organics
SS-14	East side RW near N end, in flat apron even w/ RW lights		1610	0-1"	ES	0.0		fill w/ roots/organics
—	wind sock dead veg'n (looks white), 9 ft from pavement		—		—	—		Same as 01 to 04/05
SS-15	N end RW, near NE corner of edge lights, 1 ft from pavement		1625	0-1"	ES	0.0		silty gravel (f. blk)
—	minor vegetation		—		—	—		w/ paint flecks
SS-16	near 2,000 ft light (where plane crashed)	7/8/21	0910	0-1"	ES	0.0	PFAS	(fill)
—	6 m from pavement		~~[illegible]~~					
SS-17	Dup of SS-16		0900	0-1"	~~ES~~ FD	0.0		silty gravel with sand
SS-18	between 2,000 ft and 2,200 ft light		0915	0-1"	ES	0.0		silty gravel w/ sand (fill)
SS-19	near 2,200 ft light (where foam was sprayed)		0935	0-1"	ES	0.0		same
SS-Grid-A1	Soil sampling grid, low spot w/ accumulated sand		1855	0-1"	ES	0.0	PAH DRO + GRO VOCs	Silty grav w/ sand (dark brown)
SS-Grid-A2	slight depression		1900	0-1"		0.0		~~sandy silt~~
SS-Grid-A3	" " vegetated (petrol from 1-3")		1905	0-3"		0.4		w/ roots
SS-Grid-B2	runoff pathway		~~1910~~ 1920	0-1"		0.0		
SS-Grid-B3	slight depression, vegetated		~~1915~~ 1925	0-1"		0.0		w/ roots
SS-grid-C1	" "		~~1920~~ 1930	0-1"		0.0		
SS-grid-C2	runoff pathway		~~1925~~ 1935	~~0-0~~ 0-1"		0.0		
SS-grid-C3	" " vegetated		~~1930~~ 1940	0-1"		0.0		w/ org's (roots)
SS-Grid-A4	DUP of Grid-A3 for petroleum only		1910	1-3"	~~DUP~~ FD	—	—	—

see back for diagram (SS-16 to SS-19)

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MDN

SOIL SAMPLE COLLECTION LOG

Project Number: 102581-009 Project Name: Dillingham PFAS Page 3 of 3

Date: —

Sampler: —

Sample Number	Location	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses	Notes
SS-20	from culvert @ Kanakanak and Guthrier intr.	7/11/21	1330	0-1	ES	N/A	PFAS x 18	clay + sand, saturated
SS-21	along Guthrier, parallel to Windmill grill		1337	0-1	ES			silty gravel w/ sand
SS-22	18 ft from SS-21 towards Kanaktuak Rd		1342	0-1	ES			SSA
SS-23	18 ft from SS-22 towards Kanakanak Rd		1355	0-1	ES			SSA
SS-24	Dup of SS-23		1345	0-1	~~ES~~ FD			SSA
SS-25	100 ft. from center towards Johnson's		1600	0-1	ES			tundra organics
SS-26	50 ft from center towards Johnson's		1607	0-1	ES			SSA
SS-27	center and a few in open field		1615	0-1	ES			SSA, saturated

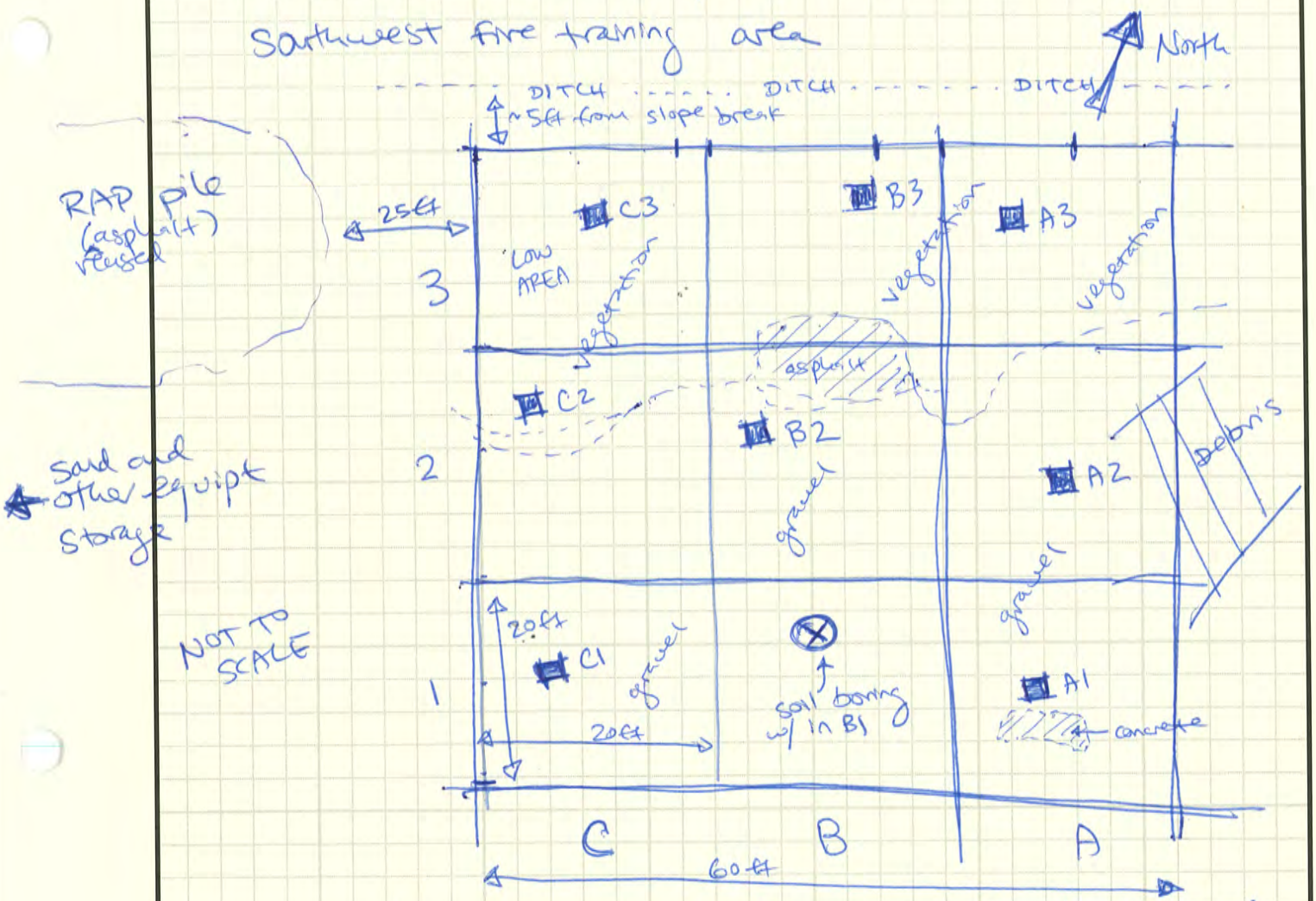
Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MDW

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

JOB NAME Dillingham PFAS JOB NO. 102581-009
SUBJECT Soil sampling grid DATE 7/8/21
BY VTY/MDN CHK'D ~~See below~~ SHEET 1 of 1

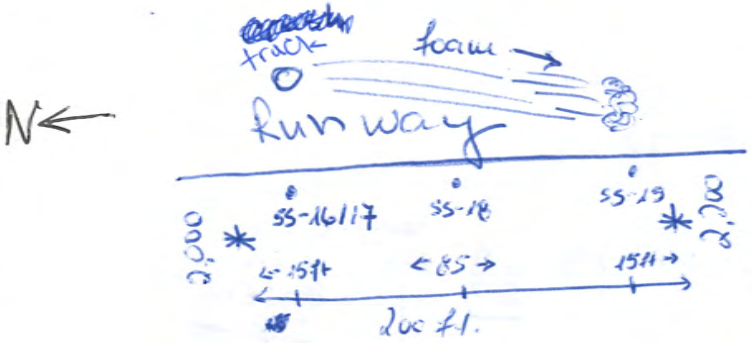
Southwest fire training area



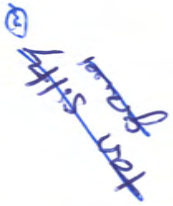
Surface soil samples collected from low spots w/in each grid area slopes ~~to~~ north (steep drop off to ditch beyond soil grid) and northwest

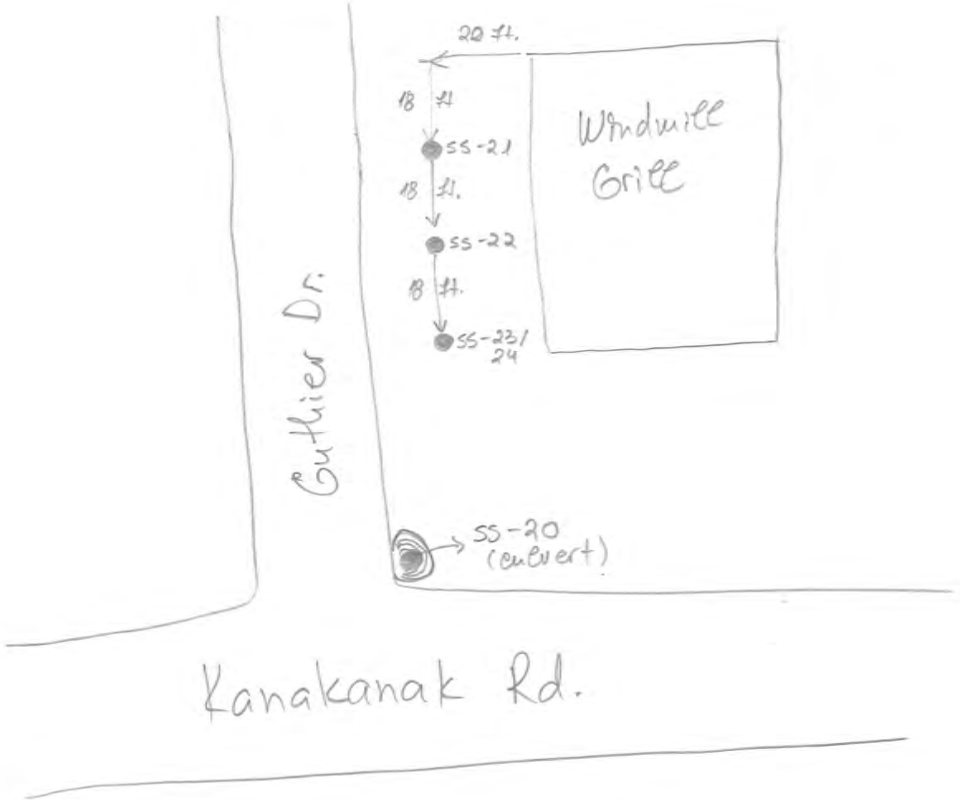
Occasional asphalt chunks, mostly fill

VTY



RW lights (blue) @ 2,000 and 2,200 ft
from N end, farther south than loc in WP




20 ft.
18 ft
SS-21
18 ft.
SS-22
18 ft.
SS-23/24
Windmill Grill
Guthier Dr.
SS-20 (culvert)
Kanakanak Rd.

SURFACE WATER SAMPLE LOG

Date: 7/13/21 Project: 102581

Field Investigators: VTY

Name of Water Body: SW-01

Location of Water Body: ~~old landfill~~ Near Wood Ry Rd and John Pearson Ln

Type of Water Body: standing water in ditch

Sample Location: middle of water body

Sample Number: SW-01 Sample Time: 1430
SED-01

Method of Collection: sample jar

Temperature (°C): 17.4
pH: 5.78
Conductivity: 36.2
DO (mg/l): 1.74
Turbidity (NTU): clear
Appearance: brown hue

Analyses requested: PFASx18

Comments: lots of vegetation under the water, not granular sediment → wet muskeg collected

Product Observed?	Yes	No	
Product Collected?	Yes	No	

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/13/21 Project: 10258-009

Field Investigators: VTY

Name of Water Body: culvert north of lease lot

Location of Water Body: across road to fire department

Type of Water Body: standing water in culvert

Sample Location: middle of standing water

Sample Number: SW-02 / SW-102 Sample Time: 1630 / 1640
SED-02 / SED-102 1630 / 1640

Method of Collection: sample jar

Temperature (°C): 12.2
pH: 7.47
Conductivity: 156.0
DO (mg/l): 5.93
Turbidity (NTU): clear
Appearance: clear

Analyses requested: PFAS x 18, DRO/RRO/GRO, VOCs, PAHs/TAqH

Comments: —

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/13/21 Project: 102581-009

Field Investigators: VTY

Name of Water Body: SW-03

Location of Water Body: south of lease lot

Type of Water Body: standing water in a low spot b/n road and parking lot

Sample Location: middle of the water body

Sample Number: SW-03 Sample Time: 1830
SED-03 1838

Method of Collection: sample jar

Temperature (°C): 15.2
pH: 6.22
Conductivity: 113.4
DO (mg/l): 1.10
Turbidity (NTU): slightly turbid
Appearance: organic staining

Analyses requested: PFAS x18, GRO/DRO/RRO, VOCs, PAHs/TAqH

Comments: —

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/14/21 Project: 102581-009

Field Investigators: VTY

Name of Water Body: SW-04

Location of Water Body: bottom of slope on side of runway @ site of AFFF release from 2 years ago

Type of Water Body: stagnant water on side of runway slope

Sample Location: middle of water body

Sample Number: SW-04/104 Sample Time: 0900/0910
SED-04/104 0930/0940

Method of Collection: solo cup and trowel

Temperature (°C): 5.0°C

pH: 5.67

Conductivity: 272.8

DO (mg/l): 7.50

Turbidity (NTU): clear

Appearance: biologically stained brown

Analyses requested: PFAS x18, GRO, DRO, RRO, PAH's, TAqH, VOCs

Comments: samples contain organic matter in the water and soil

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/14/21 Project: 102581-009

Field Investigators: VTY

Name of Water Body: SW-05

Location of Water Body: ditch @ NE end of runway

Type of Water Body: stagnant water at bottom of runway slope

Sample Location: middle of water body

Sample Number: SW-05, SED-05 Sample Time: 1050, 1105

Method of Collection:

Temperature (°C): 8.2°C

pH: 6.38

Conductivity: 284.5

DO (mg/l): 0.42

Turbidity (NTU): clear

Appearance: vegetation growing inside

Analyses requested: PFASx18, GRO, DRO/RRO, VOCs, PAHs/TAqH

Comments: —

Product Observed?	Yes	(No)
Product Collected?	Yes	(No)

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/14/21 Project: 102581-009

Field Investigators: VTY

Name of Water Body: SW-06

Location of Water Body: south corner of taxiway A and the runway

Type of Water Body: culvert with standing water

Sample Location: middle of water body

Sample Number: SW-06 Sample Time: 1150
SED-06 1200

Method of Collection: solo cup for water and trowel for sediment

Temperature (°C): 10.2
pH: 6.25
Conductivity: 251.2
DO (mg/l): 4.17
Turbidity (NTU): slightly turbid
Appearance: biological brown staining

Analyses requested: PFASx 18, GRO, DRO, RRO, VOCs, PAHs/TAqH

Comments: sewer odor present after extracting sediment

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: 8/4/21 MDN

SURFACE WATER SAMPLE LOG

Date: 7/14/21 Project: 10258.1-009

Field Investigators: VTY

Name of Water Body: SW-07

Location of Water Body: SW corner of runway, outside the fence, across from the estuary

Type of Water Body: culvert, standing water

Sample Location: middle of water body

Sample Number: SW-07 Sample Time: 1345
SED-07 1400

Method of Collection: solo cup and trowel

Temperature (°C): 13.9

pH: 6.82

Conductivity: 89.7

DO (mg/l): 5.05

Turbidity (NTU): clear

Appearance: brown biological staining

Analyses requested: PFAS x18, DRO, RRO, GRO, VOCs, PAHs/TAqH

Comments: —

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/14/21 Project: 102581-005

Field Investigators: VTY

Name of Water Body: SW-08

Location of Water Body: south end of runway, outside of fence, on side of Randlauak Rd

Type of Water Body: ditch

Sample Location: middle of water body

Sample Number: SW-08 Sample Time: 1630
SED-08 1645

Method of Collection:

Temperature (°C): 17°C

pH: 6.47

Conductivity: 207.9

DO (mg/l): 0.40

Turbidity (NTU): turbid

Appearance: thick organic sheen + muck on surface brown hue

Analyses requested: PFASx18, GRO/DRO/RRO, VOCs, PAHs/TAqH

Comments: full of plant matter, no granular sediment

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: MDW 8/4/21

SURFACE WATER SAMPLE LOG

Date: 7/14/21 Project: 102581-009

Field Investigators: VTY

Name of Water Body: SW-09

Location of Water Body: low spot along east side of runway, outside fence

Type of Water Body: culvert and water flowing through

Sample Location: middle of water body

Sample Number: SW-09 Sample Time: 1800
SED-09 1815

Method of Collection: sample jar

Temperature (°C): 7.5
pH: 6.06
Conductivity: 144.9
DO (mg/l): 6.35
Turbidity (NTU): clear
Appearance: clear, flowing

Analyses requested: PFAS x 18, GRO, RRO, DRO, VOCs, PAHs/TAqH

Comments: —

Product Observed?	Yes	(No)	
Product Collected?	Yes	(No)	

Checked By: MDN 8/4/21

SURFACE WATER SAMPLE LOG

Date: 9/30/21 Project: 102581-009

Field Investigators: VTY

Name of Water Body: Former Land Fill SW-10

Location of Water Body:

Type of Water Body: low point with culvert by road.
Sample from just outside culvert, puddle.

Sample Location: middle

Sample Number: SW-10 Sample Time: 1620

Method of Collection: sample bottle

Temperature (°C): 4.6

pH: 6.34

Conductivity: 79.5

DO (mg/l): 1.00

Turbidity (NTU): clear

Appearance: orange hue

Analyses requested: PFASx18

Comments: —

Product Observed?	Yes	No	
Product Collected?	Yes	No	

Checked By: MDW

~~ON-SITE Decon water and~~ Soil Drum

~~SOIL SAMPLE COLLECTION LOG~~

Project Number: 102581-009 Project Name: Dillingham PFAS

Date: 6/28/21 – 7/26/21

Sampler: MDN / DHF / ALF

Sample Number	Location	~~Sample~~ Date	Sample ~~Time~~	~~Depth (ft)~~	Sample Type	~~PID Reading~~	~~Analyses~~
Drum 1	Wood Ri Rd + Kaukauk (SB1 / DLG-MW01)	6/28-7/1/21			Soil		
2	x3 soil drums, all full, @ SB1	↓			↓		
3	↓	↓			↓		
4	~~Decon water w/ Alconox~~ ↓	7/1/21			~~Water~~	~~(PFAS @ end)~~ Soil	
5	Airport + Airport Spur (SB2 / DLG-MW02)	7/2/21			Soil		
6	x2 Full ↓	7/2-7/~~4~~5/21			↓		
7	Airport S. from apron near W. fence (SB3)	7/6/21			↓		
8	" "	7/7/21			Soil		
9	" "	7/7/21					
10 photo (MW03-28)	" "	7/8/21					
11	Marin Street, inside gate (SB4)	7/9/21					
12	" "	↓					
13	" "	7/10/21					
14 photo shows	Holy Rosary church corner at Emperor Way, SB5	7/11/21					
15 x6 drums	↓						
16		↓					
17							
18		7/12/21					
19		↓					
20 photo shows	SB9, at Airport long term parking	7/13/21					
21 x7 drums	↓						
22 another shows		↓					
23 x9 drums							
24 including #32		7/14/21					
25							
26		↓					
27							
28 photo shows	SB10, At Fairview Dr	7/15/21					
29 x5 drums							
30	(likely part drum)						
31 ~~extra (for 32)~~	~~SB10 filled x5 drums (not x4)~~	↓					
32 photo in SB9 folder	Airport Surface soil + SB6, SB7, + SB9	7/12/21					
33	SB11, near NW corner Lease lot (Mulchatna)	7/17/21					
34							
35		↓					
~~36~~	Void – empty (skipped this #)						
37		7/18/21					
38		↓					
39		7/19/21					
40	↓	↓			↓		

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

Drum ID
~~SOIL SAMPLE COLLECTION~~ LOG

Project Number: 102581 Project Name: DLG PFAS

Date: 6/28-7/26/21

Sampler: MDN/DHF/ALE

Sample Number	Location	Sample Date	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
41	SB12, at wind sock	7/19/21					
42							
43							
44		7-20-21					
45							
46							
47							
48	SB02 MW02-50 Install	7-21-21					
49							
50							
~~51~~ 57	SB13/SB14	7-22-21					
~~52~~ 58	SB14						
~~53~~ 59							
54							
55		7-23-21					
56							
Drum 55	SB14	7-26-21	16:15		Waste Char.		TCLP RCRA Metals, SVOCs
Drum 40	SB11	7-26-21	20:40		" "		" "
Analytical soil samples for waste characterization							
Continued:							
51 confirmed x7 total drums @MW03, on 7/25 waiting pickup	SB03 MW03-75 install	7/21/21					
52							
53							
60	Residual sed+ from auger/drilling decon inside tarp basin. Former grout drum.						
61	Sed+ remaining after filtration, very muddy. ~22 gallons. Space for spent GAC.						
58 duplicate #'s	~~MW0~~ MW01-045 Redrill @ Wood Ru Rd	7/24/21					
59	(x3 drums filled)						
60							
Total drums:							
61 labled							
- 1 not filled (#36)							
~~+ 1 duplicate #32~~							
+ 3 duplicate #58-60							
63 drums. The rest were used for water + decomed (x21) or disposed of (x1, bent)							

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW01-30
Project Name Dillingham PFAS
Project Number 102581-009

Date Installed 7/1/21
Logged By MDW
Driller Discovery (SS, Isaac)

I. TOP SECTION (CASING)

Initial Pipe Length	10.01
Cuttoff Length	3.15
Add-on Length	—
Total Length	6.86

II. MID SECTION (CASING)

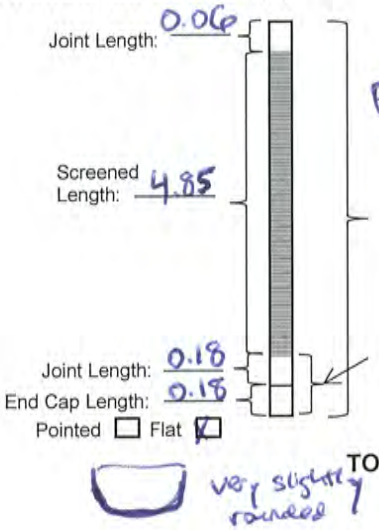
Number of Blank Sections: ×2
Length of Section(s):

10.00		
9.99		

+

Sum of Lengths: 19.99

III. SCREENED SECTION(S)



prepack (5 ft screen)

+

Total Pipe Length: 5.27

BOW to BOS: 0.36

=

TOC to BOW: 32.12

very slightly rounded

IV. WELL DATA

Pipe Type: PVC ☑ SS ☐ Other
Diameter: 2" ☑ 4" ☐ Other
Slot Size: 0.01 ☑ 0.02 ☐ Other
Joint Pin End: Up ☐ Down ☑ Type

threads down. end cap not threaded, screwed on.

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	—	—
CEM_PB	~2.0	Surface (monument)
*SLUF_PB/FIL_PB	~~~2.0~~	—
BCH_PB	~21	~2.0
*SLUF_PB/FIL_PB	—	—
BGR_PB	—	—
*SLUF_PB/FIL_PB	~25	~21
*SLUF_PS/FIL_PS	~30	~25
*SLUF/FIL (No Pipe)	~~44.5~~ 34	~30
*SLUF_PB/FIL_PB	44.5	~34

Filter Pack Type or Gradation: 10/20 Sand

no pipe set well in hole initially drilled to deeper well (auger only)

VI. MONUMENTS

Stickup ☐ Flushmount ☒

TOM to GS	—
TOM to TOC	-0.30
^TOC to GS	—
Lock type	N/A

VII. MOISTURE CONTENT

~~7/2 @ ~4:30pm~~

Depth to Water Below GS: 7/1 @ ~7:15pm 27.7 bgs

~~7/3 @ ~1pm 29.7 bgs~~

same 7/2

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		N/A
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	32.12
- BOW to BOS	0.36
= TOC to BOS	31.76
TOC to BOS	31.76
- Screened Length	4.85
= TOC to TOS	26.91

TOC to BOW	32.12
- TOC to GS	-0.30
BOW bgs	32.42
TOC to TOS	26.91
- TOC to GS	-0.30
TOS bgs	27.21
TOC to BOS	31.76
- TOC to GS	-0.30
BOS bgs	32.06

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF-DLG Airport
Location: Kanakanak + Wood River Rd.
Weather: Cloudy 50-60
Development Personnel: ALF

Well No.: DLG-MW01-30
Project No: 102581-009
Date: 7-26-21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 32.10
Depth to Water **Before** Development (feet below top of casing): 27.60
Depth to Screen Top and Bottom (from Construction Log): Top: 26.91 Bottom: 31.76

Development Details

Feet of water in well: 4.50
Gallons per foot: 0.17
Gallons in well: 0.77
Surge method: Surge block on tubing
Pump used: Waterra Inertial
Tubing used (ft): 40

Time pumping started: 8:26
Flow rate (gal/min): ~1 gpm
Flow-rate measurement method: 5-gal bucket
Time pumping ended: 10:01
Gallons Pumped: 55 gal
Disposal: Containerized for GAC filtration

Depth to Water **After** Development (feet below top of casing): 27.56
Total Depth of Well **After** Development (feet below top of casing): 32.07

Observations

Time	Water Clarity (Visual)
8:30	Very Turbid
8:40	Pump Stop
8:59	Pump Start
9:05	Mod-V. Turbid
9:12	" "
9:24	Mod. Turbid
9:34	Sl.-Mod Turbid.
9:44	Sl-Mod Turbid
9:54	Sl. Turbid
10:01	Very Sl. Turbd

BOW

Top of H2O ~~LOS~~

~middle of screen

Time	Water Clarity (Visual)

NOTES: Surged with Waterra 8:04-8:24. Rock in check valve- water not flowing during surging.

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client DOT & PF
Location DLG
Sampling Personnel VM
Weather Conditions Overcast Air Temp. (°F) 50°F

Project No. 102581-009
Date 7/28/21
Well DLG-MW01-30
Time started 1030
Time completed 1140

Sample No. DLG-MW01-30 Time 1112
Duplicate ~~DLG-MW01-30~~ D Time ~~1102~~
Equipment Blank — Time —

Pump ~~[redacted]~~ peri
Purging Method *portable / dedicated pump*
Pumping Start 1053
Purge Rate (gal./min.) 0.05
Pumping End 1113

Pump Set Depth Below MP (ft.) 30
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 40
silicone 1 ft.

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 30
Measured Total Depth of Well Below MP (ft.) 32.07
Depth to Water Below MP (ft.) 27.56
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 4.51
Gallons per foot 0.17
Gallons in Well ~0.~~8667~~ D
Purge Water Volume (gal.) 1~~0~~ ~~gallons~~ +55 gal from development
Purge Water Disposal BAC

Monument Condition good
Casing Condition good

Wiring Condition (dedicated pumps) /

Measuring Point (MP) *Top of Casing (TOC)*

Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) 0.30
Monument to ground surface (ft.) flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes well developed prior to purging + sampling

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW01-30

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*
Sample Observations — (after develop)
Notes —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1057	5.4	7.59	113.0	7.25	215.5	slightly turbid
1100	5.6	6.77	113.2	6.90	223.0	↓
1103	5.4	6.18	121.9	6.68	230.4	↓
1106	5.5	5.75	126.4	6.64	233.3	↓
1109	5.5	5.65	127.9	6.61	235.3	↓
1112	sample					

Laboratory ~~SGS~~ Eurofins Test Am

	Analysis	Sample Containers	Preservatives	Dup
X	PFAS x 18	2 x 250 mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EPD

Well No.
DLG-MW01-30

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW01-45
Project Name DLG PFAS
Project Number 102581-009

Date Installed 7/24/21
Logged By VTY
Driller Discovery

I. TOP SECTION (CASING)

Initial Pipe Length	10.00
Cuttoff Length	1.82
Add-on Length	[redacted]
Total Length	8.18

II. MID SECTION (CASING)

Number of Blank Sections: 3
Length of Section(s): 10 ft

10.00		
10.00		
10.00		

+

Sum of Lengths: 30.00

III. SCREENED SECTION(S)

Joint Length: 0.46
Screened Length: 4.76
Joint Length: 0.07
End Cap Length: 0.49
Pointed ☒ Flat ☐

+

Total Pipe Length: 5.78

BOW to BOS: 0.56

=

TOC to BOW: 43.96

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	monument
CEM_PB	1	0.5	monument
*SLUF_PB/FIL_PB	2	1	gravel
BCH_PB	4	2	Bentonite
*SLUF_PB/FIL_PB	27	4	grout
BGR_PB	30	27	pet plug
*SLUF_PB/FIL_PB	39	30	sand pack
*SLUF_PS/FIL_PS	44	39	
*SLUF/FIL (No Pipe)			
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation: sand 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	-0.23
^TOC to GS	-0.23
Lock type	N/A

VII. MOISTURE CONTENT

Depth to Water Below GS: ~28ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 43.96
- BOW to BOS 0.56
= **TOC to BOS** 43.40

TOC to BOS 43.40
- Screened Length 4.76
= **TOC to TOS** 38.64

TOC to BOW	43.96
- TOC to GS	-0.23
BOW bgs	44.19
TOC to TOS	38.64
- TOC to GS	-0.23
TOS bgs	38.87
TOC to BOS	43.40
- TOC to GS	-0.23
BOS bgs	~~43.40~~ 43.63

* This well obstructed by bentonite, re-drilled and decommissioned. *

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW01-45
Project Name Dillingham SHC Clean
Project Number 102581-009

Date Installed 7/1/21
Logged By MDN
Driller Discovery (Seth Trac)

I. TOP SECTION (CASING)

Initial Pipe Length 9.84
Cuttoff Length 3.20
Add-on Length —
Total Length 6.64

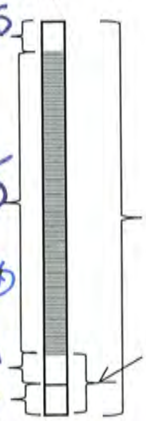
II. MID SECTION (CASING)

Number of Blank Sections x4
Length of Section(s):

10.00		
10.01		
10.00		
10.00		

Sum of Lengths: ~~35~~ 40.01

III. SCREENED SECTION(S)



Joint Length: 0.05
Screened Length: ~~5.63~~ 4.79
prepack w/ 10/20 sa (fine)
Joint Length: 0.21
End Cap Length: 0.18
Pointed ☐ Flat ☒ very slightly rounded

Total Pipe Length: 5.23

BOW to BOS: 0.39

TOC to BOW: 51.88

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2 ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☐ Down ☒ Type
End cap not threaded, screwed on (see photo) - threads down.

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	—	—
CEM_PB	~1.0	Surface (monument)
*SLUF_PB/FIL_PB	—	—
BCH_PB	~26	~1.0
*SLUF_PB/FIL_PB	~37	~26 natural collapse
BGR_PB	~~26~~	—
*SLUF_PB/FIL_PB	~39	~37
*SLUF_PS/FIL_PS	~44	~39
*SLUF/FIL (No Pipe)	44.5	~44
*SLUF_PB/FIL_PB	—	—

(3rd hole) to remove wooden plug (overdrill 4-6")

Filter Pack Type or Gradation 10/20 Sand
Bentonite pellets/chips

VI. MONUMENTS

Stickup ☐ Flushmount ☒
TOM to GS ____
TOM to TOC ____
^TOC to GS ____
Lock type ____

VII. MOISTURE CONTENT

Depth to Water Below GS ~~33.7~~

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		N/A
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 51.88
\- BOW to BOS 0.39
= TOC to BOS 51.49

TOC to BOS 51.49
\- Screened Length 4.79
= TOC to TOS 46.7

shortly after install: 33.7 soft bottom -3.0 augers sticking up 30.7 ft

TOC to BOW	
- TOC to GS	
BOW bgs	
TOC to TOS	N/A, redrilled
- TOC to GS	
TOS bgs	
TOC to BOS	
- TOC to GS	
BOS bgs	

~~@ 715-720 in well 30.8 ft btoc~~
~~-3 ft~~
~~27.8 below ground DTW~~

4/9/2020 SHANNON & WILSON, INC.

Well No. DLG-MW01-45

DHF

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF - DLG Airport
Location: Kanakanak + Wood River Rd.
Weather: Cloudy 50-60
Development Personnel: ALF

Well No.: DLG-MW01-45
Project No: 102581-009
Date: 7-26-21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 44.26
Depth to Water **Before** Development (feet below top of casing): 27.39
Depth to Screen Top and Bottom (from Construction Log): Top: 38.64 Bottom: 43.40

Development Details

Feet of water in well: 16.87
Gallons per foot: 0.17
Gallons in well: 2.87
Surge method: Surge block on tubing
Pump used: Waterra Inertial
Tubing used (ft): 55

Time pumping started: 10:40
Flow rate (gal/min): 1 gpm
Flow-rate measurement method: 5-gal bucket
Time pumping ended: 11:52
Gallons Pumped: ~90 gal.
Disposal: Containerized for GAC filtration

Depth to Water **After** Development (feet below top of casing): 27.41
Total Depth of Well **After** Development (feet below top of casing): 44.22

Observations

Time	Water Clarity (Visual)
10:45	Very Turbid
10:56	Mod-V. Turbid
11:03	" "
11:06	Very Turbid
11:12	Mod. Turbid
11:17	~~Slightly Turbid~~ Mod-Sl Turbid
11:29	V. Turbid
11:36	Mod. Turbid
11:42	Sl-Mod. Turbid
11:44	Sl. Turbid

BOW
TOS
Near PWL
BOW
~ mid screen
~2ft ↑ TOS

Time	Water Clarity (Visual)
11:52	V. Slightly Turbid

NOTES: Surged from 10:23 - 10:35. No water flow due to PVC shavings in check valve.

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client: DOT & PF
Location: DLG
Sampling Personnel: VTY
Weather Conditions: overcast
Air Temp. (°F): 50

Project No.: 102581-009
Date: 7/26/21
Well: DLG-HW01-45
Time started: 1155
Time completed: 1230

Sample No.: ~~[illegible]~~ DLG-HW01-~~3~~45 Time: 1218
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: ~~[illegible]~~ peri
Purging Method: portable / dedicated pump
Pumping Start: 1200
Purge Rate (gal./min.): 0.06
Pumping End: 1220

Pump Set Depth Below MP (ft.): 42
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 50
silicone 1ft.

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 45
Measured Total Depth of Well Below MP (ft.): 44.22
Depth to Water Below MP (ft.): 27.41
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 16.81
Gallons per foot: 0.17
Gallons in Well: 2.9
Purge Water Volume (gal.): 1.2 + ~90 gall from development
Purge Water Disposal: GAC

Monument Condition: good

Casing Condition: good

Wiring Condition (dedicated pumps): /

Measuring Point (MP): Top of Casing (TOC)

Monument type: Stickup / Flushmount (circled: Flushmount)
Measurement method: Rod & level / Tape measure (circled: Tape measure)

Top-of-casing to monument (ft.): 0.23
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes: well purged and sampled right after development

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-HW01-45

MONITORING WELL SAMPLING LOG

x3 well volumes

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged* (EW)

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1203	5.6	3.13	303.3	6.38	249.7	clear brown hue
1206	5.5	2.33	305.2	6.43	245.4	clear
1209	5.6	2.28	309.5	6.44	242.9	clear
1212	5.5	2.03	308.6	6.45	241.5	clear
1215	5.6	1.93	308.9	6.44	240.4	clear
1218	sample					

Laboratory ~~SGS~~ (EW) Eurofins TestAm

	Analysis	Sample Containers	Preservatives	Dup
X	PFAS x 18	2x250 mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No.

DLG-MW01-45

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW02-3840
Project Name Dillingham PFAS
Project Number 102581-009

Date Installed 7/5/21
Logged By MDW
Driller Discovery (Sonic)

I. TOP SECTION (CASING)

Initial Pipe Length	10.00
Cuttoff Length	3.50
Add-on Length	—
Total Length	6.50

II. MID SECTION (CASING)

Number of Blank Sections 3

Length of Section(s):

10.00		
10.00		
10.00		

+

Sum of Lengths: 30.00

III. SCREENED SECTION(S)

Joint Length: 0.05

Screened Length: 4.79

Joint Length: 0.17

End Cap Length: 0.36

Pointed ☒ Flat ☐

+

Total Pipe Length: 5.37

BOW to BOS: 0.53

=

TOC to BOW: 41.87

IV. WELL DATA

Pipe Type: PVC ☑ SS ☐ Other ____
Diameter: 2" ☑ 4" ☐ Other ____
Slot Size: 0.01 ☑ 0.02 ☐ Other ____
Joint Pin End: Up ☑ Down ☐ Type ____ (threads up)

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	—	Surface
CEM_PB	~2	—
*SLUF_PB/FIL_PB	—	—
BGR_PB	~20	~2
*SLUF_PB/FIL_PB	~21	~20
BGR_PB	~31	~21
*SLUF_PB/FIL_PB	~33.5	~31
*SLUF_PS/FIL_PS	~38.5	~33.5
*SLUF/FIL (No Pipe)	—	—
*SLUF_PB/FIL_PB	~39	~38.5

Filter Pack Type or Gradation 10/20 Sand and prepack (20/40)

VI. MONUMENTS

Stickup ☐ Flushmount ☒

TOM to GS	Flush
TOM to TOC	-0.30
^TOC to GS	-0.30
Lock type	NA

VII. MOISTURE CONTENT

Depth to Water Below GS ~25ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		N/A
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	41.87
- BOW to BOS	0.53
= TOC to BOS	41.34
TOC to BOS	41.34
- Screened Length	4.79
= TOC to TOS	36.55

TOC to BOW	41.87
- TOC to GS	-0.30
BOW bgs	42.17
TOC to TOS	36.55
- TOC to GS	-0.30
TOS bgs	36.85
TOC to BOS	41.34
- TOC to GS	-0.30
BOS bgs	41.64

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: DLG
Weather: overcast
Development Personnel: VTY, DHF

Well No.: DLG-MW02-40
Project No: 102581-009
Date: 7/10/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 37.09 + 1.23 = 38.32
Depth to Water **Before** Development (feet below top of casing): 24.72
Depth to Screen Top and Bottom (from Construction Log): Top: ~~36~~ 36.55 Bottom: ~~38~~ 41.34

Development Details

Feet of water in well: 13.6
Gallons per foot: 0.17
Gallons in well: 2.3
Surge method: surge block
Pump used: waterra
Tubing used (ft): 50

Time pumping started: 1740
Flow rate (gal/min): ~0.5
Flow-rate measurement method: 1600 cup
Time pumping ended: 1940
Gallons Pumped: 60
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 24.84
Total Depth of Well **After** Development (feet below top of casing): 38.46

Observations

Depth ft. bgs	Time	Water Clarity (Visual)
36	1741	chocolate brown, turbid
35	1758	chocolate brown, turbid
34	1817	-11-, less turbid than above
33	1833	-11-, same as above
33	1843	-11-, less turbid than above
32	1849	-11-, less turbid than above
32	1855	slightly turbid
33	1902	same as above
33	1907	-11-
34	1913	more turbid than above

Depth	Time	Water Clarity (Visual)
34	1918	less turbid than above
35	1924	more turbid than above
(35)	1932	less turbid than above
36	1935	more turbid than above
(36)	1940	end

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client DOT&PF
Location DLG
Sampling Personnel VTY
Weather Conditions partly cloudy Air Temp. (°F) 70°F

Project No. 102581-009
Date 7/24/21
Well DLG-MW02-30
Time started 1500
Time completed 1630

Sample No. DLG-MW02-~~30~~40 Time 1610
Duplicate DLG-MW102-~~30~~40 Time 1600
Equipment Blank — Time —

Pump peri
Purging Method (portable) / dedicated pump
Pumping Start 1525
Purge Rate (gal./min.) 0.05
Pumping End 1615.

Pump Set Depth Below MP (ft.) 36
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 40
silicone 1 ft.

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 38
Measured Total Depth of Well Below MP (ft.) 37.09+1.37 = 38.46
Depth to Water Below MP (ft.) 24.84
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 13.62
Gallons per foot 0.17
Gallons in Well 2.3
Purge Water Volume (gal.) 2.5 + ~60 gallons from development
Purge Water Disposal GAC

Monument Condition good
Casing Condition good

Wiring Condition (dedicated pumps) n/a

Measuring Point (MP) Top of Casing (TOC)

Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.) 0.30
Monument to ground surface (ft.) flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No. DLG-MW02-~~30~~40

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *>3 well volumes purged* (EFM)

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1529	5.7	1.15	246.9	6.28	90.7	clear
1532	5.8	0.49	245.5	6.45	69.9	clear
1535	5.7	0.39	245.0	6.54	56.3	clear
1538	5.7	0.35	241.8	6.57	46.8	clear
1541	5.8	0.33	239.1	6.59	36.4	clear
1544	5.9	0.33	237.2	6.64	28.4	clear
1547	5.9	0.29	233.3	6.71	21.8	clear
1550	6.0	0.26	229.0	6.86	11.2	clear
1553	6.1	0.25	227.5	6.92	5.8	clear
1556	6.0	0.25	226.8	7.01	-1.4	clear
1559	6.1	0.24	222.5	7.09	-14.2	clear
1602	6.1	0.22	219.5	7.11	-23.7	clear
1605	6.2	0.22	217.4	7.11	-28.5	clear
1608	6.2	0.22	216.8	7.12	-33.3	clear
1610	sample					

Laboratory ~~SGS~~ Eurofins Test Am

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x 18	2 x 250 ml	—	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

MDN

Well No. DLG-MW02 - ~~30~~ 40

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MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW02-50
Project Name DLF PFHS Site Char.
Project Number 102581-009

Date Installed 7-21-21
Logged By ALF
Driller Discovery

I. TOP SECTION (CASING)

4.47
2.40
.34
7.21

Initial Pipe Length	10.00	
Cuttoff Length	7.21	
Add-on Length	2	
Total Length		2.79 ✓

II. MID SECTION (CASING)

Number of Blank Sections 10.0 x4
Length of Section(s):

10x4		

+

Sum of Lengths: 40.00 ✓

III. SCREENED SECTION(S)

+

Joint Length: 0.21
Screened Length: 4.68
Joint Length: 0.23
End Cap Length: 0.26
Pointed ☒ Flat ☐

BOW to BOS: 0.49 ✓ =

Total Pipe Length: 5.38 ✓

TOC to BOW: 48.17 ✓

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.41	0	
CEM_PB	1.5	0.4	
PG *SLUF_PB/FIL_PB	3.0	1.5	
BGR ~~BCH~~ PB	40.0	4.0	BCH 4-3
*SLUF_PB/FIL_PB			
BCH ~~BGR~~ PB	41.0	40.0	
*SLUF_PB/FIL_PB	43.0	41.0	
*SLUF_PS/FIL_PS	48.1	43.0	
*SLUF/FIL (No Pipe)	49	48.6	SLUF-PB 48.6-48.1
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation Silica 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	0.39
^TOC to GS	-0.39
Lock type	N/A

VII. MOISTURE CONTENT

Depth to Water Below GS ~25ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	48.17
- BOW to BOS	0.49
= TOC to BOS	47.68
TOC to BOS	47.68
- Screened Length	4.68
= TOC to TOS	43.00

TOC to BOW	48.17
- TOC to GS	-0.39
BOW bgs	48.56
TOC to TOS	43.00
- TOC to GS	-0.39
TOS bgs	43.39
TOC to BOS	47.68
- TOC to GS	-0.39
BOS bgs	48.07

MDN

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: DLG
Weather: sunny, 70°F
Development Personnel: VTY

Well No. DLG-MW02-50
Project No: 102.581-009
Date: 7/24/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 46.56 + 1.37 = 47.93
Depth to Water **Before** Development (feet below top of casing): 20.72
Depth to Screen Top and Bottom (from Construction Log): Top: 43.00 Bottom: 47.68

Development Details

Feet of water in well: 27.21
Gallons per foot: 0.17
Gallons in well: 4.6
Surge method: surge block
Pump used: waterra
Tubing used (ft): 60

Time pumping started: 1430
Flow rate (gal/min): 0.5
Flow-rate measurement method: 16 oz cup
Time pumping ended: 1705
Gallons Pumped: 40
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 24.53 (same drawdown)
Total Depth of Well **After** Development (feet below top of casing): 47.93

Observations

feet bgs	Time	Water Clarity (Visual)
47	1445	chocolate brown, v. turbid
47	1500	slightly less turbid
46	1515	less turbid
45	1530	less turbid
44	1545	saa
43	1600	saa
43	1615	less turbid
43	1625	less turbid
44	1635	saa
45	1645	slightly less turbid

feet bgs	Time	Water Clarity (Visual)
46	1655	saa
47	1705	saa

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client: DOT & PF
Location: DLG
Sampling Personnel: VTY
Weather Conditions: sunny Air Temp. (°F): 70

Project No.: 10258I-009
Date: 7/24/21
Well: DLG-MW02-50
Time started: 1715
Time completed: 1845

Sample No.: DLG-MW02-50 Time: 1820
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: peri
Purging Method: portable / dedicated pump
Pumping Start: 1725
Purge Rate (gal./min.): 0.08
Pumping End: 1820

Pump Set Depth Below MP (ft.): 46
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 50
silicone 1/4.

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 48
Measured Total Depth of Well Below MP (ft.): 47.93
Depth to Water Below MP (ft.): 24.53
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 23.40
Gallons per foot: 0.17
Gallons in Well: 4
Purge Water Volume (gal.): 4 + ~70 gallons from development
Purge Water Disposal: GAC

Monument Condition: good
Casing Condition: good

Wiring Condition (dedicated pumps): /

Measuring Point (MP): Top of Casing (TOC)

Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.): 0.60
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

MONITORING WELL SAMPLING LOG

EFD

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1730	5.5	0.59	120.5	7.05	150.8	turbid
1733	5.8	0.76	127.2	7.03	135.8	slightly turbid
1736	5.9	0.78	129.9	7.03	125.0	sda
1739	6.0	0.77	132.0	7.01	115.1	less turbid
1759	4.7	0.66	129.2	6.95	86.1	less turbid
1802	4.7	0.66	129.3	6.95	81.6	saa
1805	4.7	0.64	128.4	6.95	78.8	saa
1808	4.7	0.63	129.4	6.95	75.1	slightly turbid
1811	4.7	0.62	128.5	6.95	72.2	sda
1814	4.6	0.65	128.0	6.95	68.8	saa
1817	4.6	0.62	127.7	6.94	66.2	saa
~~1820~~	sample					

Laboratory ~~SGS~~ Eurofins Test Am

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x18	2 x 250 ml	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

MDW

Well No.
DLG-MW02-50

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW03-~~28~~ 30
Project Name DLG PFAS Site Characterization
Project Number 102581-009

Date Installed 7/8/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	10.00	+2+0.67
Cuttoff Length	~~4.11+0.67+0.59=5.52~~	
Add-on Length	—	
Total Length	~~+13.22~~	

II. MID SECTION (CASING)

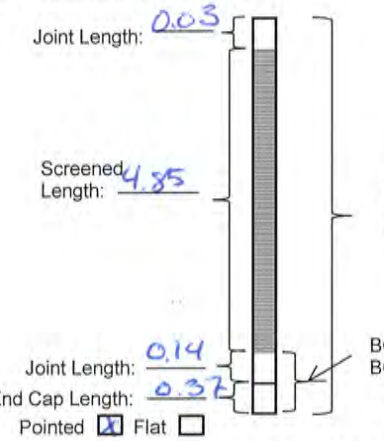
Number of Blank Sections: 2
Length of Section(s): ×10

10.00		
10.00		

+

Sum of Lengths: 20.00

III. SCREENED SECTION(S)



+

Total Pipe Length: 5.39

=

TOC to BOW: ~~29.5~~ 28.61

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

IV. WELL DATA

Pipe Type:	PVC ☒	SS ☐	Other	
Diameter:	2" ☒	4" ☐	Other	
Slot Size:	0.01 ☒	0.02 ☐	Other	
Joint Pin End:	Up ☒	Down ☐	Type	

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1.5	0.5	
*SLUF_PB/FIL_PB	~~5~~ 10	1.5	gravel
BCH_PB	~~8~~ 8	~~8~~ 10	
*SLUF_PB/FIL_PB			
BGR_PB	18	8	
*SLUF_PB/FIL_PB	23	18	
*SLUF_PS/FIL_PS	28	23	
*SLUF/FIL (No Pipe)	~30	28	
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation: prepack #10/20 Sand (20/40)

VI. MONUMENTS

7/31/21 obs annular seal has sunk ~5ft. Add ace bag pea gravel will add more.

Stuckup ☐ Flushmount ☒

TOM to GS	flush	09/21: add gravel
TOM to TOC	-0.50	to fill void space
^TOC to GS	-0.50	
Lock type	N/A	

VII. MOISTURE CONTENT

Depth to Water Below GS: ~22 ft

	Frozen Soil Below GS Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	28.61
- BOW to BOS	0.51
= TOC to BOS	28.10

TOC to BOS	28.10
- Screened Length	4.85
= TOC to TOS	23.25

TOC to BOW	28.61
- TOC to GS	-0.50
BOW bgs	29.11
TOC to TOS	23.25
- TOC to GS	-0.50
TOS bgs	~~23.75~~
TOC to BOS	28.10
- TOC to GS	-0.50
BOS bgs	28.60

DHF

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: SE of lease lot, DLG
Weather: partly cloudy, 60°F
Development Personnel: VTY, SAH

Well No.: DLG-MW03-28
Project No: 102581-009
Date: 7/23/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 26.45+1.37 = 27.82
Depth to Water **Before** Development (feet below top of casing): 20.61
Depth to Screen Top and Bottom (from Construction Log): Top: 23.25 Bottom: 28.1

Development Details

Feet of water in well: 7.21
Gallons per foot: 0.17
Gallons in well: 1.2
Surge method: surge block
Pump used: waterra
Tubing used (ft): 35

Time pumping started: 1408 / 1954
Flow rate (gal/min): 0.5
Flow-rate measurement method: 16 oz cup
Time pumping ended: 1410 / 1956
Gallons Pumped: 2
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 21.66 (some drawdown)
Total Depth of Well **After** Development (feet below top of casing): 27.91

Observations

Time	Water Clarity (Visual)
27 1408	chocolate brown/turbid
1410	purged dry @ 25.65
27 1954	restarted, recharged to 22.65
1956	purged dry

Time	Water Clarity (Visual)

NOTES: 23.29 (@ 14:43 23.29 @ 1509 (Also @ 14:55) 22.36 @ 1515

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

~~X 7.21 = 5.46~~
~~/ 1000~~

MONITORING WELL SAMPLING LOG

Owner/Client: DOT & PF
Location: DLG
Sampling Personnel: VTY
Weather Conditions: overcast Air Temp. (°F): 50°F

Project No.: 102581-009
Date: 7/25/21
Well: DLG-MW03-28
Time started: 0900
Time completed: 1030

Sample No.: DLG-MW03-28 Time: 1000
Duplicate: DLG-MW103-28 Time: 0950
Equipment Blank: — Time: —

Pump: peri
Purging Method: portable / dedicated pump
Pumping Start: 0935
Purge Rate (gal./min.): 0.1
Pumping End: 1000

Pump Set Depth Below MP (ft.): 26
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 35
silicone 1 ft

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 28
Measured Total Depth of Well Below MP (ft.): 26.68+1.23 = 27.91
Depth to Water Below MP (ft.): 21.66
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 6.25
Gallons per foot: 0.17
Gallons in Well: 1.06
Purge Water Volume (gal.): 2.5+ ~2gall from development
Purge Water Disposal: GAC

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): /

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.): 0.50
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

HDR

Well No. 30
DLG-MW03-~~28~~

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
0937	3.7	1.26	55.1	6.24	204.1	clear
0940	3.7	1.10	51.6	5.66	173.5	clear
0943	3.7	0.84	51.2	5.56	165.5	clear
0946	3.7	0.99	51.3	5.52	159.2	clear
0949	3.9	6.52	50.9	5.50	152.6	clear
0952	3.9	6.67	50.9	5.50	149.9	clear
0955	3.9	6.71	51.3	5.50	149.3	clear
1000	sample					

Laboratory ~~SGS~~ Eurofins TestAmerica

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS	2x 250ml	—	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW03-~~28~~ 30

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW03-48
Project Name Dillingham PFAS Site Characterization
Project Number 1025581-009

Date Installed 7/7/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	10	+0.67
Cuttoff Length	4.0+2.27	+0.59+0.52
Add-on Length	—	
Total Length	~~7.38~~ 2.62	

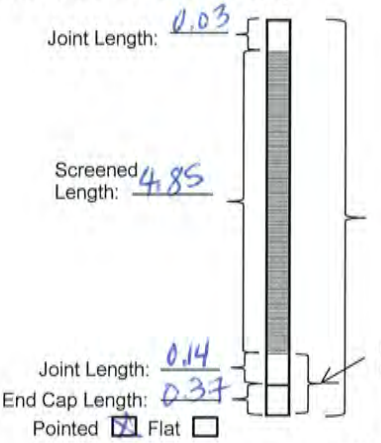
II. MID SECTION (CASING)

Number of Blank Sections: 4
Length of Section(s): 10

+

Sum of Lengths: 40

III. SCREENED SECTION(S)



+

Total Pipe Length: 5.39

=

TOC to BOW: ~~52.77~~ ~~48.01~~ 47.34

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other
Diameter: 2" ☒ 4" ☐ Other
Slot Size: 0.01 ☒ 0.02 ☐ Other
Joint Pin End: Up ☒ Down ☒ Type

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1.5	0.5
*SLUF_PB/FIL_PB	—	—
BCH_PB	4	3
*SLUF_PB/FIL_PB	3	1.5
BGR_PB	40	4
*SLUF_PB/FIL_PB	43	40
*SLUF_PS/FIL_PS	48	48
*SLUF/FIL (No Pipe)	—	—
*SLUF_PB/FIL_PB	—	—

pea gravel

Filter Pack Type or Gradation: prepack + 10/20 Sand

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS: flush
TOM to TOC: -0.36
^TOC to GS: -0.36
Lock type: locking cap

VII. MOISTURE CONTENT

Depth to Water Below GS: ~~N/A~~ 25 ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	47.34
- BOW to BOS	0.51
= TOC to BOS	46.83
TOC to BOS	46.83
- Screened Length	4.85
= TOC to TOS	41.98

TOC to BOW	47.34
- TOC to GS	-0.36
BOW bgs	47.70
TOC to TOS	46.83
- TOC to GS	-0.36
TOS bgs	47.19
TOC to BOS	~~46.83~~ 46.83
- TOC to GS	-0.36
BOS bgs	47.19

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: SE of lease lots
Weather: Overcast
Development Personnel: ALF/MDN

Well No.: ~~AMW~~ DLG-MW03-45
Project No: 102581-007
Date: 7/25/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 46.58
Depth to Water **Before** Development (feet below top of casing): 25.39'
Depth to Screen Top and Bottom (from Construction Log): Top: ~~46.58~~ 41.98 Bottom: 46.83

Development Details

Feet of water in well: 21.19
Gallons per foot: 0.17
Gallons in well: 3.60
Surge method: ~~bailer~~ Surge block @ ~~beginning~~
Pump used: Littera pump
Tubing used (ft): 60

Time pumping started: 1430
Flow rate (gal/min): 1/2 to ~~3~~/4 gpm, variable
Flow-rate measurement method: measure w/ gallon jug
Time pumping ended: 1754
Gallons Pumped: ~130 gall
Disposal: Containerize, filter w/ GAC

Depth to Water **After** Development (feet below top of casing): 25.42 (~15min after pump off)
Total Depth of Well **After** Development (feet below top of casing): 47.99

Observations

Time	Water Clarity (Visual)
~1430	surge, no water removed - pull surge block
1442	V. turbid @ ~~top~~ bottom
1505	mod. turbidity
1520	mod. turbidity, move off 1 min up
1526	turbid
1535	turbid, move up ~~to top~~ near top (~46ft)
1538	sl. turbid
1540	move back to bottom
1542	mod. turbid
1556	mod. turbid

Time	Water Clarity (Visual)
~1630	no improvement
~~1700~~	surge block for ~10 min's
1704	move up 1 ft, slow down
1712	" " " ", mod. turbid
1722	sl. turbid, move up
1728	" " " "
1734	move up to top of GW, turbid up
—	flow rate
1752	sl. turbid
1754	pump off

NOTES: Cut casing 0.14' prior to development.

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client DOT&PF
Location SE of lease lots
Sampling Personnel KLF/MDN
Weather Conditions sunny Air Temp. (°F) low 60s

Project No. 102581-009
Date 7/25/21
Well DLG-MW03-45
Time started 1750
Time completed 1850

Sample No. DLG-MW03-45 Time 1827
Duplicate ~~DLG-MW03-145~~ (N) Time ~~1832~~ (N)
Equipment Blank — Time —

Pump peri pump A
Purging Method (portable) / dedicated pump
Pumping Start 1810
Purge Rate (gal./min.) 0.1
Pumping End 1830
Pump Set Depth Below MP (ft.) 24 ft (N) ~~26ft~~
KuriTec Tubing (ft.) 0ft
TruPoly Tubing (ft.) 30ft

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 47.99
Depth to Water Below MP (ft.) 25.39
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 22.60
Gallons per foot 0.17
Gallons in Well ~~22.8~~ 3.84
Purge Water Volume (gal.) 1.6 + drawdown quant
Purge Water Disposal Containerize, filter w/ GAC

Monument Condition good, new
Casing Condition good, new
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Rod & level / (Tape measure)

Top-of-casing to monument (ft.) 0.36
Monument to ground surface (ft.) flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☑ Lock present and operational N/A, secured open
☐ Well name legible on outside of well
☑ Evidence of frost-jacking None, new

Notes well developed prior to purging & sampling

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW03-45

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations —

Notes Small bubbles in line

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1810	start					
1812	4.6	1.22	100.9	6.10	46.1	Sl. turbid
1815	4.6	1.11	100.5	6.07	50.1	Sl. turbid
1818	4.6	1.09	100.1	6.06	51.1	clear
1821	4.5	1.01	99.7	6.12	52.3	clear
1824	4.5	1.01	99.7	6.04	53.1	clear

Laboratory ~~SGS~~ Test America

	Analysis	Sample Containers	Preservatives	Dup
☑	PFAS x18	x2 HDPE 500mL	None	☑
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No.

DLG-MW03-45

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW03-75	Date Installed 7-21-21
Project Name DLG PFAS Site Char.	Logged By ALF
Project Number 102581-009	Driller Discovery

I. TOP SECTION (CASING)

Initial Pipe Length 10.00
Cuttoff Length 2.17
Add-on Length —
Total Length 7.83

II. MID SECTION (CASING)

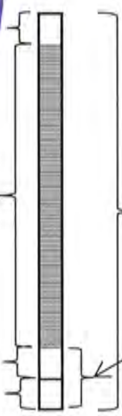
Number of Blank Sections 6
Length of Section(s):

10.00	× 6	

Sum of Lengths: 60.00

+

III. SCREENED SECTION(S)



Joint Length: 0.21
Screened Length: 4.68
Joint Length: 0.23
End Cap Length: 0.26
Pointed ☒ Flat ☐

Total Pipe Length: 5.38

BOW to BOS: 0.49

=

TOC to BOW: 73.21

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ______
Diameter: 2" ☒ 4" ☐ Other ______
Slot Size: 0.01 ☒ 0.02 ☐ Other ______
Joint Pin End: Up ☒ Down ☐ Type ______

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.3	0
CEM_PB	1.5	0.3
PG *SLUF_PB/FIL_PB	3	1.5
BGR ~~BCH_PB~~	60.0	4.0 BCH 4-3
*SLUF_PB/FIL_PB		
BCH ~~BGR_PB~~	60.0	58.0
*SLUF_PB/(FIL_PB)	68.0	60.0
*SLUF_PS/(FIL_PS)	73	68.0
*SLUF/FIL (No Pipe)	75	73
*SLUF_PB/FIL_PB		

Filter Pack Type or Gradation Silica 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒
TOM to GS flush
TOM to TOC 0.34
^TOC to GS -0.34
Lock type N/A

VII. MOISTURE CONTENT

Depth to Water Below GS ~~Adp~~ ~26.64

Frozen Soil Below GS

	Bottom	Top
Seasonal 1	/	/
Seasonal 2	/	/
Permafrost 1	/	/
Permafrost 2	/	/

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 73.21
\- BOW to BOS 0.49
= TOC to BOS 72.72

TOC to BOS 72.72
\- Screened Length 4.68
= TOC to TOS 68.04

TOC to BOW 73.21
\- TOC to GS -0.34
BOW bgs 73.55

TOC to TOS 68.04
\- TOC to GS -0.34
TOS bgs 68.38

TOC to BOS 72.72
\- TOC to GS -0.34
BOS bgs 73.06

DHE

WELL DEVELOPMENT LOG

Owner-Client	DOT & PF - DLG Airport	Well No.	DLG-MW03-75
Location	South of Apron	Project No	102581-009
Weather	Cloudy - 50s	Date	7-25-21
Development Personnel	ALF		

Diameter and Type of Casing: 2" PVC

Total Depth of Well **Before** Development (feet below top of casing): 73.02

Depth to Water **Before** Development (feet below top of casing): 25.93

Depth to Screen Top and Bottom (from Construction Log): Top: 68.04 Bottom: 72.72

Development Details

Feet of water in well	47.09	Time pumping started	9:54
Gallons per foot	0.17	Flow rate (gal/min)	~1 gpm
Gallons in well	8.00	Flow-rate measurement method:	Gallon Jug
Surge method	Surge block on tubing		
Pump used	Waterra Inertial	Time pumping ended	13:27
Tubing used (ft)	95	Gallons Pumped	~130 gal
		Disposal:	Containerized for GAC filtration

Depth to Water **After** Development (feet below top of casing): 73.12 (swap)

Total Depth of Well **After** Development (feet below top of casing): 25.84

Observations

Time	Water Clarity (Visual)	Time	Water Clarity (Visual)
10:04	Very Turbid	11:48	69-69.5 Sl. Turbid
11:01	Very Turbid	11:50	68.5-69 " "
11:15	Remove Surge Block	11:51	68-68.5 " "
11:28	72.5-73 Mod. Turbid	11:57	~30' (Top of Water Column) Very Turbid
11:35	72-72.5 Mod. Turbid	12:03	" Muder "
11:37	71.5-72 Sl.-Mod. Turbid	12:08	" " Stop pump - move to Alaska Air
11:39	71.-71.5 Sl.-Mod Turbid	12:31	Start Pump
11:41	70.5-71 Sl.-Mod Turbid	12:37	~30' Sl-Mod. Turbid
11:44	70-70.5 Slightly Turbid	12:41	~30' Sl. Turbid
11:46	69.5-70 " "	12:46	" " Almost Clear

NOTES: Worked screened interval in ~6" sections with surge block during initial development (~20 minutes).

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MDN

cont. on back

Time	Location bgs	observations
12:50	72.5-73	Mod Turbid
12:56	72.5-73	Sl. Turbid
13:00	72-72.5	Sl. Turbid
13:02	71.5-72	" "
13:04	71-71.5	" "
13:10	~~72.8~~ 70.5-71	" "
13:13	70-70.5	" "
13:18	69.5-70	Very Sl. Turbid
13:20	69-69.5	" "
13:23	68.5-69	Mostly Clear
13:26	68-68.5	Clear

MDN

MONITORING WELL SAMPLING LOG

Owner/Client: DLA-RPF Dillingham Airport
Location: SE of lease lots
Sampling Personnel: MDN
Weather Conditions: overcast Air Temp. (°F): low 60s

Project No.: 102581
Date: 7/25/21
Well: DLG-MW03-75
Time started: 1410
Time completed: 1615

Sample No.: DLG-MW03-75 Time: 1609
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Hurricane B
Purging Method: (portable) / dedicated pump
Pumping Start: 1550
Purge Rate (gal./min.): 0.2 gpm
Pumping End: 1608

Pump Set Depth Below MP (ft.): 24'
KuriTec Tubing (ft.): ~~35~~ 75'
TruPoly Tubing (ft.): 15'

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 73.12
Depth to Water Below MP (ft.): 25.83
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 47.29
Gallons per foot: 0.17
Gallons in Well: 8.04 ~1.30 gall
Purge Water Volume (gal.): ~3.6 gall + development
Purge Water Disposal: Containerize, filter w/ GAC

Monument Condition: Good, new
Casing Condition: Good, new
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / ~~Flushmount~~
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.): -0.31
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- [x] Lock present and operational — NO lock, secured area
- [ ] Well name legible on outside of well — written
- [x] Evidence of frost-jacking — N/A, new

Notes: DIY coupler, neck down to peri tubing
well developed prior to purging and sampling

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW03-75

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations —

Notes —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1550	start purge, >> 3 well vol's purged during development					
1552	4.4	1.34%	225.2	5.90	85.8	clear
1555	4.5	0.71%	224.2	6.00	64.0	"
1558	5.0	0.50%	224.9	6.10	46.3	"
1601	4.7	0.50%	224.8	6.14	38.1	"
1604	5.0	0.46%	226.7	6.16	32.4	"
1609	4.8	0.37%	226.2	6.18	24.1	"
1609	Sample					

Laboratory ~~SGS~~ Eurofins Testam

	Analysis	Sample Containers	Preservatives	Dup
☐	PFAS x18	250mL HDPE	None	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No.
DLG-MW03-75

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW04-25
Project Name DLG PFAS Site Characterization
Project Number 107581-009

Date Installed 7/10/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	10	
Cuttoff Length	0.65+0.56	
Add-on Length	—	
Total Length		8.79

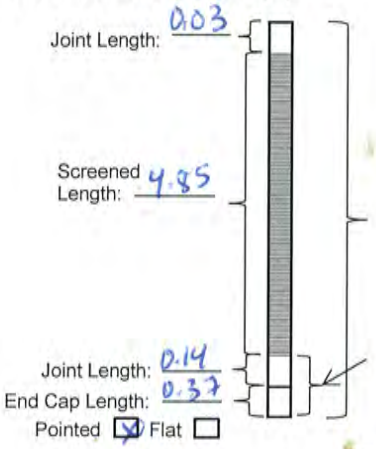
II. MID SECTION (CASING)

Number of Blank Sections: x1
Length of Section(s): 10

+

Sum of Lengths: 10

III. SCREENED SECTION(S)



+

Total Pipe Length: 5.39

=

TOC to BOW: 24.18

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1	0.5
*SLUF_PB/FIL_PB	8	1 pea gravel
BCH_PB	15	8
*SLUF_PB/FIL_PB		
BGR_PB		
*SLUF_PB/FIL_PB	20	15
*SLUF_PS/FIL_PS	25	20
*SLUF/FIL (No Pipe)		
*SLUF_PB/FIL_PB		

Filter Pack Type or Gradation: prepack and 10/20 (20/40)

VI. MONUMENTS

Stuckup ☒ Flushmount ☒

TOM to GS	flush
TOM to TOC	-0.31
^TOC to GS	-0.31
Lock type	1D/A

VII. MOISTURE CONTENT

Depth to Water Below GS: ~21 ft

Frozen Soil Below GS	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	24.18
- BOW to BOS	0.51
= TOC to BOS	23.67
TOC to BOS	23.67
- Screened Length	4.85
= TOC to TOS	18.82

TOC to BOW	24.18
- TOC to GS	-0.31
BOW bgs	24.49
TOC to TOS	18.82
- TOC to GS	-0.31
TOS bgs	19.13
TOC to BOS	23.67
- TOC to GS	-0.31
BOS bgs	23.98

DHF

WELL DEVELOPMENT LOG

Owner-Client DOT + PF
Location Matanuska Glacier
Weather 52° Cloudy
Development Personnel SAH YTY

Well No. DLG-MW04-25
Project No 102581-009
Date July 21, 2021

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 21.75 + 1.37 = 23.12
Depth to Water **Before** Development (feet below top of casing): 21.31
Depth to Screen Top and Bottom (from Construction Log): Top: 18.82 Bottom: 23.67

Development Details

Feet of water in well 1.81
Gallons per foot 0.17
Gallons in well 0.3077
Surge method surge block
Pump used Waterra
Tubing used (ft) 30

Time pumping started 920
Flow rate (gal/min) 0.25
Flow-rate measurement method: 16 oz cup
Time pumping ended 1111
Gallons Pumped 30
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 21.31
Total Depth of Well **After** Development (feet below top of casing): 21.73 + 1.37 = 23.1

Observations

	Time	Water Clarity (Visual)
22.5	923	Chocolate Brown Turbid
22.5	934	slightly less turbid
22	945	slightly less turbid
22.5	955	saa
22	1010	slightly less turbid
22	1020	more turbid
22	1028	Most clear so far
22	1033	slightly less turbid than above
22.5	1043	saa
22	1058	less turbid, see through

	Time	Water Clarity (Visual)
22.5	1108	SAA
	1110	end

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client: DOT & PF
Location: DLG
Sampling Personnel: VTY, SAH
Weather Conditions: overcast Air Temp. (°F): 50

Project No.: 102581-009
Date: 7/21/22
Well: DLG-MW04-25
Time started: 1130
Time completed: 1330

Sample No.: DLG-MW04-25 Time: 1300
Duplicate: DLG-MW104-25 Time: 1310
Equipment Blank: EB-MW04 Time: 1800

Pump: Hurricane
Purging Method: ~~portable~~ / dedicated pump
Pumping Start: 1200
Purge Rate (gal./min.): 0.1
Pumping End: 1310

Pump Set Depth Below MP (ft.): 22.5
KuriTec Tubing (ft.): 30
TruPoly Tubing (ft.): —

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 25
Measured Total Depth of Well Below MP (ft.): 23.1
Depth to Water Below MP (ft.): 21.31
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 1.79
Gallons per foot: 0.17
Gallons in Well: 0.3
Purge Water Volume (gal.): 7 + N30 gal from development
Purge Water Disposal: GAC

Monument Condition: good
Casing Condition: good

Wiring Condition (dedicated pumps): /

Measuring Point (MP): Top of Casing (TOC)

Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.): flush
Monument to ground surface (ft.): -0.31

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes: well developed right before purging + sampling

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW04-25

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1203	5.5	7.16	106.5	5.85	207.0	turbid
1205	pump off to adjust flow rate					
1211	4.9	7.48	95.9	5.85	236.7	turbid
1214	5.1	7.33	96.4	5.83	240.7	turbid
1218	5.2	7.35	97.7	5.83	243.4	less turbid
1221	5.3	7.28	98.1	5.83	243.6	slightly turbid
1224	5.3	7.38	97.6	5.83	243.5	clear
1230	flow changed and water became turbid					
1239	5.3	6.91	90.6	5.79	253.7	turbid
1241	6.2	6.48	97.7	5.81	255.8	turbid
1250	6.5	6.68	99.4	5.82	257.0	less turbid
1253	6.5	6.69	99.3	5.83	257.5	slightly less turbid
1256	6.6	6.73	99.3	5.84	257.7	clear
1300	sample					

Laboratory ~~SGS~~ Eurofins TestAm

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x 18	2 x 250 mL	—	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW04-25

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW04-53
Project Name DLG PEAS site characterization
Project Number 102581-009

Date Installed 7/9/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length: 2 - 10 ft pieces
Cuttoff Length: 9.16 + 1.63 + 0.44
Add-on Length:
Total Length 8.77

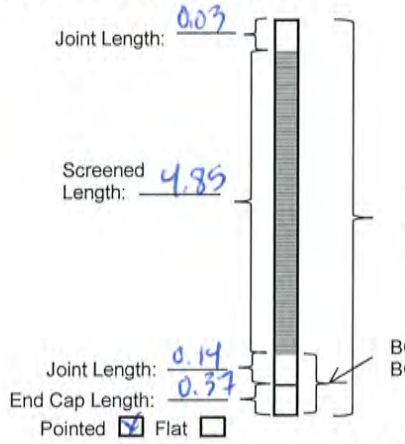
II. MID SECTION (CASING)

Number of Blank Sections: 4
Length of Section(s): 10

+

Sum of Lengths: 40

III. SCREENED SECTION(S)



+

Total Pipe Length: 5.39

=

TOC to BOW: 54.16

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other
Diameter: 2" ☒ 4" ☐ Other
Slot Size: 0.01 ☒ 0.02 ☐ Other
Joint Pin End: Up ☒ Down ☐ Type

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1	0.5
*SLUF_PB/FIL_PB	15	1
BCH_PB	45	44
*SLUF_PB/FIL_PB		
BGR_PB	44	15
*SLUF_PB/FIL_PB	48	45
*SLUF_PS/FIL_PS	53	48
*SLUF/FIL (No Pipe)	—	—
*SLUF_PB/FIL_PB	—	—

Filter Pack Type or Gradation: prepack #10/20 (20/40)

7/10: added 9 feet gravel, bent/ grout sank overnight.

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS: 0
TOM to TOC: -0.32
^TOC to GS: -0.32
Lock type: n/a

VII. MOISTURE CONTENT

Depth to Water Below GS: ~32

Frozen Soil Below GS	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 54.16
- BOW to BOS 0.51
= TOC to BOS 53.65

TOC to BOS 53.65
- Screened Length 4.85
= TOC to TOS 48.8

TOC to BOW	54.16
- TOC to GS	-0.32
BOW bgs	54.48
TOC to TOS	48.8
- TOC to GS	-0.32
TOS bgs	49.12
TOC to BOS	53.65
- TOC to GS	-0.32
BOS bgs	53.97

WELL DEVELOPMENT LOG

Owner-Client DOT & PF
Location DLG
Weather Overcast, 50°F
Development Personnel VM, SAH

Well No. DLG-MW04-53
Project No 102581
Date 7/21/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 51.02 + 1.23 = 52.25
Depth to Water **Before** Development (feet below top of casing): 20.67
Depth to Screen Top and Bottom (from Construction Log): Top: ~~47~~ 48.8 Bottom: ~~52~~ 53.65 EFD

Development Details

Feet of water in well 31.58
Gallons per foot 0.17
Gallons in well 5.36
Surge method surge block
Pump used waterra
Tubing used (ft) 60

Time pumping started 1125
Flow rate (gal/min) 0.4
Flow-rate measurement method: 16 oz cup
Time pumping ended 1540
Gallons Pumped +/- 100 gal
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): ~~32.04~~ 32.06 (draw down of >11 ft, not recharged)
Total Depth of Well **After** Development (feet below top of casing): 52.26

Observations

	Time	Water Clarity (Visual)
51	1130	V. Turbid Gray
51	1145	saa
51	1200	saa
51	1210	saa
50	1220	saa
50	1240	saa
50	1250	saa
~~49~~	1305	SAA
~~49~~	1320	SAA
~~49~~	1335	SAA
~~49~~	1350	SAA
~~49~~	1400	less turbid brown
~~49~~	1410	less turbid brown
~~49~~	1420	less turbid, brown
~~49~~	1430	SAA
50	1442	SAA
50	1505	less turbid, yellow-brown
51	1517	Very turbid
50	1528	less turbid
50	1540	Less turbid

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client DOT+PF
Location Dillingham
Sampling Personnel SAH VTY
Weather Conditions RAIN Air Temp. (°F) 55

Project No. 102581-009
Date 7/24/24
Well DLG-MW04-53
Time started 1650
Time completed 1745

Sample No. DLG-MW04-53 Time 1720
Duplicate Time
Equipment Blank EB-MW04 Time 1800

Pump Hurricane
Purging Method *portable / dedicated pump*
Pumping Start 1655
Purge Rate (gal./min.) 0.2 L/min = 0.05 gpm
Pumping End 1735 Max drawdown 0.11'

Pump Set Depth Below MP (ft.) 50
KuriTec Tubing (ft.) 60
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) 53
Measured Total Depth of Well Below MP (ft.) 52.26
Depth to Water Below MP (ft.) ~~32.00~~ 22.867
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well ~~20.02~~ ~~30.02~~ 29.59
Gallons per foot 0.17
Gallons in Well ~~3.4~~ ~~5~~
Purge Water Volume (gal.) ~2.5 gal + development
Purge Water Disposal GAC

Monument Condition good
Casing Condition good

Wiring Condition (dedicated pumps) /

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) 0.32
Monument to ground surface (ft.) 0" flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes well purged & sampled directly after development

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No. DLG-MW04-~~53~~ 50

Ed

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI C

Circle one: Parameters stabilized or >3 well volumes purged

Sample Observations:

Notes:

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
16~~58~~	6.2	1.37	208.4	6.13	99.5	Turbid
17:00	6.2	1.13	209.1	6.16	96.1	Turbid
17:05	6.4	0.90	212.7	6.23	81.3	less turbid
17:10	6.7	0.87	215.7	6.23	86.2	less turbid
17:15	6.8	0.84	217.5	6.26	75.4	Clear
SAMPLE 17:20						

Laboratory ~~SGS~~ Eurofins Test America

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x 18	2x 250 mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW04-50

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MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW05-45
Project Name DLG RFAS Site Characterization
Project Number 102581-009

Date Installed 7/12/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

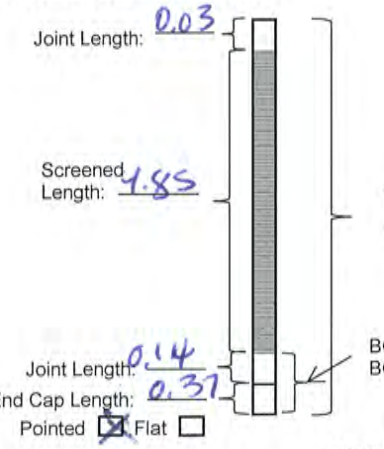
Initial Pipe Length	10
Cuttoff Length	1.75 + 0.75
Add-on Length	—
Total Length	7.5

II. MID SECTION (CASING)

Number of Blank Sections: ~~to~~ 3
Length of Section(s): 10

+ **Sum of Lengths:** 30

III. SCREENED SECTION(S)



+ **Total Pipe Length:** 5.39

= **TOC to BOW:** 42.89

IV. WELL DATA

Pipe Type:	PVC	☒	SS	☐	Other	
Diameter:	2"	☒	4"	☐	Other	
Slot Size:	0.01	☒	0.02	☐	Other	
Joint Pin End:	Up	☑	Down	☐	Type	

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1	0.5	
*SLUF_PB/FIL_PB	5	1	pea gravel
BCH_PB	35	34	
*SLUF_PB/FIL_PB	6	5	bentonite chip
BGR_PB	34	6	
*SLUF_PB/FIL_PB	40	35	
*SLUF_PS/FIL_PS	45	40	
*SLUF/FIL (No Pipe)			
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation: prepack + 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	-0.58
^TOC to GS	-0.58
Lock type	N/A

VII. MOISTURE CONTENT

Depth to Water Below GS: ~25.~~35~~ TOC

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	42.89
- BOW to BOS	0.51
= TOC to BOS	42.38
TOC to BOS	42.38
- Screened Length	4.85
= TOC to TOS	37.53

TOC to BOW	42.89
- TOC to GS	-0.58
BOW bgs	43.47
TOC to TOS	37.53
- TOC to GS	-0.58
TOS bgs	38.11
TOC to BOS	42.38
- TOC to GS	-0.58
BOS bgs	42.96

WELL DEVELOPMENT LOG

Owner-Client: DOT & PF
Location: Dillingham Emperor Way
Weather: 58°F Sunny
Development Personnel: VTY SAH

Well No.: DLG - MW05 - 45
Project No: 102581-009
Date: 7/17/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 41.84 + 1.37 = 43.21
Depth to Water **Before** Development (feet below top of casing): 25.36 @ 10:24
Depth to Screen Top and Bottom (from Construction Log): Top: 37.53 Bottom: 42.38

0.58 TOC to gs

Development Details

Feet of water in well: ~~16.40~~ 17.85
Gallons per foot: 0.17
Gallons in well: ~~2.80~~ ~3 gal
Surge method: surge block
Pump used: waterra
Tubing used (ft): 50

Time pumping started: 1050
Flow rate (gal/min): 0.5
Flow-rate measurement method: 16 oz cup
Time pumping ended: 1400
Gallons Pumped: 95
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 25.35
Total Depth of Well **After** Development (feet below top of casing): 41.84 + 1.37 = 43.21

Observations

Depth bgs	Time	Water Clarity (Visual)
41	1057 +5m	chocolate brown
41	1110	chocolate brown
41	1125	less turbid than above
40	1131	same as above (saa)
40	1137	saa
39	1147	saa
39	1157	slightly less turbid
38	1207	more turbid than above
38	1214	less turbid than above
37	1220	less turbid

NTU

Depth bgs	Time	Water Clarity (Visual)
37	1225	saa
38	1240	slightly more turbid
39	1257	less turbid
39	1303	more turbid than above
39	1323	less turbid
40	1335	more turbid
40	1345	less turbid
41	1347	saa
41	1357	saa
41	1400	saa

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MDN

MONITORING WELL SAMPLING LOG

Owner/Client: DOT & PF
Location: DLG Emperor way
Sampling Personnel: VH, SAH
Weather Conditions: sunny Air Temp. (°F): 70°F

Project No.: 102581-009
Date: 7/17/21
Well: DLG-MW05-45
Time started: 1500
Time completed: 1620

Sample No.: DLG-MW05-45 Time: 1620
Duplicate: DLG-MW105-45 Time: 1610
Equipment Blank: — Time: —

Pump: hurricane
Purging Method: (portable) / dedicated pump
Pumping Start: 1533
Purge Rate (gal./min.): 0.5
Pumping End: 1623

Pump Set Depth Below MP (ft.): 41
KuriTec Tubing (ft.): 55
TruPoly Tubing (ft.): —

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 45
Measured Total Depth of Well Below MP (ft.): 41.84+1.37=43.21
Depth to Water Below MP (ft.): 25.35
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 17.86
Gallons per foot: 0.17
Gallons in Well: 3
Purge Water Volume (gal.): 25+ ~95 gal from development
Purge Water Disposal: GAC

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): /

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Rod & level / (Tape measure)

Top-of-casing to monument (ft.): 0.58
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes: well purged & sampled right after development

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW05-45

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations —

Notes —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1540	4.4	1.82	121.0	7.48	202.0	turbid
1548	4.5	1.13	110.4	7.17	215.8	turbid
1555	4.5	0.95	106.7	7.01	223.2	turbid
1600	4.7	0.94	107.9	6.95	225.2	slightly turbid
1606	4.7	0.94	107.1	6.91	226.6	slightly turbid
1612	4.6	0.88	105.0	6.85	227.9	slightly turbid
1620	sampled					

Laboratory ~~SGS~~ Eurofins Testamerica

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS v18	2x 250 mL	—	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No.

DLG-MW05-45

~~62-670~~

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW05-67
Project Name DLG PFAS Site Characterization
Project Number 102581-009

Date Installed 7/11/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

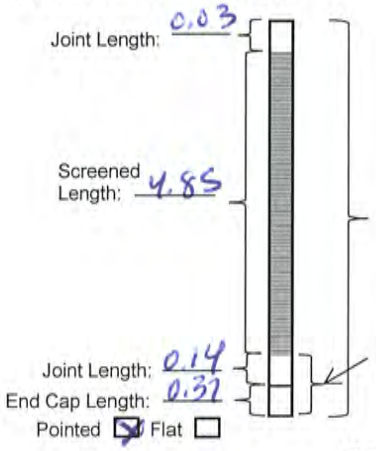
Initial Pipe Length 10
Cuttoff Length 9.82
Add-on Length —
Total Length 0.18

II. MID SECTION (CASING)

Number of Blank Sections 6
Length of Section(s): 10

Sum of Lengths: 60

III. SCREENED SECTION(S)



Total Pipe Length: 5.39

TOC to BOW: 65.57*

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other
Diameter: 2" ☒ 4" ☐ Other
Slot Size: 0.01 ☒ 0.02 ☐ Other
Joint Pin End: Up ☒ Down ☐ Type

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1	0.5	
*SLUF_PB/FIL_PB	5	1	peagravel
BCH_PB	59	57	
*SLUF_PB/FIL_PB	6	5	Lentinitech MPS
BGR_PB	57	10	
*SLUF_PB/FIL_PB	62	59	
*SLUF_PS/FIL_PS	67	62	
*SLUF/FIL (No Pipe)	~~65~~ 70	67	peagravel
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation prepack and 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS flush
TOM to TOC -0.60
^TOC to GS -0.60
Lock type n/a

VII. MOISTURE CONTENT

Depth to Water Below GS ~29.30 TOC

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 65.57
- BOW to BOS 0.51
= TOC to BOS 65.06

TOC to BOS 65.06
- Screened Length 4.85
= TOC to TOS 60.21

TOC to BOW	65.57
- TOC to GS	-0.60
BOW bgs	66.17
TOC to TOS	60.21
- TOC to GS	-0.60
TOS bgs	60.81
TOC to BOS	65.06
- TOC to GS	-0.60
BOS bgs	65.66

*Approximate based on measured well depth, Missing casing cutoff from first section of well.

DHF

WELL DEVELOPMENT LOG

Owner-Client: DOT + PF
Location: Dillingham Emperor Way
Weather: sunny 70°F
Development Personnel: VTY SAH

Well No.: DLG-MW05-~~67~~ 70
Project No: 102581-009
Date: 7/17/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 65.34
Depth to Water **Before** Development (feet below top of casing): 28.65 @ 1420
Depth to Screen Top and Bottom (from Construction Log): Top: 66.54 Bottom: 71.39

Development Details

Feet of water in well: ~~36.69~~ 36.69
Gallons per foot: 0.17
Gallons in well: 6.2373
Surge method: surge block
Pump used: waterra
Tubing used (ft): 80

Time pumping started: 1458
Flow rate (gal/min): 0.375
Flow-rate measurement method: 1607 cup filled for 20 sec.
Time pumping ended: 1810
Gallons Pumped: ~ 6 gals
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 29.30 ~~30.53~~
Total Depth of Well **After** Development (feet below top of casing): 64.34 +1.23 = 65.57

Observations

Depth bgs	Time	Water Clarity (Visual)
64	1507	v. turbid; grey
64	1530	turbid; grey
63	1535	less turbid, grey
63	1600	saa
62	1610	saa
62	1620	less turbid than above
61	1630	saa
61	1~~6~~40	less turbid
60	1655	saa
60	1708	less turbid

	Time	Water Clarity (Visual)
61	1716	SAA
61	1723	SAA
62	1733	less turbid more grayless yellow
62	1743	SAA
63	1755	SAA
64	1803	More turbid + gray

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MW

MONITORING WELL SAMPLING LOG

Owner/Client: DOT&PF
Location: DLG
Sampling Personnel: VTY, SAH
Weather Conditions: sunny Air Temp. (°F): 70

Project No.: 102581-009
Date: 7/17/21
Well: DLG-MW05-67
Time started: 1820
Time completed: 2000

Sample No.: DLG-MW05-67 Time: 1920
Duplicate: — Time: —
Equipment Blank: EB-MW05 Time: 1940

Pump: hurricane
Purging Method: *portable / dedicated pump*
Pumping Start: 1840
Purge Rate (gal./min.): 0.25
Pumping End: 1920

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 67
Measured Total Depth of Well Below MP (ft.): 65.57
Depth to Water Below MP (ft.): 29.30
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: ~~37.3~~ 36.27
Gallons per foot: 0.17
Gallons in Well: ~~6.4~~ ~6.2 gal
Purge Water Volume (gal.): 10 + development
Purge Water Disposal: GAC

Pump Set Depth Below MP (ft.): 63
KuriTec Tubing (ft.): 70
TruPoly Tubing (ft.): —

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): /

Measuring Point (MP): *Top of Casing (TOC)*
Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.): 0.60
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW05-~~67~~ 70

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: ~~Parameters stabilized~~ EFD or >3 well volumes purged

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1848	3.8	1.09	121.9	6.52	40.5	v. turbid
1855	3.7	0.51	119.9	6.50	7.9	turbid
1858	3.7	0.46	118.2	6.50	0.9	turbid
1901	3.7	0.42	118.3	6.51	-4.8	turbid
1904	3.7	0.39	117.9	6.52	-10.4	turbid
1907	3.7	0.37	193.7	6.53	-19.8	turbid
1910	3.7	0.33	117.2	6.54	-21.9	slightly turbid
1913	3.7	0.32	117.7	6.55	-25.3	slightly turbid
1916	3.7	0.32	116.5	6.56	-28.4	slightly turbid
1920	sampled					

Laboratory ~~SGS~~ EFD Eurofins TestAm

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x 18	2x 250 mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW05-70

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW09-11
Project Name Dillingham PFAS Site Characterization
Project Number 102581-009
Date Installed 7/14/21
Logged By DHC
Driller Discovery Drilling

I. TOP SECTION (CASING)

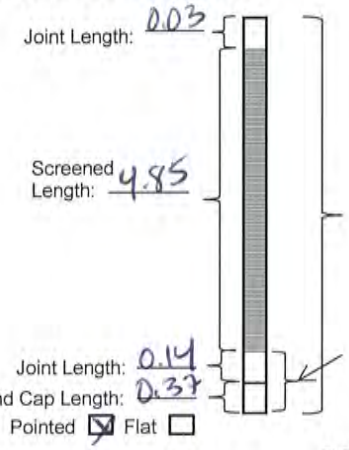
Initial Pipe Length: 10
Cuttoff Length: 0.32 + 0.5 = .82
Add-on Length: —
Total Length: 9.18

II. MID SECTION (CASING)

Number of Blank Sections: 0
Length of Section(s): 10

+
Sum of Lengths: —

III. SCREENED SECTION(S)



+
Total Pipe Length: 5.39
=
TOC to BOW: 14.57

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1	0.5
*SLUF_PB/FIL_PB	3	1
BCH_PB	4	3
*SLUF_PB/FIL_PB		
BGR_PB		
*SLUF_PB/FIL_PB		
*SLUF_PS/FIL_PS	11	6
*SLUF/FIL (No Pipe)		
*SLUF_PB/FIL_PB	6	4

Filter Pack Type or Gradation: ____

VI. MONUMENTS

Stuckup ☐ Flushmount ☒
TOM to GS: flush
TOM to TOC: -0.35
^TOC to GS: -0.35
Lock type: N/A

VII. MOISTURE CONTENT

Depth to Water Below GS: ~5.04 (perched)

	Frozen Soil Below GS Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 14.57
- BOW to BOS 0.51
= TOC to BOS 14.06

TOC to BOS 14.06
- Screened Length 4.85
= TOC to TOS 9.21

TOC to BOW	14.57
- TOC to GS	-0.35
BOW bgs	14.92
TOC to TOS	9.21
- TOC to GS	-0.35
TOS bgs	9.56
TOC to BOS	14.06
- TOC to GS	-0.35
BOS bgs	14.41

DHC

WELL DEVELOPMENT LOG

Owner-Client DOT + PF
Location Airport long term parking
Weather 55°F Sunny
Development Personnel SAH VTY

Well No. DLG-MW09-11
Project No 102581-009
Date 7/18/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 9.40 + 1.37 = 10.77
Depth to Water **Before** Development (feet below top of casing): 5.04
Depth to Screen Top and Bottom (from Construction Log): Top: 9.21 Bottom: 14.06

Development Details

Feet of water in well 5.73
Gallons per foot 0.17
Gallons in well 0.9741
Surge method Waterra + surge block
Pump used waterra
Tubing used (ft) 20

Time pumping started 1000
Flow rate (gal/min) 0.125
Flow-rate measurement method: 16 oz cup
Time pumping ended 1242
Gallons Pumped 4
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 5.35 (not recharged 100%)
Total Depth of Well **After** Development (feet below top of casing): 10.76

Observations

Time	Water Clarity (Visual)
10' 1000	Turbid, Brown
10' 1014	SAA
10' 1020	purged dry
10' 1230	turbid, brown
10' 1242	purged dry

Time	Water Clarity (Visual)

NOTES: Surged until 1000 brown surges @ 930
Purged dry @ 1020 depth to water 8.35, 2.31 feet in water column
Restart Surge @ 1220 Restart Purge @ 12:30 Purge dry @ 1242 DTW 6.24 @ 1330

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client DOT & PF
Location ~~#~~ DLG
Sampling Personnel VTT, SAH
Weather Conditions sunny Air Temp. (°F) 70

Project No. 102581-009
Date 7/18/21
Well DLG-MW09-11
Time started 1400
Time completed 1600

Sample No. DLG-MW09-~~11~~10 Time 1552
Duplicate — Time —
Equipment Blank — Time —

Pump Hurricane
Purging Method *portable / dedicated pump*
Pumping Start 1427
Purge Rate (gal./min.) 0.05
Pumping End 1553

Pump Set Depth Below MP (ft.) 8
KuriTec Tubing (ft.) 15
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 11
Measured Total Depth of Well Below MP (ft.) 9.39+1.37=10.76
Depth to Water Below MP (ft.) 5.35 (not 100%!)
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 5.41
Gallons per foot 0.17
Gallons in Well ~1
Purge Water Volume (gal.) ~1 + development = ~5 gall total
Purge Water Disposal GAC

Monument Condition good
Casing Condition good
Wiring Condition (dedicated pumps) /

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) 0.35
Monument to ground surface (ft.) flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes well sampled right after development. well recharged ~95%. (80% recharge = DTW 6.19 ft)

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW09-~~11~~10

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations: sample collected when turbid due to purging dry

Notes: —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1430	10.2	3.09	413.7	5.80	110.5	turbid
1449	13.3	3.15	511	5.87	117.5	↓
1450	purged	dry, allow to recharge >90%				
1549	6.9	2.32	415.8	5.79	107.2	turbid
1552	sample					

Laboratory ~~SGS~~ Eurofins Test Am

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x 18	2 x 250 mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW09-11

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW09-50
Project Name Dillingham PFAS site characterization
Project Number 102581-009

Date Installed 7/14/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	10	
Cuttoff Length	4.11+0.75+0.47	= 5.33
Add-on Length	—	
Total Length	4.67	

II. MID SECTION (CASING)

Number of Blank Sections: 4
Length of Section(s): 10

+

Sum of Lengths: 40

III. SCREENED SECTION(S)

Joint Length: 0.03
Screened Length: 4.85
Joint Length: 0.14
End Cap Length: 0.37
Pointed ☒ Flat ☐

+

Total Pipe Length: 5.39

BOW to BOS: 0.51

=

TOC to BOW: 50.06

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other
Diameter: 2" ☒ 4" ☐ Other
Slot Size: 0.01 ☒ 0.02 ☐ Other
Joint Pin End: Up ☒ Down ☐ Type

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1	0.5	
*SLUF_PB/FIL_PB	~~2.5~~ 5	1	pea gravel
BCH_PB	39	37	pel-plug bentonite chips
*SLUF_PB/FIL_PB	~~37~~	~~35~~	
BGR_PB	37	~~35~~ 37	
*SLUF_PB/FIL_PB	45	39	
*SLUF_PS/FIL_PS	50	45	
*SLUF/FIL (No Pipe)			
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation: prepack 20/40 and 10/20

7/31/21: ob5 annular seal has sunk ~2'. will add more pea gravel

09/2021: fill void space w/ gravel

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	-0.37
^TOC to GS	-0.37
Lock type	N/A

VII. MOISTURE CONTENT

Depth to Water Below GS: 25.57

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	50.06
- BOW to BOS	0.51
= TOC to BOS	49.55

TOC to BOS	49.55
- Screened Length	4.85
= TOC to TOS	44.70

TOC to BOW	50.06
- TOC to GS	-0.37
BOW bgs	50.43
TOC to TOS	~~49.55~~ (new) 44.70
- TOC to GS	-0.37
TOS bgs	~~49.92~~ 45.07
TOC to BOS	49.55
- TOC to GS	-0.37
BOS bgs	49.92

DHF

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: long term parking
Weather: sunny 60°F
Development Personnel: VTY, SAH

Well No.: DLG - MW09 - 50
Project No: 102581-009
Date: 7/19/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 47.62 + 1.37 = 48.99
Depth to Water **Before** Development (feet below top of casing): 25.57
Depth to Screen Top and Bottom (from Construction Log): Top: 44.7 Bottom: 49.55

Development Details

Feet of water in well: 23.42
Gallons per foot: 0.17
Gallons in well: 3.98
Surge method: surge block
Pump used: waterra
Tubing used (ft): 60

Time pumping started: 0840
Flow rate (gal/min): 0.25
Flow-rate measurement method: 16 oz cup
Time pumping ended: 1100
Gallons Pumped: 35
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 25.93
Total Depth of Well **After** Development (feet below top of casing): 48.98

Observations

	Time	Water Clarity (Visual)
48	0848	v. turbid, grey
48	0900	v. turbid SAA
48	0910	SAA
47	0920	slightly less turbid
47	0930	SAA
46	0940	slightly less turbid
45	0950	saa
45	0955	saa
44	1005	slightly less turbid
45	1015	slightly less turbid

	Time	Water Clarity (Visual)
46	1025	saa
47	1035	saa
48	1045	slightly more turbid
48	1055	less turbid

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client: DOT & PF
Location: DLG
Sampling Personnel: VTY, SAH
Weather Conditions: sunny Air Temp. (°F): 60

Project No.: 102581-009
Date: 7/19/21
Well: MW09-50
Time started: 1200
Time completed: 1240

Sample No.: DLG-MW09-50 Time: 1223
Duplicate: — Time: —
Equipment Blank: EB-MW09 Time: 1240

Pump: Hurricane
Purging Method: ~~portable~~ / dedicated pump
Pumping Start: 1205
Purge Rate (gal./min.): 0.25
Pumping End: 1225

Pump Set Depth Below MP (ft.): 47
KuriTec Tubing (ft.): 50
TruPoly Tubing (ft.): —

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): 47.59 + 1.37 = 48.96
Depth to Water Below MP (ft.): 25.93
Depth to Ice (if frozen) Below MP (ft.):
Feet of Water in Well: ~~48~~ 23.03
Gallons per foot: 0.17
Gallons in Well: 3.9 ~35 gall
Purge Water Volume (gal.): 5 + development
Purge Water Disposal: GAC

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): /

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.): 0.37
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes: well purged & sampled right after development

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDW

Well No.
DLG-MW09-50

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1208	4.1	2.83	409.9	6.12	-41.9	Cloudy
1211	4.0	1.18	409.5	6.17	-106.4	Cloudy
1214	4.0	1.16	411.9	6.07	-95.4	less turbid translucent
1217	4.0	0.43	411.9	6.15	-108.4	SAA
1220	4.0	0.35	412.6	6.18	-119.6	SAA
1223	sample					

Laboratory ~~SGS~~ Eurofins Test America

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS+28	2x250 mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No.

DLG-MW09-50

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW09-65
Project Name Dillingham PFAS Site Characterization
Project Number 102581-009

Date Installed 7/14/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

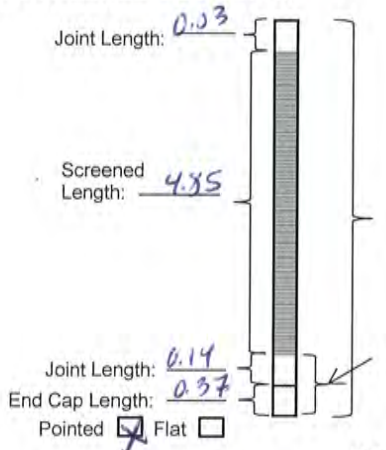
Initial Pipe Length	10 0.5*
Cuttoff Length	~~7.05+0.65~~ 0.39 +1.14
Add-on Length	—
Total Length	7.97

II. MID SECTION (CASING)

Number of Blank Sections: ~~6~~ 5
Length of Section(s): 10

+ **Sum of Lengths:** ~~60~~ 50

III. SCREENED SECTION(S)



+ **Total Pipe Length:** 5.39

= **TOC to BOW:** 63.36

IV. WELL DATA

Pipe Type:	PVC	☒	SS	☐	Other	
Diameter:	2"	☒	4"	☐	Other	
Slot Size:	0.01	☒	0.02	☐	Other	
Joint Pin End:	Up	☒	Down	☐	Type	

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1	0.5	
*SLUF_PB/FIL_PB	~~5~~ 5.5	1	pea gravel
BCH_PB	53	51	pel-plug
*SLUF_PB/FIL_PB	~~8~~ 7.5	~~6~~ 5.5	bentonite chips
BGR_PB	51	~~5~~ 7.5	
*SLUF_PB/FIL_PB			bentonite chips
*SLUF_PS/FIL_PS	65	60	
*SLUF/FIL (No Pipe)	~~7~~ 5	65	
*SLUF_PB/FIL_PB	60	53	

Filter Pack Type or Gradation: prepack (20/40) and 10/20

7/31/21: observe gravel seal has sunk ~1.5' will add more pea gravel. 09/2021 fill void ~1 ~~pea~~ gravel.

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	-0.58
^TOC to GS	-0.58
Lock type	

VII. MOISTURE CONTENT

Depth to Water Below GS: 26.89

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	~~63.36~~ 63.36
- BOW to BOS	0.51
= TOC to BOS	62.85
TOC to BOS	62.85
- Screened Length	4.85
= TOC to TOS	~~58.00~~

TOC to BOW	63.36
- TOC to GS	-0.58
BOW bgs	63.94
TOC to TOS	58.00
- TOC to GS	-0.58
TOS bgs	58.58
TOC to BOS	62.85
- TOC to GS	-0.58
BOS bgs	63.43

Grout did not settle overnight in these wells

DHF *clay at top and bottom of screen. Careful to not over-surge during development

WELL DEVELOPMENT LOG

Owner-Client DOT *PF
Location long term parking lot
Weather sunny, 70°F
Development Personnel VTY, SAH

Well No. DLG-MW09-65
Project No 102581-009
Date 7/18/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 62.13 + 1.23 = 63.36
Depth to Water **Before** Development (feet below top of casing): 28.04 @ 1313 hrs
Depth to Screen Top and Bottom (from Construction Log): Top: 58.00 Bottom: ~~65~~ 62-85

Development Details

Feet of water in well 35.32
Gallons per foot 2.17
Gallons in well 0.0044
Surge method Waterra + surge block
Pump used waterra
Tubing used (ft) 80

Time pumping started 1350
Flow rate (gal/min) 0.2
Flow-rate measurement method: 16 oz cup
Time pumping ended 1820
Gallons Pumped 54
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 26.89 (same drawdown)
Total Depth of Well **After** Development (feet below top of casing): 63.37

Observations

	Time	Water Clarity (Visual)
62	1352	v.turbid, grey
62	1410	saa
62	1426	slightly less turbid
61	1506	saa
60	1558	saa
59	1608	saa
58	1713	less turid
60	1730	saa
61	1752	less turid
62	1800	less turbid

	Time	Water Clarity (Visual)
62	1810	saa
62	1820	saa

NOTES: Start surging @ 1335

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client DOT HPF DLG
Location DLG
Sampling Personnel VTY, SAH
Weather Conditions Sunny Air Temp. (°F) 60°F

Project No. 102581-009
Date 7/19/21
Well DLG-MW09-65
Time started 1030
Time completed 1150

Sample No. DLG-MW09-65 Time 1140
Duplicate DLG-MW109-65 Time 1130
Equipment Blank — Time —

Pump Hurricane
Purging Method *portable / dedicated pump*
Pumping Start 1040
Purge Rate (gal./min.) 0.5
Pumping End 1140

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 63
Measured Total Depth of Well Below MP (ft.) 62.14+1.23=63.37
Depth to Water Below MP (ft.) 26.89
Depth to Ice (if frozen) Below MP (ft.) /
Feet of Water in Well 36.5
Gallons per foot 0.17
Gallons in Well 6.205
Purge Water Volume (gal.) 15+development
Purge Water Disposal GAC

Pump Set Depth Below MP (ft.) 61
KuriTec Tubing (ft.) 70
TruPoly Tubing (ft.) —

Monument Condition good
Casing Condition good

Wiring Condition (dedicated pumps) /

Measuring Point (MP) *Top of Casing (TOC)*

Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) -0.58
Monument to ground surface (ft.) Flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☒ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW09-65

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations —

Notes —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1047	4.3	3.05	232.4	6.47	20.0	Cloudy Brown
1050	4.2	0.50	210.5	6.36	-44.4	Cloudy No Brown tint
1053	4.2	0.38	207.0	6.35	-49.3	SAA
1056	4.2	0.36	194.0	6.37	-105.8	SAA
1059	4.6	0.36	191.5	6.40	-133.5	SAA
1102	5.0	0.35	183.4	6.44	-170.3	Cloudy Brown tint
1105	5.2	0.38	184.8	6.47	-186.0	SAA
1108	5.2	0.41	197.5	6.47	-191.1	SAA
1111	4.8	0.30	195.7	6.49	-213.9	SAA
1114	4.8	0.31	192.7	6.50	-223.4	SAA
1117	4.7	0.26	188.4	6.51	-239.5	SAA
1120	4.7	0.23	186.4	6.53	-254.3	less turbid
1123	4.9	0.22	186.5	6.54	-260.0	SAA
1126	4.7	0.24	185.4	6.54	-261.5	SAA
1129	4.8	0.21	183.9	6.54	-267.1	↓
1132	4.7	0.21	183.7	6.55	-272.3	
1135	4.7	0.22	182.9	6.55	-273.5	↓
1140 SAMPLE						
1130 DUP						

Laboratory ~~SGS~~ Eurofins TestAmerica

	Analysis	Sample Containers	Preservatives	Dup
X	PFAS×18	2×250mL	—	X
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW09-65

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW10-~~38~~ 40
Project Name DLG PFAS Site Characterization
Project Number 102581-009

Date Installed 7/16/24
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	~~10~~ 6.04
Cuttoff Length	1.46 + 1.95 + 0.44
Add-on Length	—
Total Length	2.19

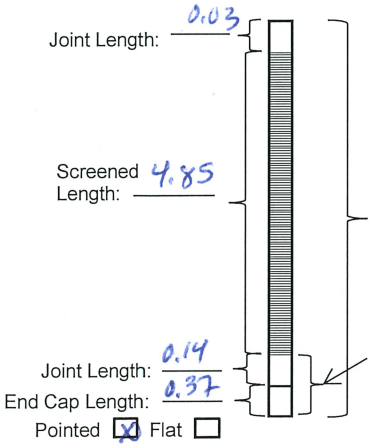
II. MID SECTION (CASING)

Number of Blank Sections: ~~3~~
Length of Section(s): 10

+

Sum of Lengths: 30

III. SCREENED SECTION(S)



+

Total Pipe Length: 5.39

=

TOC to BOW: 37.58

IV. WELL DATA

Pipe Type: PVC [X] SS [ ] Other
Diameter: 2" [X] 4" [ ] Other
Slot Size: 0.01 [X] 0.02 [ ] Other
Joint Pin End: Up [X] Down [ ] Type

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1	0.5
*SLUF_PB/FIL_PB	8	5
BCH_PB	30	29
*SLUF_PB/FIL_PB	5	1
BGR_PB	29	8
*SLUF_PB/FIL_PB	33	30
*SLUF_PS/FIL_PS	38	33
*SLUF/FIL (No Pipe)		
*SLUF_PB/FIL_PB		

bentonite chip pelplug pea gravel

Filter Pack Type or Gradation: prepack(20/40) and 10/20

VI. MONUMENTS

Stuckup [ ] Flushmount [X]
TOM to GS: flush
TOM to TOC: -0.40
^TOC to GS: n/a
Lock type: n/a

VII. MOISTURE CONTENT

Depth to Water Below GS: ~32ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 37.58
- BOW to BOS 0.51
= TOC to BOS 37.07

TOC to BOS 37.07
- Screened Length 4.85
= TOC to TOS 32.22

TOC to BOW	37.58
- TOC to GS	-0.40
BOW bgs	37.98
TOC to TOS	32.22
- TOC to GS	-0.40
TOS bgs	32.62
TOC to BOS	37.07
- TOC to GS	-0.40
BOS bgs	37.47

WELL DEVELOPMENT LOG

Owner-Client: DOT+PF
Location: DLG
Weather: Rain 55°F
Development Personnel: VTY, SAA

Well No.: DLG-MW10-38
Project No: 102581-005
Date: 7/20/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 37.49
Depth to Water **Before** Development (feet below top of casing): 31.96
Depth to Screen Top and Bottom (from Construction Log): Top: 32.22 Bottom: 37.07

Development Details

Feet of water in well: 5.53
Gallons per foot: 0.17
Gallons in well: 0.9407
Surge method: Surge Block
Pump used: Waterra
Tubing used (ft): ~42'

Time pumping started: 1910
Flow rate (gal/min): 0.25
Flow-rate measurement method: 16 oz cup
Time pumping ended: 2030
Gallons Pumped: ~53 gals
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): switched 37.53
Total Depth of Well **After** Development (feet below top of casing): 32.01

Observations

	Time	Water Clarity (Visual)
36	1710	Dark Brown V. turbid
36	1730	SAA
36	1740	SAA
35	1800	Less turbid
35	1810	SAA
34	1824	More turbid than above
34	1838	SAA
34	1848	Less turbid
33	1901	SAA
33	1910	SAA

	Time	Water Clarity (Visual)
32	1924	Slightly more turbid
32	1533	Slightly less turbid
33	1951	Slightly more turbid
33	2010	SAA

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client DOT-PF
Location Baptist Community Church
Sampling Personnel SAH VTY
Weather Conditions Cloudy 55°F Air Temp. (°F) 55

Project No. 102581-009
Date 7/22/21
Well DLG-MW10-38
Time started 1045
Time completed 1220

Sample No. DLG-MW10-38 (MS) 40 Time 1145
Duplicate — Time —
Equipment Blank EB-MW11 Time 2230

Pump Hurricane
Purging Method *portable / dedicated pump*
Pumping Start 11:08
Purge Rate (gal./min.) 0.1 mL/min ≈ 0.03 gpm
Pumping End 11:50

Pump Set Depth Below MP (ft.) ~43'
KuriTec Tubing (ft.) ~43'
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) 38
Measured Total Depth of Well Below MP (ft.) 36.3 + 1.23 = 37.53
Depth to Water Below MP (ft.) 32.01
Depth to Ice (if frozen) Below MP (ft.)
Feet of Water in Well 5.52
Gallons per foot 0.17
Gallons in Well 0.938 (MS)
Purge Water Volume (gal.) ~1.3 + development >50 gal
Purge Water Disposal GAC

Monument Condition Newly Installed
Casing Condition Newly Installed
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) -0.40
Monument to ground surface (ft.) flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No. 40
DLG-MW10-38 (MS)

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI C — Circle one: ~~Parameters stabilized~~ ~~or~~ >3 well volumes purged (circled)

Sample Observations:

Notes: ~~Flow Rate~~

FIELD PARAMETERS [stabilization criteria]

GAL	Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)	DTW
0.1	11:10	8.0	3.56	244.6	6.40	136.9	Brown Murky	33.03
0.25	11:15	7.7	3.04	241.2	6.36	131.2	SAA	33.04
0.5	1120	8.0	2.89	242.5	6.33	130.0	less Murky	33.04
0.6	1125	8.3	2.74	240.3	6.31	129.4	less turbid	33.04
0.75	11:28	8.5	2.68	240.0	6.31	129.0	Less turbid	
0.85	11:31	8.5	✓2.61	✓240.1	✓6.31	✓129.1	SAA	
1.0	1135	7.6	✓2.73	✓241.3	✓6.31	✓128.7	SAA	
1.1	1138	8.0	✓2.82	✓240.9	✓6.32	✓128.9	less turbid	
1.25	11:41	7.5	2.80	240.5	6.32	✓129.0	Clear yellow hue	
	SAMPLE	11:45						

Laboratory: ~~SGS~~ Eurofins Test Am

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x18	2x 250 ml	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW10-40

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW10-55
Project Name DLG PFAS Site Characterization
Project Number 102581-009

Date Installed 7/16/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	10	0.58
Cuttoff Length	6.04+3.57	~~+0.25~~
Add-on Length	—	
Total Length	~~10.05~~	-0.19

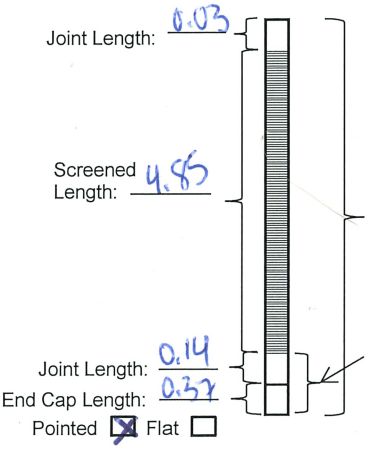
II. MID SECTION (CASING)

Number of Blank Sections: 5
Length of Section(s): 10

+

Sum of Lengths: 50

III. SCREENED SECTION(S)



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Total Pipe Length: 5.39

=

TOC to BOW: 55.2

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ☐
Diameter: 2" ☒ 4" ☐ Other ☐
Slot Size: 0.01 ☒ 0.02 ☐ Other ☐
Joint Pin End: Up ☒ Down ☐ Type ☐

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1	0.5	
*SLUF_PB/FIL_PB	4	1	pea gravel
BCH_PB	46	45	pel-plug bentonite chips
*SLUF_PB/FIL_PB	6	4	
BGR_PB	45	6	
*SLUF_PB/FIL_PB	~~46~~ 50	~~46~~ 45	
*SLUF_PS/FIL_PS	55	~~46~~ 50	
*SLUF/FIL (No Pipe)			
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation: prepack (20/40) and 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	-0.45
^TOC to GS	N/A
Lock type	N/A

VII. MOISTURE CONTENT

Depth to Water Below GS: ~32ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

55.2 TOC to BOW 55.2
0.51 - BOW to BOS ~~4.85~~
54.59 = **TOC to BOS** ~~50.35~~

54.59 TOC to BOS ~~50.35~~
4.85 - Screened Length ~~4.85~~
49.74 = **TOC to TOS** ~~45.5~~

TOC to BOW	55.20
- TOC to GS	-0.45
BOW bgs	55.65
TOC to TOS	49.74
- TOC to GS	-0.45
TOS bgs	50.19
TOC to BOS	54.59
- TOC to GS	-0.45
BOS bgs	55.04

DHF

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: DLG
Weather: rain, 55°F
Development Personnel: VTY, SAH

Well No.: DLG-MW10-55
Project No: 102581-009
Date: 7/20/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 53.86+1.23 = 55.09
Depth to Water **Before** Development (feet below top of casing): 32.06
Depth to Screen Top and Bottom (from Construction Log): Top: ~~50~~ 49.74 Bottom: ~~55~~ 54.59 EFD

Development Details

Feet of water in well: 23.03
Gallons per foot: 0.17
Gallons in well: 3.9
Surge method: surge block
Pump used: waterra
Tubing used (ft): 70

Time pumping started: 8:30
Flow rate (gal/min): 0.125 → 0.25
Flow-rate measurement method: 16 oz cup
Time pumping ended: 1655
Gallons Pumped: ~85
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 55.06 surface
Total Depth of Well **After** Development (feet below top of casing): 32.32

Observations

	Time	Water Clarity (Visual)
54.5	841	v. turbid, brown
54.5	853	saa
53.5	910	brown, less turbid
53.5	922	less turbid
53.5	934	saa
	945	purged dry
		recharge
54.5	1150	v. turbid, brown
54.5	1200	saa
53.5	1220	less turbid

	Time	Water Clarity (Visual)
53.5	1240	SAA
52.5	12.52	SAA
51.5	1310	SAA
50.5	1330	slightly less turbid
51.5	1345	slightly less turbid
52.5	1400	slightly less turbid
53.5	1415	slightly less turbid
54.5	1430	slightly less turbid
54.5	1445	saa
34.5	1500	saa
53.5	1515	saa

52.5 1530 slightly less turbid
51.5 1545 saa
50.5 1635 saa
54.5 1630 saa

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client DOT + PF
Location Baptist Community Church
Sampling Personnel SAH VTY
Weather Conditions Cloudy 55 Air Temp. (°F) 55

Project No. 102581-004
Date 7/22/21
Well DLG-MW10-55
Time started 900
Time completed 1040

Sample No. DLG-MW10-55 Time 1015
Duplicate — Time —
Equipment Blank EB-MW11 Time 2230

Pump Hurricane
Purging Method *portable / dedicated pump*
Pumping Start 9:35
Purge Rate (gal./min.) 0.2 - 0.3 mL/min ≈ 0.07 gpm
Pumping End 1030

Pump Set Depth Below MP (ft.) ~53.5'
KuriTec Tubing (ft.) ~ 61'
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) ~~53.83~~ 54
Measured Total Depth of Well Below MP (ft.) 53.83 +1.23 = 55.06
Depth to Water Below MP (ft.) 32.32
Depth to Ice (if frozen) Below MP (ft.) NA
Feet of Water in Well 22.74
Gallons per foot 0.17
Gallons in Well ~~3.8655~~
Purge Water Volume (gal.) 3.8 + development (~85 gal)
Purge Water Disposal GAC

Monument Condition Newly Installed
Casing Condition Newly Installed
Wiring Condition (dedicated pumps) NA

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) Flush
Monument to ground surface (ft.) -0.45

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW10-55

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations

Notes Changed flow rate to 0.2 @ 1006

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)	
9:41	5.5	2.05	290.6	5.96	32.1	Brown Cloudy	32.52
9:46	5.5	0.81	289.3	6.39	-125.3	Brown Cloudy	32.58
9.51	6.3	0.44	271.5	6.5	-285.1	Cloudy	32.42
9.56	6.4	0.42	269.0	6.51	-291.8	Cloudy	32.45
1001	6.5	0.39	250.4	6.52	-317.3	(Less Cloudy	32.46
1004	6.4	0.39	248.1	6.52	-320.9	Clear	32.52
10.07	7.0	0.39	229.9	6.51	-331.1	Clear	32.55
10.10	7.0	0.40	229.7	6.52	-333.1	Clear.	32.56
10.13	6.9	0.39	226.6	6.52	-337.1	Clear	32.52
SAMPLE 1015							

GP
2.5
2.7
2.9
3.1
3.3
3.6
3.8
4.0
4.2

Laboratory ~~SGS~~ Eurofins TestAm

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS x19	2 x 250 mL	NA	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. DLG-MW10-55

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW11-34
Project Name DLG PFAS Site characterization
Project Number 102581-009

Date Installed 7/19/21
Logged By DHF
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length	4.76
Cuttoff Length	2.73 +0.25
Add-on Length	—
Total Length	1.75

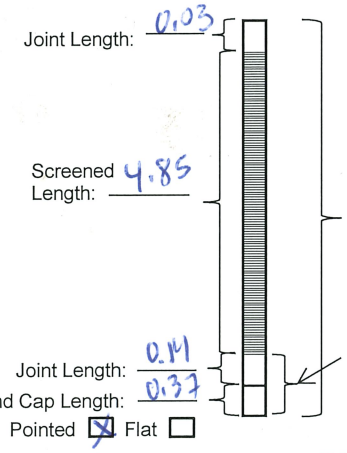
II. MID SECTION (CASING)

Number of Blank Sections: 3
Length of Section(s): 10

+

Sum of Lengths: 30

III. SCREENED SECTION(S)



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Total Pipe Length: 5.39

=

TOC to BOW: 37.14

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1	0.5
*SLUF_PB/FIL_PB	6	1
BCH_PB	26	24
*SLUF_PB/FIL_PB	8	6
BGR_PB	24	8
*SLUF_PB/FIL_PB	29	26
*SLUF_PS/FIL_PS	34	29
*SLUF/FIL (No Pipe)	—	—
*SLUF_PB/FIL_PB	—	—

pel plug bentonite chips

Filter Pack Type or Gradation: prepack 20/40 and 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒
TOM to GS: 0
TOM to TOC: -0.32
^TOC to GS: -0.32
Lock type: n/a

VII. MOISTURE CONTENT

Depth to Water Below GS: ~~~~ N23ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 37.14
- BOW to BOS 0.51
= TOC to BOS 36.63

TOC to BOS 36.63
- Screened Length 4.85
= TOC to TOS 31.78

TOC to BOW	37.14
- TOC to GS	-0.32
BOW bgs	37.46
TOC to TOS	31.78
- TOC to GS	-0.32
TOS bgs	32.1
TOC to BOS	36.63
- TOC to GS	-0.32
BOS bgs	36.95

DHF

Start @ 12:55

WELL DEVELOPMENT LOG

Owner-Client: DOT+PF
Location: Across from staging area
Weather: Cloudy 61°F
Development Personnel: SAH VTY

Well No.: DLG-MW11-34
Project No: 102591-009
Date: 7/22/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 31.72 + 1.37 = 33.09
Depth to Water **Before** Development (feet below top of casing): 23.74
Depth to Screen Top and Bottom (from Construction Log): Top: 31.75 Bottom: 36.63

Development Details

Feet of water in well: 9.34
Gallons per foot: 0.17
Gallons in well: 1.5895
Surge method: ~~Waterra~~ Surge Block
Pump used: Waterra
Tubing used (ft): 37 ft

Time pumping started: 1310
Flow rate (gal/min): 0.25
Flow-rate measurement method: Hose cup
Time pumping ended: 1630
Gallons Pumped: ~55
Disposal: GAC

Depth to Water **After** Development (feet below top of casing): switch 33.08
Total Depth of Well **After** Development (feet below top of casing): 23.76

Observations

	Time	Water Clarity (Visual)
32	1320	Chocolate Brown
33	1330	SAH
33	1340	Brown slightly translucent
30	1356	More turbid dark brown
30	1408	~~More turbid~~ Less turbid brown
29	1420	More turbid
29	1430	Less turid most translucent so far
29	1442	More turbid
29	1457	least turbid so far
29	1508	Less turid yellow tint

	Time	Water Clarity (Visual)
30	1516	SAH
31	1520	SAH
32	1540	More turbid
32	1555	Less turbid
32	1615	Less turbid
32	1622	Clear
	1630	Stop

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFO

MONITORING WELL SAMPLING LOG

Owner/Client DOT + PF
Location Dillingham
Sampling Personnel Raining 53F
Weather Conditions SAH VTY Air Temp. (°F) 50°F

Project No. DLG-MW11-34
Date 7/22/21
Well 132591-009
Time started 1640
Time completed 1840

Sample No. DLG-MW11-34 Time 1810
Duplicate DLG-MW111-34 Time ~~1810~~ 1800
Equipment Blank ~~EB-MW11-34~~ Time ~~2230~~

Pump Hurricane
Purging Method *portable / dedicated pump*
Pumping Start 1718
Purge Rate (gal./min.) 0.2 L/min ≈ 0.05 gpm
Pumping End 1820

Pump Set Depth Below MP (ft.) ~30'
KuriTec Tubing (ft.) 38
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2" ~~33~~ 33.08
Approximate Total Depth of Well Below MP (ft.) ~~34~~ ~~31.71~~ + 1.37
Measured Total Depth of Well Below MP (ft.) 33.08
Depth to Water Below MP (ft.) 23.76 @ 1701
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 9.32
Gallons per foot 0.17
Gallons in Well 1.5844 (w)
Purge Water Volume (gal.) ~~~2-5 gal~~ ~3 gal (w) + development
Purge Water Disposal GAC

Monument Condition Newly Installed
Casing Condition Newly Installed

Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup / Flushmount*
Measurement method: *Rod & level / Tape measure*

Top-of-casing to monument (ft.) 0.32
Monument to ground surface (ft.) Flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes Start times 1718 & 1735

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No. 35
DLG-MW11-~~34~~

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: Parameters stabilized or >3 well volumes purged (EFD)

Sample Observations SAH VTY

Notes Battery died @ 1725 Begin purging @ 1735 (3WV = 4.8gall)

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1720	8.7	9.37	158.0	5.59	175.7	turbid
1723	7.1	9.70	138.0	5.80	174.2	
~~1727~~						
~~1729~~		Battery died @ 1725				
~~1732~~						
~~1737~~	sample	Restart	purging @ 1735			
1738	8.8	8.60	113.0	6.10	186.1	turbid Brown
1743	9.5	8.33	115.4	6.14	188.4	less turbid
1748	9.6	8.33	115.7	6.15	188.6	SAA
1753	9.9	8.15	115.7	6.16	189.1	SAA
1758	9.8	8.16	114.6	6.18	189.2	SAA
SAMPLE						

Laboratory SGS + TestAmerica

	Analysis	Sample Containers	Preservatives	Dup
☐	PFAS x 18	2 x 250 mL plastic	NA	☐
☐	DRO/RRO	2 x 250 ml Amber	HCL	☐
☐	GRO	3 voa vials	HCL	☐
☐	VOCs	3 voa vials	HCL	☐
☐				☐
☐				☐

EFD

Well No. DLG-MW11-34

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MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW11-79
Project Name DLG PFAS Site Characterization
Project Number 102581-009

Date Installed 7/18/21 ~~7/19/21~~
Logged By DHC
Driller Discovery Drilling

I. TOP SECTION (CASING)

Initial Pipe Length 4.68
Cuttoff Length 1.02+0.29
Add-on Length —
Total Length 3.37

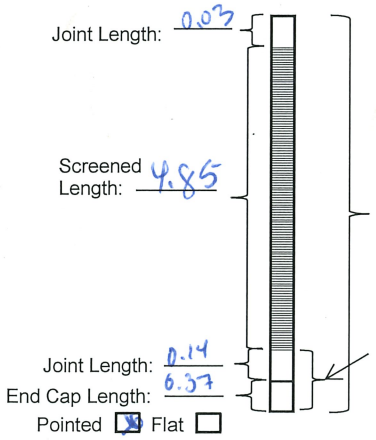
II. MID SECTION (CASING)

Number of Blank Sections 7
Length of Section(s): 10

+

Sum of Lengths: 70

III. SCREENED SECTION(S)



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Total Pipe Length: 5.39

=

TOC to BOW: 78.76

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other 1
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top	
CEM (No Pipe)	0.5	0	
CEM_PB	1	0.5	
*SLUF_PB/FIL_PB	4	1	
BCH_PB	69	66	pel-plug bentonite chips
*SLUF_PB/FIL_PB	66	~~4~~	
BGR_PB	66	6	
*SLUF_PB/FIL_PB	74	69	
*SLUF_PS/FIL_PS	79	74	
*SLUF/FIL (No Pipe)			
*SLUF_PB/FIL_PB			

Filter Pack Type or Gradation: prepack 20/40 & 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒ ~~☒~~

TOM to GS 0
TOM to TOC -0.59
^TOC to GS -0.59
Lock type N/a

VII. MOISTURE CONTENT

Depth to Water Below GS ~23.8

Frozen Soil Below GS	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW 78.76
- BOW to BOS 0.51
= TOC to BOS 78.25

TOC to BOS 78.25
- Screened Length 4.85
= TOC to TOS 73.4

TOC to BOW	78.76
- TOC to GS	-0.59
BOW bgs	79.35
TOC to TOS	73.4
- TOC to GS	-0.59
TOS bgs	73.99
TOC to BOS	78.25
- TOC to GS	-0.59
BOS bgs	78.84

DHC

Start @ 1635

WELL DEVELOPMENT LOG

Owner-Client: DOT + PF
Location: Dillingham
Weather: 60 F Raining
Development Personnel: ~~SAH~~ YTY

Well No. DLG-MW11-~~79~~ 80
Project No: 102581-009
Date: 7/22/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 77.5 + 1.23 78.73
Depth to Water **Before** Development (feet below top of casing): 23.80
Depth to Screen Top and Bottom (from Construction Log): Top: 73.4 Bottom: ~~78.25~~

Development Details

Feet of water in well: 54.93
Gallons per foot: 0.17
Gallons in well: 9.3381
Surge method: Surge Block
Pump used: Waterra
Tubing used (ft): 85

Time pumping started: 1640
Flow rate (gal/min): ~~0.85~~ 0.4 – 0.6 gpm
Flow-rate measurement method: 12oz cup
Time pumping ended: 2140
Gallons Pumped: ~165 gals
Disposal: GVAC

Depth to Water **After** Development (feet below top of casing): 78.59 –
Total Depth of Well **After** Development (feet below top of casing): 23.81

Toc to 0.59'

Observations

	Time	Water Clarity (Visual)
78	1645	V. Turbid / Gray
78	1656	Significantly less turbid
77	1704	Less turbid
77	1714	V. turbid brown
	Purged dry @ 1718	
78	2025	V. Turbid Grey
78	2035	V. Turbid Grey
77	2045	SAA
77	2055	Less turbid
76	2105	Less turbid

	Time	Water Clarity (Visual)
75	2110	Clear
74	2120	Clear
78	2130	Slightly more turbid
78	2140	Clear

30 min

NOTES: DTW 45.51 @ 1740 41.10 @ 1750 24.34 @ 1909
Recharged @ 2001 Surged Until 2025

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Owner/Client DOT+PF
Location Dillingham
Sampling Personnel ~~DOT Ranney~~ SAH VTY
Weather Conditions ~~60F Rainy~~ Air Temp. (°F) 60F

Project No. DLG-MW11-~~79~~80
Date 7/22/21
Well 102591-009
Time started 2145
Time completed 2230

Sample No. DLG-MW11-~~7~~9 Time 2205
~~Duplicate~~ EB-MW11- Time 2230
Equipment Blank ↓ Time ↓

Pump Hurricane
Purging Method *portable* / *dedicated* *pump*
Pumping Start 2142
Purge Rate (gal./min.) 0.2 L/min ≤0.05 gpm
Pumping End 2215

Pump Set Depth Below MP (ft.) ~76.5
KuriTec Tubing (ft.) ~94'
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) 78
Measured Total Depth of Well Below MP (ft.) 77.26 + 1.23 = 78.49
Depth to Water Below MP (ft.) 23.91 ~~21.83~~
Depth to Ice (if frozen) Below MP (ft.) NA
Feet of Water in Well 54.68
Gallons per foot 0.17
Gallons in Well 9.2953
Purge Water Volume (gal.) ~~0.5 gal~~ ~1 decon + ~1.6 gal water (~6.5 gal)
Purge Water Disposal GAC

Monument Condition Newly Installed
Casing Condition Newly Installed
Wiring Condition (dedicated pumps) NA

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / ~~*Flushmount*~~
Measurement method: *Rod & level* / *Tape measure*

Top-of-casing to monument (ft.) 0.59
Monument to ground surface (ft.) NA

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational
☒ Well name legible on outside of well
☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No. 80
DLG-MW11-~~79~~

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations —

Notes —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
2150	5.7	2.37	171.5	6.74	75.1	Clear
2153	6.4	1.23	167.3	6.42	55.0	clear
2156	7.9	0.71	169.9	6.55	19.0	Slightly cloudy
2159	8.2	0.62	171.3	6.50	0.8	SAA
2202	8.7	0.60	173.7	6.65	-21.5	SAA
SAMPLE		2205				

Laboratory ~~SGS~~ Eurofins TestAm

	Analysis	Sample Containers	Preservatives	Dup
☑	PFAS x18	2 x 250 mL	N/A	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EFD

Well No. 80
DLG-MW11-~~79~~

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW12-40
Project Name DLG PFAS Site Char
Project Number 102581-009

Date Installed 7-20-21
Logged By ALF
Driller Discovery

I. TOP SECTION (CASING)

4.64 + 2.02 = 6.66 + 0.73 + .45

Initial Pipe Length	10.00
Cuttoff Length	7.45
Add-on Length	—
Total Length	2.55

II. MID SECTION (CASING)

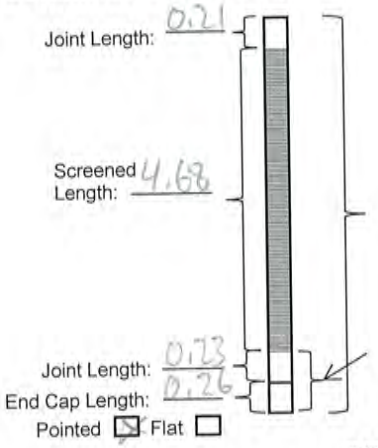
Number of Blank Sections: 3
Length of Section(s):

10 x 3		

+

Sum of Lengths: 30.0

III. SCREENED SECTION(S)



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Total Pipe Length: 5.38

=

TOC to BOW: 37.93

IV. WELL DATA

Pipe Type:	PVC ☒	SS ☐	Other	
Diameter:	2" ☒	4" ☐	Other	
Slot Size:	0.01 ☒	0.02 ☐	Other	
Joint Pin End:	Up ☒	Down ☐	Type	

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.6	0
CEM_PB	1.5	0.6
PG *SLUF_PB/FIL_PB	2	1.5
~~BGR~~ BCH_PB	30	4
*SLUF_PB/FIL_PB	—	—
BCH ~~BGR~~_PB	31.0	30.0
*SLUF_PB/FIL_PB	33.4	31.0
*SLUF_PS/FIL_PS	38.1	33.4
*SLUF/FIL (No Pipe)	—	—
*SLUF_PB/FIL_PB	—	—
Filter Pack Type or Gradation	Silica 10/20	

RCH 4-2

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	0.64
^TOC to GS	-0.64
Lock type	NA

VII. MOISTURE CONTENT

Depth to Water Below GS: ~29.5

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	37.93
- BOW to BOS	0.49
= TOC to BOS	37.44
TOC to BOS	37.44
- Screened Length	4.68
= TOC to TOS	32.76

TOC to BOW	37.93
- TOC to GS	-0.64
BOW bgs	38.57
TOC to TOS	32.76
- TOC to GS	-0.64
TOS bgs	33.40
TOC to BOS	37.44
- TOC to GS	-0.64
BOS bgs	38.08

DHF

WELL DEVELOPMENT LOG

Owner-Client DOT&PF
Location Windsock
Weather overcast, 50s+wind
Development Personnel MDP

Well No. DLG-MW12-40
Project No 102581-009
Date 7/28/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 37.73 initially, 37.47 after surge block/foot valve came off
Depth to Water **Before** Development (feet below top of casing): 28.48
Depth to Screen Top and Bottom (from Construction Log): Top: 32.76 Bottom: 37.47

Development Details

Feet of water in well 9.25
Gallons per foot 0.17
Gallons in well ~1.6
Surge method surge block on still tubing
Pump used Waterra
Tubing used (ft) 50'

Time pumping started 1242
Flow rate (gal/min) ~1/2 gpm
Flow-rate measurement method: 5-gal bucket
Time pumping ended 1402
Gallons Pumped ~29 gal
Disposal: Containerite, GAC

Depth to Water **After** Development (feet below top of casing): 29.49 (measure right away and @ 1630, same)
Total Depth of Well **After** Development (feet below top of casing): 37.47

Observations

Time	Water Clarity (Visual)
1242	Start pump w/ surge block, v. turbid
1248	surge block + foot
—	valve came off
1303	re-start, v. turbid
1309	pull up to mid-screen,
—	surge 5 min → v. turbid
1314	same @ top of screen
1320	remove foot valve, v. turbid
1333	turbid
1334	move to top of GW, vacate casing of turbid water

Time	Water Clarity (Visual)
1338	turbid
1340	sl. turbid
1341	move to bottom of screen, turbid
1342	sl. turbid
1343	work up the screen in few min's each, no Δ (all sl. turbid)
—	
1402	pump off

NOTES: Sed-free/brown

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFS

MONITORING WELL SAMPLING LOG

Owner/Client ~~DOT&PF~~
Location Wind sock, north of Taxiway B
Sampling Personnel MDN
Weather Conditions overcast, wind Air Temp. (°F) 505

Project No. 102581-009
Date 7/28/21
Well MW12-40
Time started 1800
Time completed 1920

Sample No. DLG-MW~~19~~12-40 Time 1852
Duplicate DLG-MW~~16~~12-140 Time 1855
Equipment Blank — Time —

Pump TTT hurricane ~~peristaltic pump A~~ (m)
Purging Method ~~portable~~ / *dedicated pump*
Pumping Start 1820
Purge Rate (gal./min.) ~~~1/2 gpm~~ ~1/4 gpm
Pumping End 1905

Pump Set Depth Below MP (ft.) 35'
KuriTec Tubing (ft.) 40'
TruPoly Tubing (ft.) 0'

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) ~~38.10~~ 37.47
Depth to Water Below MP (ft.) 29.49
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well ~~8.61~~ 7.98
Gallons per foot 0.17
Gallons in Well ~1.4
Purge Water Volume (gal.) ~~20~~ 11+ development
Purge Water Disposal containerize, filter w/ GAC

Monument Condition Good/new
Casing Condition Good/new
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / ~~*Flushmount*~~
Measurement method: *Rod & level* / *Tape measure*

Top-of-casing to monument (ft.) 0.63
Monument to ground surface (ft.) Flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☑ Lock present and operational N/A, secured area
☑ Well name legible on outside of well yes
☑ Evidence of frost-jacking ~~No~~ well new

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW12-40

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI ~~D~~ Circle one: *Parameters stabilized* or *>3 well volumes purged* (circled)

Sample Observations ~~light yellow~~

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1820	pump on, turbid. run @ ~1 gpm ~~to clear out~~					
1824	sl. turbid, turn down					
1830	still sl. turbid, ~~connect YSI~~					
1836	clear, connect YSI					
1839	5.5	45.8	288.9	6.03	113.6	~~clear~~ v. sl. turbid
1842	5.4	5.9	280.2	5.94	93.0	clear, light yellow
1845	5.6	5.8	276.2	5.94	83.7	" "
1848	5.4	5.8	271.0	5.95	79.3	" "
1851	5.0	5.9	257.5	5.96	73.9	clear ~~" "~~ (no color)
1852	sample			~~YSI pH~~		

Laboratory Eurofins Test Am. + SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	PFAS +18	x2 HDPE 250mL	None	☑
☑	GRO	x3 VOAs	HCl	☐
☑	VOCs	x3 VOAs	HCl	☐
☑	DRO/RRO	x2 250mL Amber	HCl	☐
☐				☐
☐				☐

35 sec / 500 mL

EFO

Well No.
DLG-MW12-40

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MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW12-80
Project Name DLG PFAS Site Char.
Project Number 102581-009

Date Installed 7-20-21
Logged By ALF
Driller Discovery

I. TOP SECTION (CASING)

Initial Pipe Length	10.00
Cuttoff Length	6.01
Add-on Length	
Total Length	3.99 ✓

+2.27
+3.16
5.43
+.58
6.01

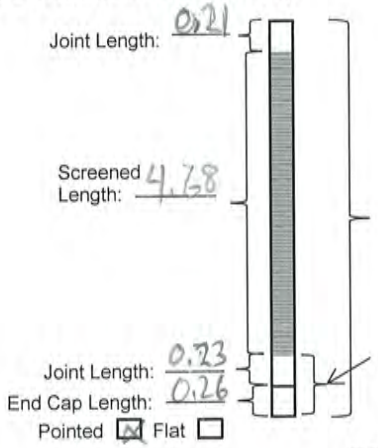
II. MID SECTION (CASING)

Number of Blank Sections: 7
Length of Section(s):

10.00	x 7	

Sum of Lengths: 70.00 ✓ +

III. SCREENED SECTION(S)



Total Pipe Length: 5.38 ✓ +

BOW to BOS: 0.49 ✓ =

TOC to BOW: 79.37 ✓

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ☐
Diameter: 2" ☒ 4" ☐ Other ☐
Slot Size: 0.01 ☒ 0.02 ☐ Other ☐
Joint Pin End: Up ☒ Down ☐ Type ☐

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.4	0
CEM_PB	1.5	0.4
~~*SLUF_PB/FIL_PB~~ PG	3	1.5
BCH_PB	4	3
~~*SLUF_PB/FIL_PB~~ BGR	63	4
~~BCH~~ BGR_PB	68	63
*SLUF_PB/FIL_PB		68
*SLUF_PS/FIL_PS	78	73.9
*SLUF/FIL (No Pipe)	80	79.5
*SLUF_PB/FIL_PB	—	—

SLUF 79.5-78

Filter Pack Type or Gradation: 10/20 Silica Sand

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	flush
TOM to TOC	0.37
^TOC to GS	-0.37
Lock type	

VII. MOISTURE CONTENT

Depth to Water Below GS: ~29 ft

Frozen Soil Below GS

	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
* BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	79.37
- BOW to BOS	0.49
= TOC to BOS	78.88 ✓

TOC to BOS	78.88 ✓
- Screened Length	4.68
= TOC to TOS	74.2

TOC to BOW	79.37 ✓
- TOC to GS	-0.37
BOW bgs	79.74
TOC to TOS	74.2 ✓
- TOC to GS	-0.37
TOS bgs	74.57
TOC to BOS	78.88 ✓
- TOC to GS	-0.37
BOS bgs	79.25

MDN

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: Wind Sock
Weather: Overcast, 50s
Development Personnel: MDN

Well No.: DLG-MW12-80
Project No: 102581-009
Date: 7/28/21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 79.22
Depth to Water **Before** Development (feet below top of casing): 29.61
Depth to Screen Top and Bottom (from Construction Log): Top: 74.2 Bottom: 78.88

Development Details

Feet of water in well: 49.61
Gallons per foot: 0.17
Gallons in well: 8.4
Surge method: surge blak/stiff tubing
Pump used: Waterra pump
Tubing used (ft): 90'

Time pumping started: ~~1435~~ 1514
Flow rate (gal/min): ~1/2 ~~3/4~~ gal/min
Flow-rate measurement method: 5-gall bucket
Time pumping ended: 1655
Gallons Pumped: ~48 gallons
Disposal: Containerize, GAC

Depth to Water **After** Development (feet below top of casing): 79.23
Total Depth of Well **After** Development (feet below top of casing): 29.59

Observations

Time	Water Clarity (Visual)
1435	start pump, foot valve closed w/ plastic
1452	same
1514	v. turbid, surge @ bottom
1521	surge @ middle of screen, v. turbid
1528	move to top of screen
1536	pump off
1557	restart w/o surge blak
—	v. turbid @ base
1610	sl. turbid
1615	pump off

Time	Water Clarity (Visual)
1628	pull up to mid screen, turbid
1634	Sl. turbid
1637	V. Sl. turbid
1642	back to bottom, turbid
1643	Sl turbid
1654	clear!
1655	pump off

NOTES: sediment gray

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

EFD

MONITORING WELL SAMPLING LOG

Owner/Client DLA-RPF
Location Wind Sock / North of Taxiway B
Sampling Personnel MDN
Weather Conditions overcast Air Temp. (°F) mid 50s

Project No. 102581-009
Date 7/28/21
Well MW12-80
Time started 1910
Time completed 2030

Sample No. DLG-MW12-80 Time 2016
Duplicate — Time —
Equipment Blank — Time —

Pump TTT Hurricane
Purging Method *portable* / *dedicated* *pump*
Pumping Start 1947
Purge Rate (gal./min.) ~1/4 gpm
Pumping End 2018 2020

Pump Set Depth Below MP (ft.) 76.93'
KuriTec Tubing (ft.) 130'
TruPoly Tubing (ft.) 0'

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 79.23
Depth to Water Below MP (ft.) 29.59
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 49.64
Gallons per foot 0.17
Gallons in Well 8.4
Purge Water Volume (gal.) ~8 gal + develop water
Purge Water Disposal containerize, filter w/ GAC

Monument Condition good/new
Casing Condition good/new
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / *Flushmount*
Measurement method: *Rod & level* / *Tape measure*

Top-of-casing to monument (ft.) 0.36
Monument to ground surface (ft.) Flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☒ Lock present and operational No lock, secured area
☒ Well name legible on outside of well yes
☒ Evidence of frost-jacking No, new

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW12-80

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI D Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations —

Notes —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
~~1925~~	~~pump on~~	~~slight turbid~~				
~~1928~~	~~sl turbid~~					
1947	pump on, turbid					
1950	sl. turbid					
1955	~~sl turbid~~ connect YSI					
1958	5.2	8.4	338.4	6.32	11.8	sl turbid
2001	5.4	7.3	343.9	6.37	-18.7	V. sl. turbid
2005	4.9	6.4	339.7	6.38	-24.3	"
2008	5.0	6.1	342.4	6.38	-26.8	"
2011	4.8	~~4.6~~	341.4	6.39	-32.2	clear
2014	4.7	4.0	340.8	6.39	-37.2	"

Laboratory ~~SGS~~ Eurofins TestAm

	Analysis	Sample Containers	Preservatives	Dup
X	PFAS 18	x2 250mL HDPE	None	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

35sec / 500mL

EFD

Well No.

DLG-MW12-80

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW14-50
Project Name DLG PFAS Site Char.
Project Number 102581-009

Date Installed 7-23-21
Logged By ALF
Driller Discovery

I. TOP SECTION (CASING)

1.44 + 1.55 / 1.99

Initial Pipe Length	10.00
Cuttoff Length	1.99
Add-on Length	—
Total Length	8.01

II. MID SECTION (CASING)

Number of Blank Sections: 3
Length of Section(s):

10 x	3	

+

Sum of Lengths: 30.00

III. SCREENED SECTION(S)

Joint Length: x2 0.70
Screened Length: 4.88 (x2)
Joint Length: x2 0.21
End Cap Length: 0.26
Pointed ☒ Flat ☐

+

Total Pipe Length: 10.52

BOW to BOS: 0.47

=

TOC to BOW: 48.53

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other
Diameter: 2" ☒ 4" ☐ Other
Slot Size: 0.01 ☒ 0.02 ☐ Other
Joint Pin End: Up ☒ Down ☐ Type

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1.5	0.5
*SLUF_PB/FIL_PB	4	1.5 BCH
BGR BCH_PB	30.4	4
*SLUF_PB/FIL_PB	—	—
BCH BGR_PB	32.5	30.4
*SLUF_PB/FIL_PB	40	32.5
*SLUF_PS/FIL_PS	50	40
*SLUF/FIL (No Pipe)	—	—
*SLUF_PB/FIL_PB	—	—
Filter Pack Type or Gradation	Silica 10/20	

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	0
TOM to TOC	-0.61
^TOC to GS	-0.61
Lock type	n/a

VII. MOISTURE CONTENT

Depth to Water Below GS: 38.63

	Frozen Soil Below GS Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	48.53
- BOW to BOS	0.47
= TOC to BOS	48.06
TOC to BOS	48.06
- Screened Length	10.17
= TOC to TOS	37.89

TOC to BOW	48.53
- TOC to GS	-0.61
BOW bgs	49.14
TOC to TOS	37.89
- TOC to GS	-0.61
TOS bgs	38.5
TOC to BOS	48.06
- TOC to GS	-0.61
BOS bgs	48.67

DHF

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF-DLG Airport
Location: SW Fire Training Area
Weather: Cloudy, 60s
Development Personnel: ALP

Well No.: DLG-MW14-50
Project No: 102581-009
Date: 7-26-21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 48.43
Depth to Water **Before** Development (feet below top of casing): 38.60
Depth to Screen Top and Bottom (from Construction Log): Top: 48.06 Bottom: ~~38~~ 37.84

Development Details

Feet of water in well: 9.83
Gallons per foot: 0.17
Gallons in well: 1.67
Surge method: Surge block on tubing
Pump used: Waterra Inertial
Tubing used (ft): 60

Time pumping started: 15:38
Flow rate (gal/min): 1 gpm
Flow-rate measurement method: 5-gal bucket
Time pumping ended: 17:28
Gallons Pumped: ~120
Disposal: Containerized for GAC filtration

Depth to Water **After** Development (feet below top of casing): 38.60
Total Depth of Well **After** Development (feet below top of casing): 48.42

Observations

Time	Water Clarity (Visual)
1500	surging start
15:43	Very turbid (BOW)
15:54	Mod-V. Turbid
16:03	Mod. Turbid
16:12	Mod. Turbid (PWL ~~705~~)
16:21	Sl-Mod. Turbid
16:57	Sl-Mod. Turbid
17:13	Sl. Turbid
17:20	V. Sl Turbid
17:25	Mostly clear

Time	Water Clarity (Visual)

15:08

NOTES: Surged from ~~14:58~~ -15:35, Pumped ~~an additional~~ ~25 gallons with Hurricane pump at end of develop. Included in 120 gallons

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

ELD

MONITORING WELL SAMPLING LOG

Owner/Client: DOT&PF - DLG Airport
Location: SW Fire training area
Sampling Personnel: ALF
Weather Conditions: Partly Cloudy Air Temp. (°F): 60s

Project No.: 102581-009
Date: 7-26-21
Well: DLG-MW14-50
Time started: 18:00
Time completed: 20:00

Sample No.: DLG-MW14-50 Time: 18:57
Duplicate: DLG-MW14-150 Time: 18:47
Equipment Blank: EB-MW14-50 Time: 19:40

Pump: Hurricane XL
Purging Method: portable / dedicated pump
Pumping Start: 18:39
Purge Rate (gal./min.): ~~1 gpm~~ ~1 gpm
Pumping End: ~~18:57~~ 1857

Pump Set Depth Below MP (ft.): ~40
KuriTec Tubing (ft.): 60
TruPoly Tubing (ft.): —

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 48.42
Depth to Water Below MP (ft.): 38.60
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 9.82
Gallons per foot: 0.17
Gallons in Well: 1.67
Purge Water Volume (gal.): 243 ~ development
Purge Water Disposal: Containerized for GAC filtration

Monument Condition: Good.

Casing Condition: Good.

Wiring Condition (dedicated pumps): n/a

Measuring Point (MP): Top of Casing (TOC)

Monument type: Stickup / ~~Flushmount~~
Measurement method: Rod & level / ~~Tape measure~~

Top-of-casing to monument (ft.): 0.61
Monument to ground surface (ft.): flush

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well — inside
- ☐ Evidence of frost-jacking — none

Notes: Purged ~25 gallons prior to 18:39 w/ Hurricane pump to finish development (until water cleared).

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLG-MW14-50

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations

Notes pump ~25 gal to clear water before logging param's

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
18:44	5.0	1.74	241.2	6.21	140.6	clear
18:47	4.9	1.53	239.8	6.21	142.2	⎫
18:50	4.9	1.48	239.7	6.19	143.9	⎪
18:53	4.9	1.46	238.9	6.18	144.6	⎪
18:56	4.9	1.40	236.6	6.17	145.5	⎭
18:57	Sample					

Laboratory SGS + Eurofins TestAmerica

	Analysis	Sample Containers	Preservatives	Dup	EB
☑	DRO/RRO			☐	✓
☑	PAH			☐	✓
☑	GRO			☐	✓
☑	VOCs			☐	✓
☑	PFAS			☐	✓
☐				☐	

EGD

Well No. DLG-MW14-50

MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW14-80
Project Name DLG PFAS Site Char.
Project Number 102581-009

Date Installed 7-23-21
Logged By ALF
Driller Discovery

6.13
+0.33
6.46

I. TOP SECTION (CASING)

Initial Pipe Length	10.00	
Cuttoff Length	6.46	
Add-on Length	—	
Total Length		3.54

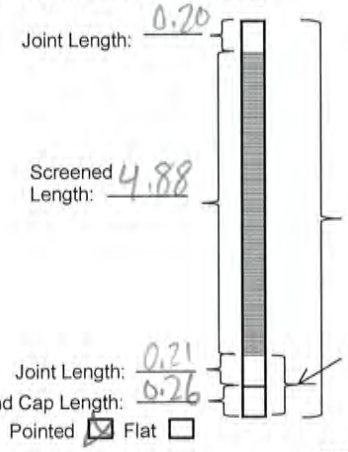
II. MID SECTION (CASING)

Number of Blank Sections: 7
Length of Section(s):

10 x	7	

Sum of Lengths: 70.00

III. SCREENED SECTION(S)



Total Pipe Length: 5.39

TOC to BOW: 78.93

IV. WELL DATA

Pipe Type: PVC ☒ SS ☐ Other ____
Diameter: 2" ☒ 4" ☐ Other ____
Slot Size: 0.01 ☒ 0.02 ☐ Other ____
Joint Pin End: Up ☒ Down ☐ Type ____

V. BACKFILL

	Depth Below GS Bottom	Top
CEM (No Pipe)	0.5	0
CEM_PB	1.5	0.5
*SLUF_PB/FIL_PB	4	1.5
BGR BCH_PB	67	4
*SLUF_PB/FIL_PB		
BCH BGR_PB	68	67
*SLUF_PB/FIL_PB	74	68
*SLUF_PS/FIL_PS	79	78
*SLUF/FIL (No Pipe)		
*SLUF_PB/FIL_PB		

Filter Pack Type or Gradation: 20/40 prepack & 10/20

VI. MONUMENTS

Stuckup ☐ Flushmount ☒

TOM to GS	0
TOM to TOC	-0.31
^TOC to GS	-0.31
Lock type	n/a

VII. MOISTURE CONTENT

Depth to Water Below GS: ~38.4

Frozen Soil Below GS	Bottom	Top
Seasonal 1		
Seasonal 2		
Permafrost 1		
Permafrost 2		

BCH = Bentonite Chips (gINT code)
BGR = Bentonite Grout (gINT code)
bgs = Below Ground Surface
BOS = Bottom of Screen
BOW = Bottom of Well
CEM = Cement (gINT code)
FIL = Sand Pack (gINT code)
GS = Ground Surface
SLUF = Natural Collapse/ Pea Gravel (gINT code)
SS = Stainless Steel
TOC = Top of Casing
TOM = Top of Monument
TOS = Top of Screen
PB = Blank Pipe (gINT code)
PS = Slotted Pipe (gINT code)
* Circle filter-pack type
^ Flushmount = Negative Number
Stickup = Positive Number

VIII. CALCULATIONS BELOW GROUND SURFACE

TOC to BOW	78.93
- BOW to BOS	0.47
= TOC to BOS	78.46
TOC to BOS	78.46
- Screened Length	4.88
= TOC to TOS	73.58

TOC to BOW	78.93
- TOC to GS	-0.31
BOW bgs	79.24
TOC to TOS	73.58
- TOC to GS	-0.31
TOS bgs	73.89
TOC to BOS	78.46
- TOC to GS	-0.31
BOS bgs	78.77

PHF

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF - DLG Airport
Location: Southwest Fire-Training Area
Weather: Cloudy 60s
Development Personnel: ACF, VTY

Well No.: DLG-MW14-80
Project No: 102581-009
Date: 7-26-21

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): ~~78.54~~
Depth to Water **Before** Development (feet below top of casing): 38.43
Depth to Screen Top and Bottom (from Construction Log): Top: ~~~~ 73.50 Bottom: ~~78.5~~ 78.87

Development Details

Feet of water in well: 40.11
Gallons per foot: 0.17
Gallons in well: 6.82
Surge method: Surge block on tubing
Pump used: Waterra Inertial
Tubing used (ft): 90

Time pumping started: 14:28
Flow rate (gal/min): ~1 gpm
Flow-rate measurement method: 5-gal bucket
Time pumping ended: 14:45
Gallons Pumped: ~20
Disposal: Containerized for GAC filtration

Depth to Water **After** Development (feet below top of casing): 69 feet + recharging
Total Depth of Well **After** Development (feet below top of casing): not measured development to continue tomorrow.

Observations

Time	Water Clarity (Visual)
1435	v. turbid
1440	purged dry, water @ 75.2
lowered tubing	
1445	purged dry
	coming up @ 0.3 ft. per min

Time	Water Clarity (Visual)

NOTES: Surged from 14:09 – 14:22

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

WELL DEVELOPMENT LOG

Owner-Client: DOT&PF
Location: southwest training area
Weather: cloudy, upper 50s
Development Personnel: MDN

Well No.: DLG-MW14-80
Project No: 102581-009
Date: 7/27/21
(ALF started 7/26, purged dry)

Diameter and Type of Casing: 2" PVC
Total Depth of Well **Before** Development (feet below top of casing): 78.54
Depth to Water **Before** Development (feet below top of casing): 38.53
Depth to Screen Top and Bottom (from Construction Log): Top: ~~~73~~ 73.50 Bottom: ~~~78.5~~ 78.88

Development Details

Feet of water in well: 40.11
Gallons per foot: 0.17
Gallons in well: 6.8
Surge method: Surge block
Pump used: Waterra inertial pump
Tubing used (ft): None, reuse from previous attempt

Time pumping started: 1330
Flow rate (gal/min): 1/4 to 1/2 gpm
Flow-rate measurement method: Est from drum volume
Time pumping ended: ~~70~~ 1640
Gallons Pumped: ~10 + yesterday ~20 gal = ~30
Disposal: Containerize, GAC filtration

Depth to Water **After** Development (feet below top of casing): DTW 69.76 @ 1359
Total Depth of Well **After** Development (feet below top of casing): 78.18

Observations

Time	Water Clarity (Visual)
1330	start pump w/ ~~surge~~ surge block
1332	move to bottom, ~~settle~~ v. turbid
1334	move up 1 ft
1336	" " "
1338	" " "
1340	" " "
1342	" " "
1344	pump off
~~1350~~	~~restart @ bottom @ Dry~~
	~~still w/ surge block~~

Time	Water Clarity (Visual)
1356	re-start @ bottom, purge dry
	~~dry @~~
1605	restart, foot valve only @ bottom
1606	v. turbid
1610	turbid
1622	" , flowing continuously but slowly
1634	still turbid, even slower. Measure DTW ~56'
1639	turn up ~~to purge dry~~
1640	well dry, DTW 74.69 w/ total depth 78.51

NOTES: purged dry 7/26, Surge >10 min's moving up screen 2 min's each interval. Allow to recharge.

WELL CASING VOLUMES

Diameter of Well [ID-inches]	1¼	2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

DTW 63.90 @ 1416
~55.8 @ 1444
~49.7 @ 1518
46.64 @ 1543
45.18 @ 1600 → ~80% recharge

~~~38 ft before filtration~~

EFD

SHANNON & WILSON, INC

SRD

Well No. DLG-MW14-80
~~~

MONITORING WELL SAMPLING LOG

Owner/Client DOT&PF
Location Southwest training area
Sampling Personnel MDN
Weather Conditions overcast/light rain Air Temp. (°F) mid 50s

Project No. 102581-009
Date ~~7/29/21~~ 7/30/21
Well ~~7/29/21~~ DLG-MW14-80
Time started ~~1000~~ 0850 -80
Time completed 1000

Sample No. DLG-MW14-80 Time 0937
Duplicate DLG-MW14-180 Time 0940
Equipment Blank ~~EB-MW14-80~~ Time —

Pump ~~PPT Hurricane~~ Hurricane B
Purging Method (portable) / dedicated pump
Pumping Start 0907
Purge Rate (gal./min.) ~~0945~~ ~0.1 gpm
Pumping End 0945

Pump Set Depth Below MP (ft.) 76'
KuriTec Tubing (ft.) 85'
TruPoly Tubing (ft.) 0'

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) ~~76~~ —
Measured Total Depth of Well Below MP (ft.) 76.81+1.37=78.18
Depth to Water Below MP (ft.) 38.50
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 39.68
Gallons per foot 0.17
Gallons in Well 6.75
Purge Water Volume (gal.) ~4 gallons + decon water
Purge Water Disposal Containerize, filter w/ GAC

Monument Condition Good/new
Casing Condition good/new

Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.) 0.31
Monument to ground surface (ft.) Flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- [x] Lock present and operational No lock, secured area
- [x] Well name legible on outside of well
- [x] Evidence of frost-jacking N/A, new

Notes use flow restrictor

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MDN

Well No.
DLGMW14-80

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI D Circle one: *Parameters stabilized* or (>3 well volumes purged)

Sample Observations well purged dry twice during development on 7/26 and 7/27/2

Notes water sample sl. turbid

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
0907	pumpon,	turbid				
0910	turbid					
0925	sl. turbid					
0926	connect	YSI				
0930	6.2	11.5	348.4	6.95	120.2	sl. turbid
0933	6.1	9.2	331.8	6.75	67.3	"
0936	6.5	8.7	323.7	6.71	24.2	"
0937	Sample					

Laboratory Eurofins TestAmerica

	Analysis	Sample Containers	Preservatives	Dup
☑	PFAS ×18	×2 250mL HDPE	None	☑
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EPD

Well No.
DLG-MW14-80

MONITORING WELL SAMPLING LOG

Owner/Client DOT&PF
Location Southeast of base lots, west of Taxiway A
Sampling Personnel MDN
Weather Conditions Sunny/clear Air Temp. (°F) mid 50s

Project No. 10258I-009
Date 7/26-7/27/21
Well 2006-MW08
Time started ~~1040 7/27~~ 1810 7/26
Time completed ~~1120 7/27~~

Sample No. 2006-MW08-20 Time 1103
Duplicate — Time —
Equipment Blank — Time —

Pump Peristaltic
Purging Method (portable / dedicated pump)
Pumping Start 1831 7/26. 1102 7/27.
Purge Rate (gal./min.) ~~0.2 gpm~~ ≤0.05 gpm
Pumping End 1850 7/26. 1108 7/27.

Pump Set Depth Below MP (ft.) 16.5'
KuriTec Tubing (ft.) 25'
TruPoly Tubing (ft.) 0'

Diameter and Type of Casing 1½" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 18.46
Depth to Water Below MP (ft.) 6.28 before pumping
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 12.18
Gallons per foot 0.08
Gallons in Well ~~0.8~~ ≥1 gallon
Purge Water Volume (gal.) ≥1.5 gal
Purge Water Disposal Filtered GAC

Monument Condition Metal rim of monument lid is coming off. Monument buried under ~~2-3 ft~~ 2-3 inches of sand/gravel/vegetation
Casing Condition good

Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.) -0.32
Monument to ground surface (ft.) -0.2 (below)

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☑ Lock present and operational No lock, secured area
☑ Well name legible on outside of well No name written
☑ Evidence of frost-jacking None

Notes 7/26 purged ~2 gallons, ≥1 well volume
7/27 DTW 6.68, 11.78 ft in well → 97% of original volume
@ 1118, DTW 7.21

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

1½ ID

MDN

Well No.
2006-MW08-20

MONITORING WELL SAMPLING LOG

>1 well volume, purged dry

Field Parameter Instrument YSI D Circle one: ~~Parameters stabilized or >3 well volumes purged~~ (N)

Sample Observations water, clear ~~after initial~~ (N)

Notes mostly

FIELD PARAMETERS [stabilization criteria]

	Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
7/26:	1831	~~start~~ pump, agitate ~~bottom~~ of well w/ tubing.					turbid
	1832	clear	w/ small organic particles				
	1836	clear,	connect YSI. pull up ~~left~~ from ~~bottom~~				
	1839	6.4	27.0%	57.6	6.45	313.5	clear
	1842	5.9	21.5%	57.5	5.99	220.5	"
	1845	slow recharge,	~~well~~ turn flow rate as		low as	possible	
		still bubbles					
	1850	~~bubbles~~ air >50% of tubing → DRY					
7/27:	1102	start purging, clear					
	1103	sample					

Laboratory Eurofins TestAmerica

	Analysis	Sample Containers	Preservatives	Dup
☒	*18 PFAS	*2 HDPE 500mL	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EP

Well No. 2006-MW08-20

MONITORING WELL SAMPLING LOG

Owner/Client DOT&PF
Location southwest of Everts/Alaska pride bldg; near fence
Sampling Personnel MDN
Weather Conditions light rain, overcast Air Temp. (°F) mid-50s

Project No. 102581-009
Date 7/29/21
Well Everts-MW1
Time started 1245
Time completed 1330

Sample No. Everts-MW1-25 Time 1412
Duplicate — Time —
Equipment Blank — Time —

Pump ~~TFT Hurricane~~ peristaltic pump
Purging Method (portable) / dedicated pump
Pumping Start 1304
Purge Rate (gal./min.) <0.1 gal/min
Pumping End 1416

Pump Set Depth Below MP (ft.) 27'
KuriTec Tubing (ft.) 35'
TruPoly Tubing (ft.) 10'

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 27.32+1.37=28.69
Depth to Water Below MP (ft.) 16.51
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 12.18
Gallons per foot 0.17
Gallons in Well ~2 gallons
Purge Water Volume (gal.) ~1½ gal
Purge Water Disposal containerized, filter w/ GAC

Monument Condition Okay. operable, monument lid is bent. From rust @ base appears to have jacked 0.2-0.3"
Casing Condition Frost jacked into monument, cannot open. Cut off 0.40' to access. V. soft bottom, expect accumulated sed't. well age unknown. Water inside casing, above grade.
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) Top of Casing (TOC)
Monument type: (Stickup) / Flushmount
Measurement method: Rod & level / (Tape measure)

Top-of-casing to monument (ft.) ~~2.16~~ 0.0 (same as monument)
Monument to ground surface (ft.) 2.16 w/ lid open

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☑ Lock present and operational No lock
☑ Well name legible on outside of well No name
☑ Evidence of frost-jacking yes, see above

Notes Obstruction ~4ft down, unable to deploy Hurricane pump

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

~~Total~~ well depth: 28.69
2.16
26.53

MDN

Well No.
Everts-MW1-25

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI D — Circle one: *Parameters stabilized* (circled) or *>3 well volumes purged*

Sample Observations: very slow purge rate to avoid bubbles in line. Assume

Notes: well has low recharge.

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1304	pump on, ~1 sec Fe water then clear. up from bottom.					
1305	connect YSI					
1309	5.9	37.0	61.2	5.67	216.4	clear
1312	6.0	32.9	63.1	5.64	201.9	"
1315	6.0	25.9	64.8	5.62	174.3	"
1318	6.0	21.9	65.3	5.61	158.2	"
1321	6.1	~~19~~ 17.8	65.1	5.60	142.0	"
1324	6.1	14.5	64.9	5.60	133.1	"
1327	6.1	11.1	66.8	5.60	122.7	"
~~1330~~	flow rate slows, bubbles in line. turn down, so far 3 gal purged					
~~1333~~ 1334	7.4	67.1	67.2	5.72	100.2	clear
1337	8.2	29.0	75.9	5.73	97.6	"
1340	8.3	14.1	73.8	5.69	96.4	"
1343	8.4	13.4	73.7	5.68	98.0	"
1347	7.2	7.7	70.2	5.67	92.2	"
1350	7.1	5.8	72.2	5.67	88.1	"
1353	7.2	5.3	72.4	5.67	87.2	"
1356	7.2	4.7	72.9	5.67	84.0	"
1359	7.2	4.3	72.2	5.67	81.1	"
1402	7.2	3.7	71.9	5.68	78.1	"
1405	7.3	3.6	75.2	5.71	76.4	"
1408	7.3	3.4	~~75~~ 74.9	5.71	76.4	"
1411	7.3	3.5	74.6	5.70	76.1	"

Laboratory: ~~SGS~~ Eurofins Test Am

*YSI pH readings may be biased? Very low.

	Analysis	Sample Containers	Preservatives	Dup
☒	PFAS ×18	×2 250mL HDPE	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EF

~~1416~~ ~~4½ gall purged~~

Well No. Everts-MW1-25

MONITORING WELL SAMPLING LOG

Owner/Client DOT&PF
Location B/w apron and RW ("the island"), east of AK Airlines
Sampling Personnel MDW
Weather Conditions overcast, light rain Air Temp. (°F) mid 50s

Project No. 102581-009
Date 7/29/21 - 7/30/21
Well 2006-MW11-30
Time started 1500 7/29
Time completed 1425 7/30

Sample No. 2006-MW11-30 Time 1410
Duplicate — Time —
Equipment Blank — Time —

Pump peri pump
Purging Method (portable) / dedicated pump
Pumping Start 1513 on 7/29. 1413 on 7/30.
Purge Rate (gal./min.) variable, ~0.1 gpm
Pumping End 1547 on 7/29. 1421 on 7/30.

Pump Set Depth Below MP (ft.) 27.5'
KuriTec Tubing (ft.) 40'
TruPoly Tubing (ft.) 0'

Diameter and Type of Casing 1½" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 37.09
Depth to Water Below MP (ft.) 28.59 + 1.37 = 29.96
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 22.87
Gallons per foot ~0.08
Gallons in Well 41.83
Purge Water Volume (gal.) ~3 gallons
Purge Water Disposal containerize, filter w/ GAC

Monument Condition good, full concrete circle even w/ ground surface. Had been overgrown w/ vegetation
Casing Condition Frost jacked into monument, well cap cracked/crushed. From sand level appears jacked ~0.15'. Replace cap w/ plastic bag, no space.

Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Rod & level / (Tape measure)

Top-of-casing to monument (ft.) 0.11
Monument to ground surface (ft.) Flush

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational No lock
☐ Well name legible on outside of well No name
☑ Evidence of frost-jacking Yes

Notes cut down casing + replace well cap on next visit.

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

1½" ID

MDW

Well No.
2006-MW11-30

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI D Circle one: ~~Parameters stabilized or >3 well volumes purged~~ >1 well volume

Sample Observations very slow recharge, ~~no~~ purge dry then sampled after recharged.

~~Notes~~

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1513	pump off, water clear (2½ ft from bottom)					
1515	connect YSI					
1517	5.2	8.4%	209.8	6.14	16.4	clear
1520	5.2	5.3	193.8	6.23	-11.7	"
1523	5.5	5.5	185.1	6.29	-12.7	"
1528	5.5	7.0	176.4	6.31	-9.6	"
1531	5.6	7.7	174.2	6.32	-4.4	"
1534	5.6	7.2	186.5	6.30	-9.5	"
1537	5.8	6.1	195.8	6.29	-13.1	"
1540	flow rate dropped off, bubbles. 3/4 gall purged.					
1543	slow and pumping to lowest possible					
1543	8.6	46.0	231.9	6.38	-4.9	clear, bubbles in line.
1546	9.4	53.4	237.8	6.41	-2.1	"
1549	unable to sustain flow - vacate casing and allow to recharge					
@	1730 DTW 25.53					
7/30 @	1410 DTW ~~11.60~~ 11.36 → 81% recovered					
let	run ~3 minutes, clear w/ light yellow color					
1416	sample					

Laboratory Eurofins Test Am

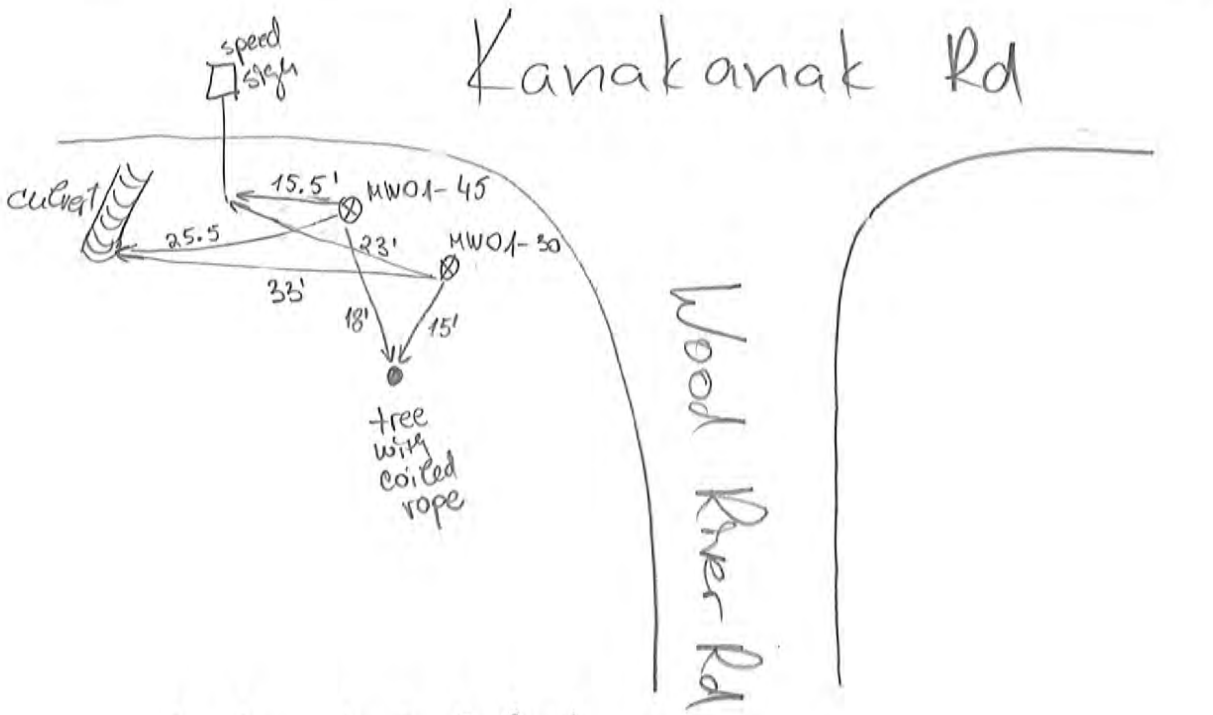
✓	Analysis	Sample Containers	Preservatives	Dup
☑	PFAS 18	x2 250mL HDPE	—	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

EPD

Well No. 2006-MW11-30

9/30/21
VTY

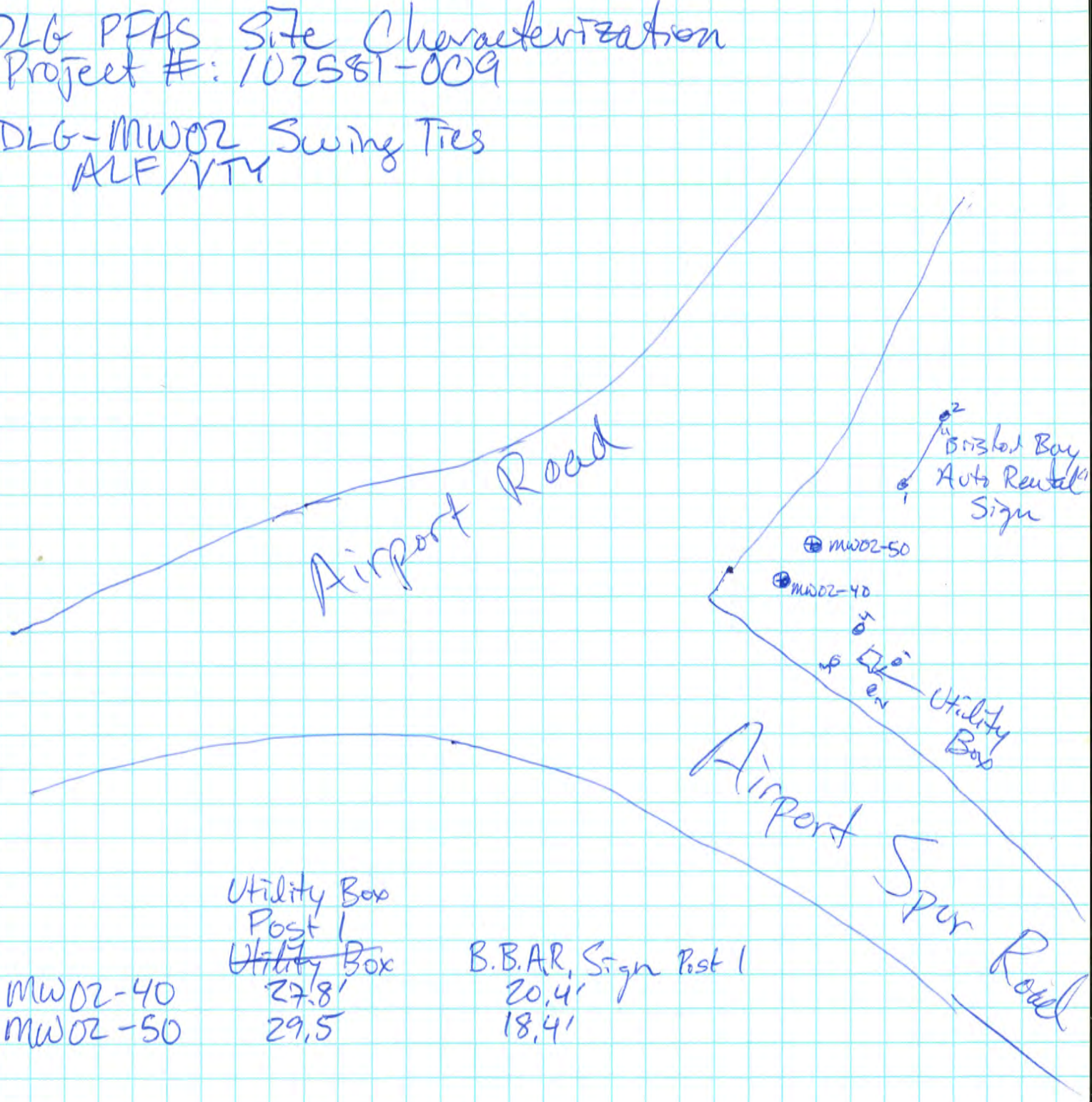
MW01
Swing ties



	Speed sign	tree	Culvert
MW01-30	23'	15'	33'
MW01-45	15.5'	18'	25.5'

DLG PFAS Site Characterization
Project #: 102581-0009

DLG-MW02 Swing Ties
ALF/VTY



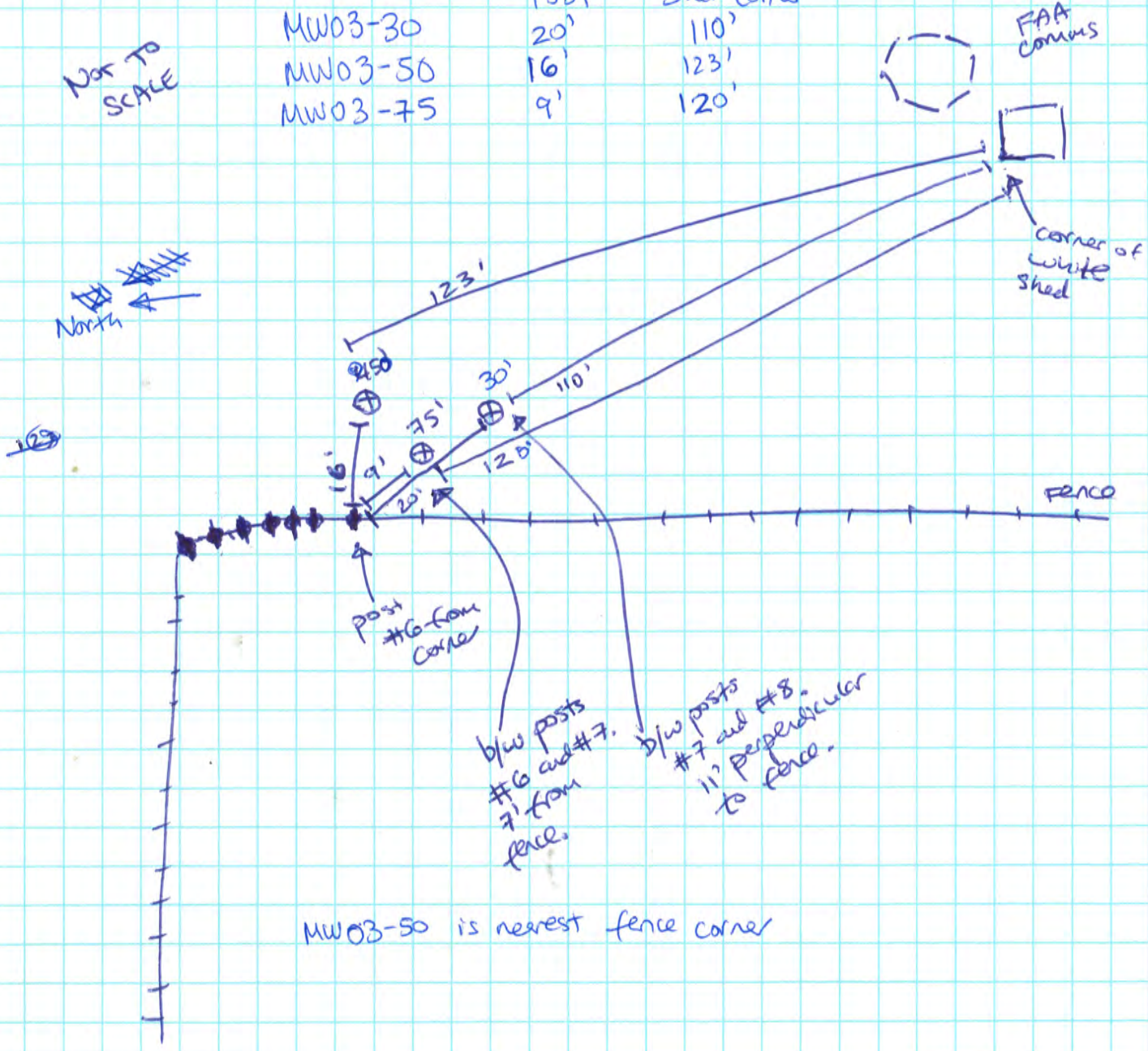
	Utility Box Post 1 ~~Utility~~ Box	B.B.A.R. Sign Post 1
MW02-40	27.8'	20.4'
MW02-50	29.5	18.4'

MDW 9/25

MW03 Cluster, SE of Lease Lots, SW of Taxiway A

Not to scale

	Post	Shed Corner
MW03-30	20'	110'
MW03-50	16'	123'
MW03-75	9'	120'



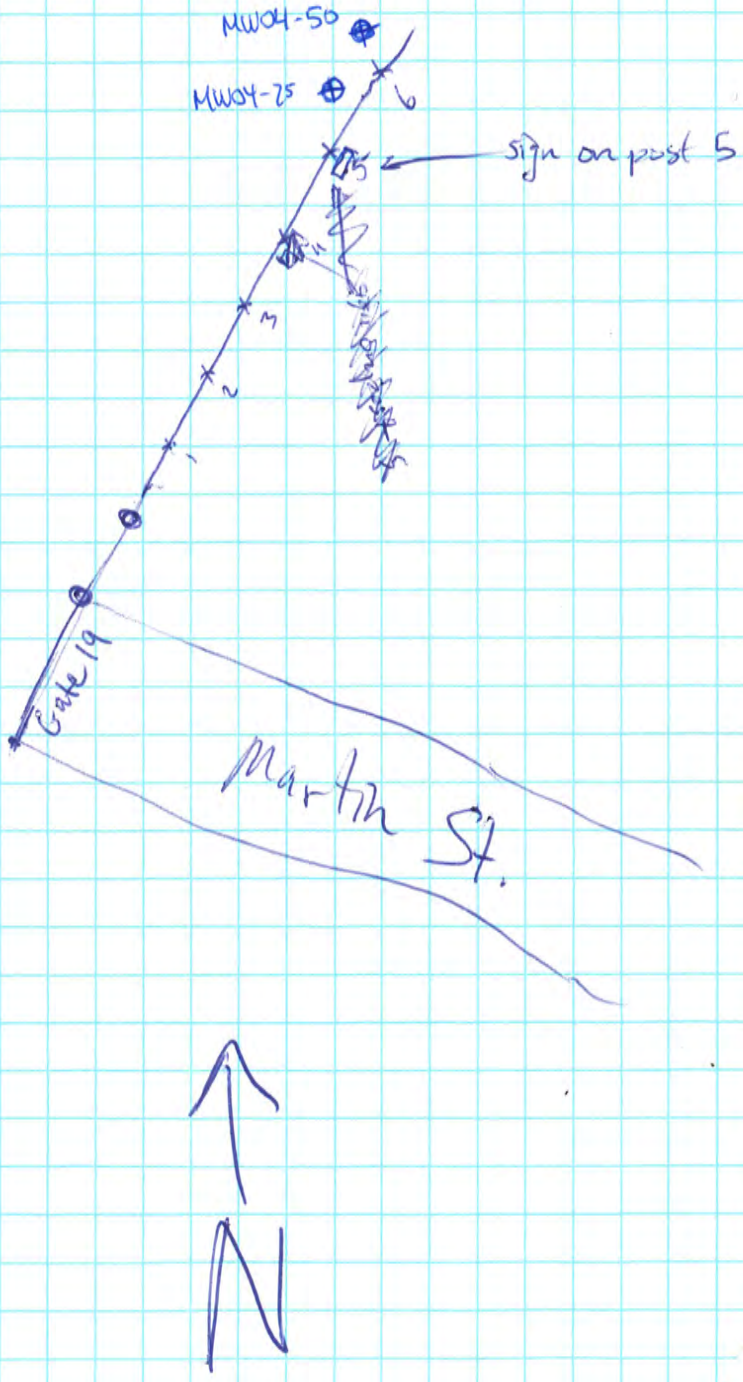
MW03-50 is nearest fence corner

MDN 9/25

DLG PFAS Site Characterization
Project#: 102581-009

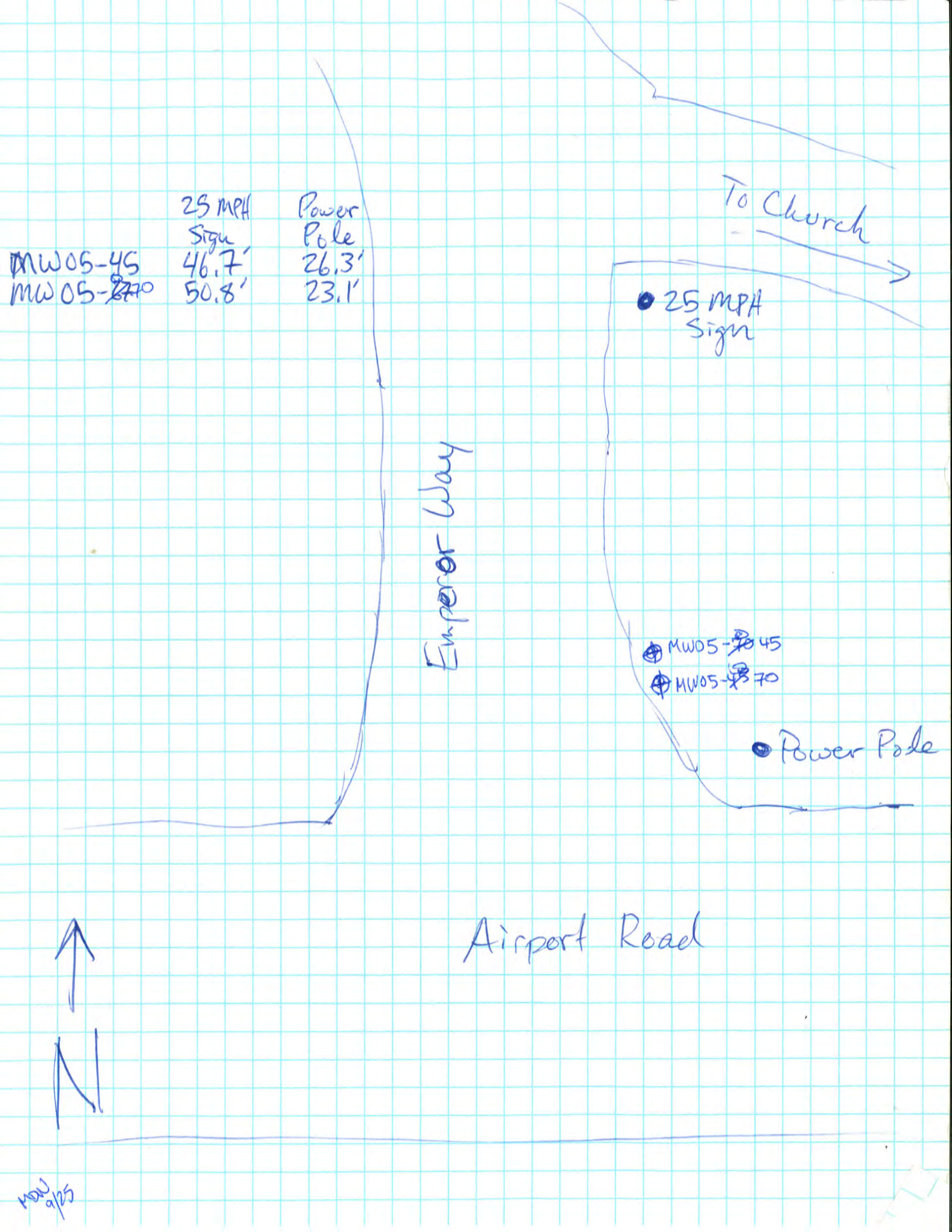
DLG-MW04 Swing Ties
AAE

Runway

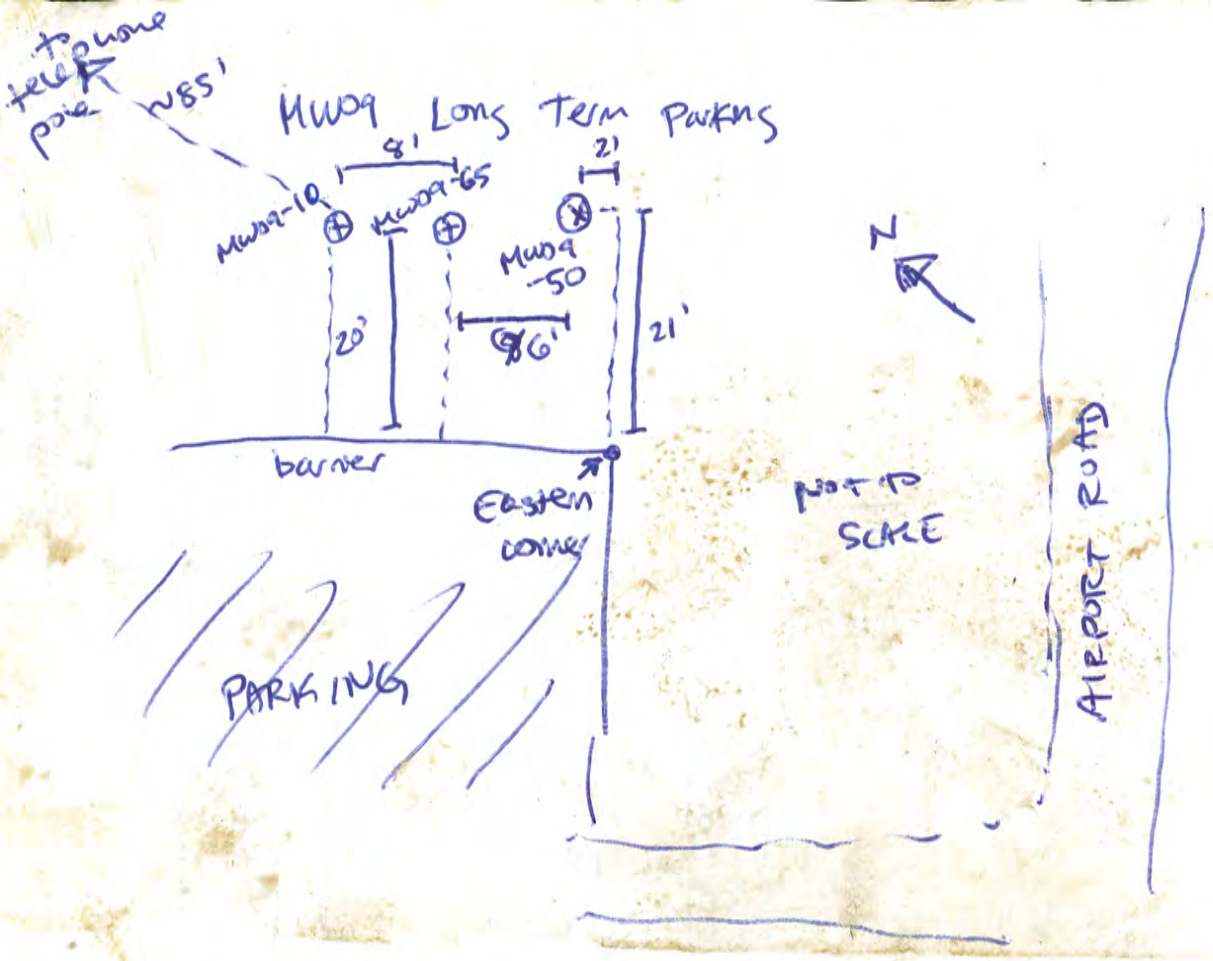


	Post 5	Post 6
MW04-25	14.7'	8.1'
MW04-~~50~~50	10.7'	7.5'

MDW 9/25


25 MPH Sign
Power Pole
MW05-45 46.7' 26.3'
MW05-70 50.8' 23.1'
To Church
25 MPH Sign
Emperor Way
MW05-45
MW05-70
Power Pole
Airport Road
N

MW 9/25



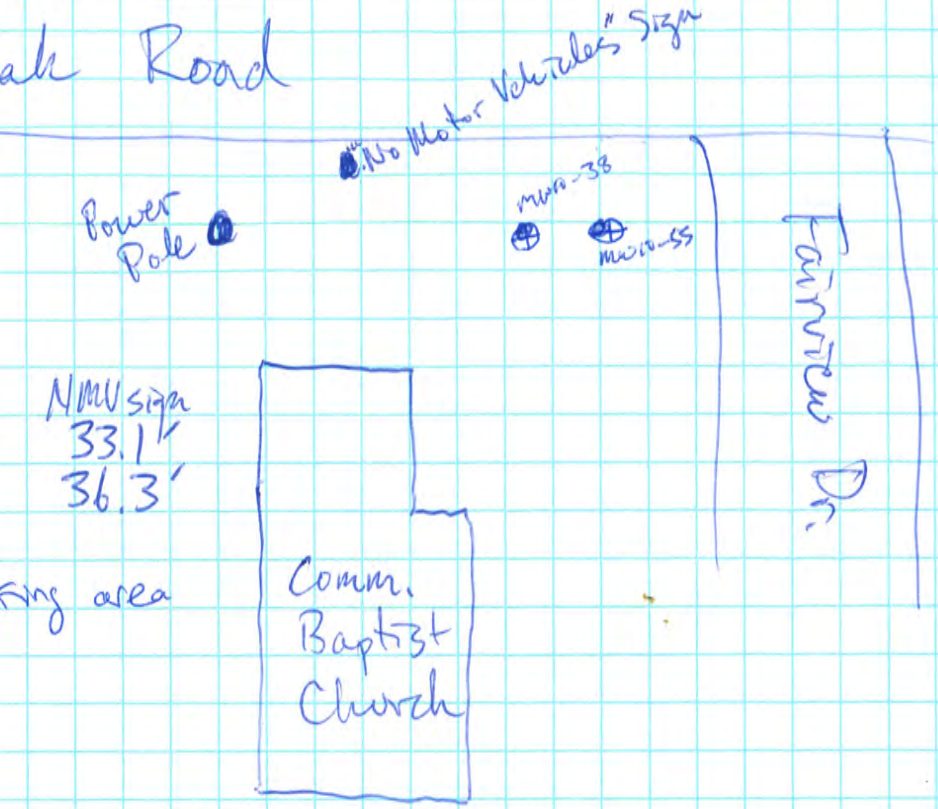
Farthest N: MW09-10
Middle: MW09-65
Farthest S: MW09-50

MDW
9/25

DLG PFAS Site Characterization
Project #: 102581-009

DLG-MW10 Swing Tie
ALF

Kanakanak Road



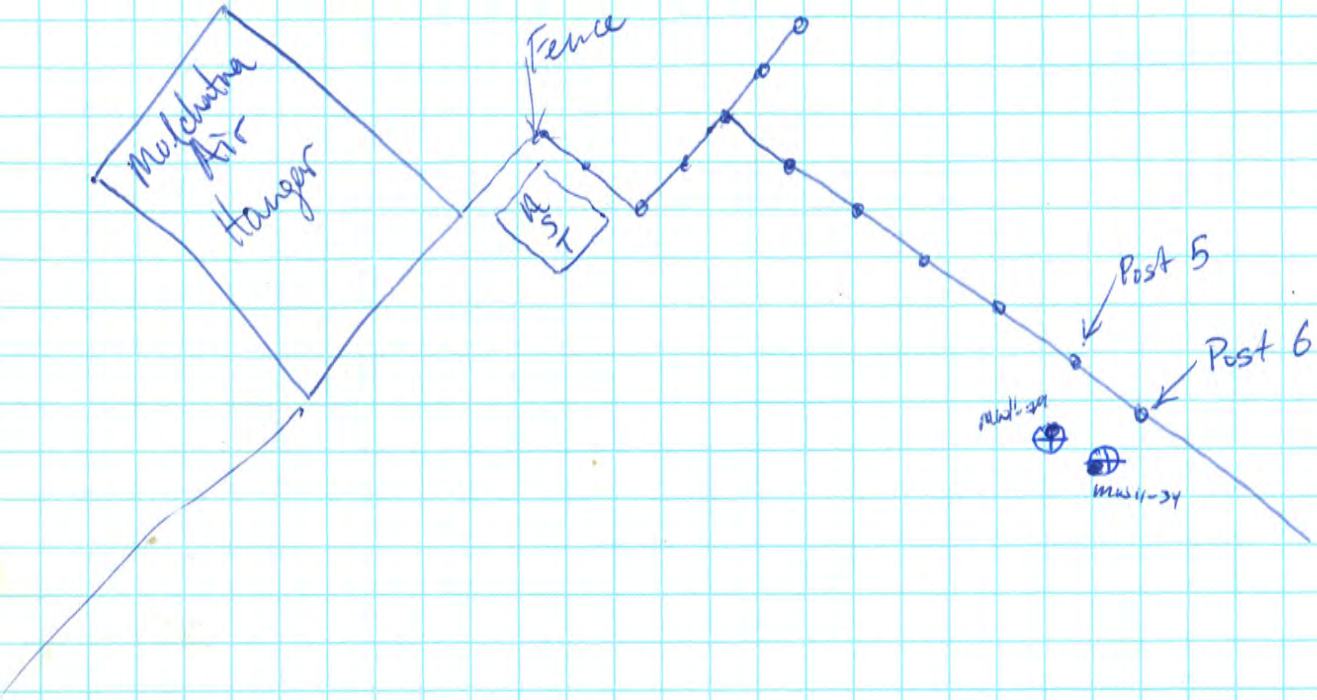
	Power Pole	NMV sign
MW10-~~38~~40	55.2'	33.1'
MW10-55	58.8'	36.3'

Wells set in paved parking area

MDW 9/25

DLG PFAS Site Char.
Project #: 102581-009
ALF

DLG-MW11-34 +79
Swing Ties

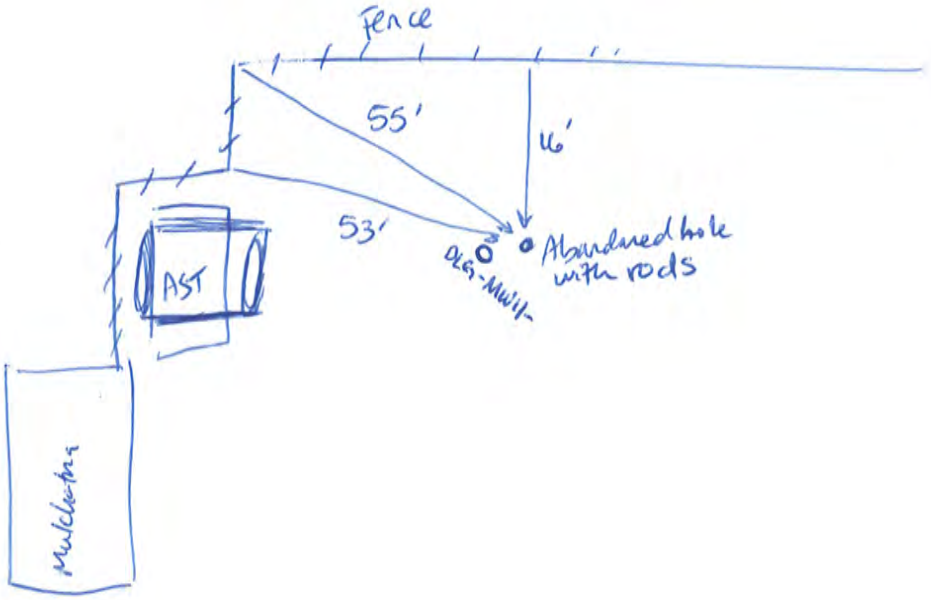


	Post 5	Post 6
MW11-~~34~~35	17.9'	15.2'
MW11-~~79~~80	16.5'	15.7'

N

MW 9/25

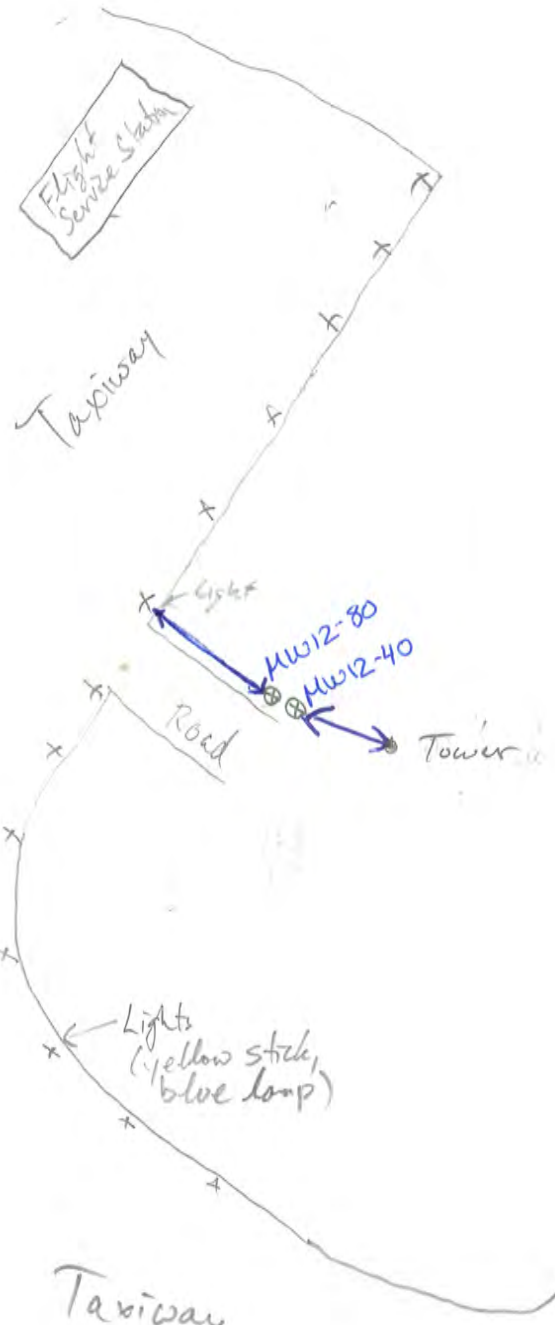
MW11 cluster



* Abandoned hole backfilled with gravel. Surrounding native soil is silt.

ALF 7-21-21
Project 102581-009

	Light	~~Tower~~ ~~Wind Sock~~
MW12-80	84.3'	53.5'
MW12-~~39~~ 40	87.3'	50.5'



RUNWAY

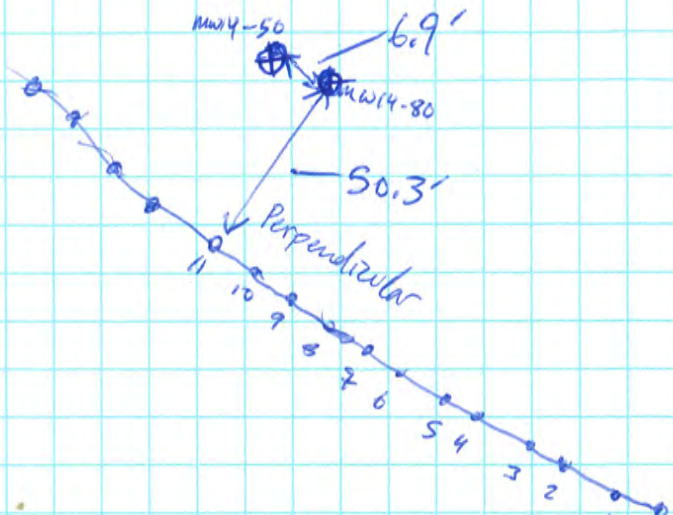
N

DLG-MW12 Well Nest

MDW 9/25

DLG PFAS Site Characterization
Project # 102581-009
AAF

MW14 Swing Ties, Southwest training area



Measure from post 11.

Fence

MW14-50
MW14-80

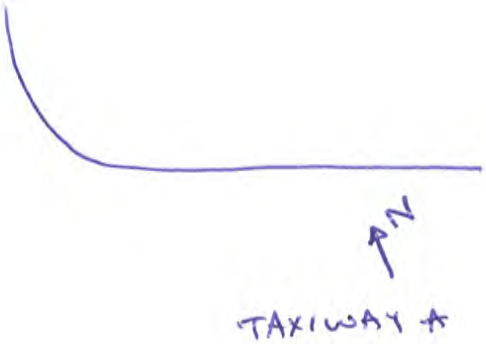
Runway

N

MDN 9/25

Existing MWS:

2006-MW08-20

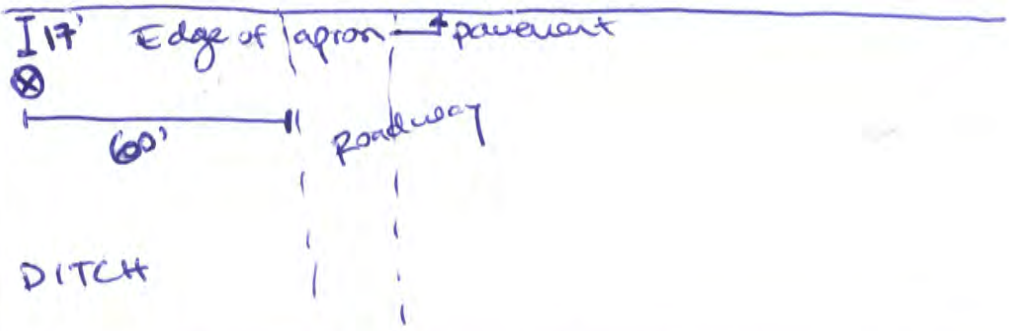


N

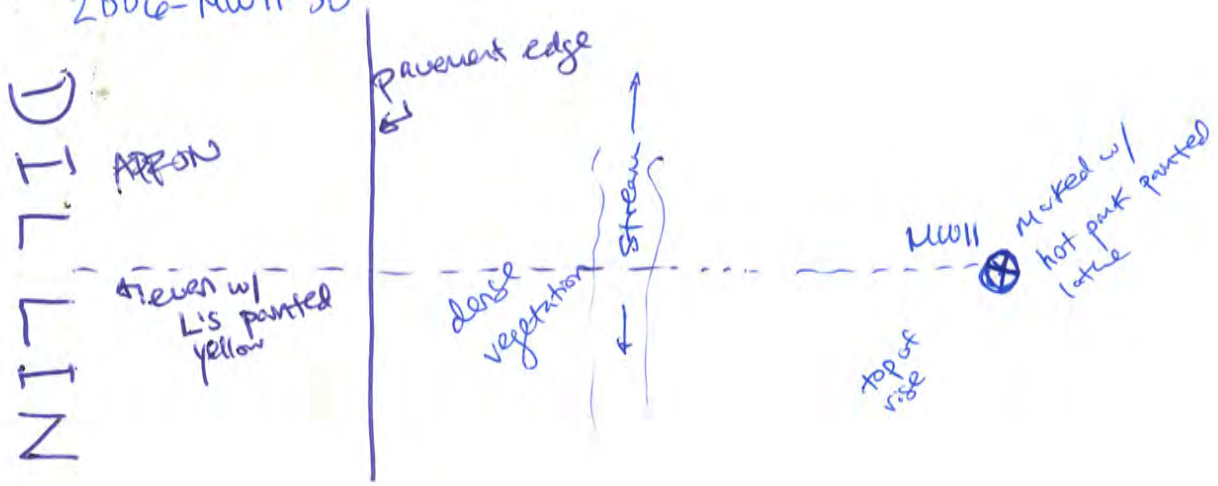
NOT TO SCALE

TAXIWAY A

MW08-20



2006-MW11-30



MDW 9/15

Non – Negotiable Bill of Lading

AML

PRO No.

FREIGHT BILL PRO NUMBER
(CARRIER USE ONLY)

Mailing Address
PO Box 24348
Seattle, WA 98124

Toll Free Customer Service
Seattle (Central/SE Alaska) 1-800-326-8346
Seattle (Western AK/Hawaii) 1-800-426-3113
Ketchikan 1-800-809-7660
Juneau 1-800-585-6102

_____ of _____

Date Received:	Voyage No:	Bkng #/Conf Code:	Origin:	Destination:	Container No:	Seal#:	Byd Carrier:
	W10095	RG 19	Dillingham	Seattle			

SHIPPER	CONSIGNEE	BILL TO
Name: Cleanharbors Environmental	Name: Cleanharbors Environmental	Name: Cleanharbors
Street Address: 311 N. Sitka	Street Address: 26358 79th Ave S.	Street Address: 42 Longwater Cir
City, State: Anchorage AK 99501	City, State: Kent WA	City, State: Norwell, MA 02061
Ref No: PO# 0001264738 Phone:	Ref No: Jack Mefi Phone: 206-786-1110	Ref No: Phone: 781-792-5000

Processor/Supplier:

All goods shall have an agreed released value of **$500** per package/cfu, unless Shipper declares and Carrier accepts a higher released value directly below. ***An additional charge may be applicable to any such declaration.*** Shipper and Carrier's signatures on this bill shall constitute acceptance of the declaration.

DECLARED VALUE $_____

It is understood and agreed all household goods/personal effects will be released at **$.10/lb.**

INITIAL _____

FREIGHT CHARGES:

COLLECT ☐
PREPAID ☒
OTHER ☐
(COD's not accepted)

LOAD TYPE Palletized: ☒ Hand Stacked: ☐ Mixed or other (please describe): _____

No. of Pieces	Kind of Package	HM* X	Description provided by Shipper *(For Hazmat - UN/NA Number, Proper Shipping Name, Hazard Class, and Packing Group)*	Net Weight in lbs.	Gross Weight in lbs.
23	DR		Material Not Regulated by DOT	5,750	
23	TOTAL PIECES		TOTAL WEIGHT	0	0

SHIPPER'S CERTIFICATIONS	Placards Required: N/A	Emergency Telephone: 1-800-483-7718	ERG No. N/A

In the event of hazardous goods the Shipper's signature on this bill certifies that the above named materials are properly classified, described, packaged, marked, labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation (49 C.F.R. 172.204).

Shipper must identify in writing prior to shipment any perishable, temperature controlled, keep from freezing, chilled or frozen goods. **Carrier shall not be responsible for freezing down or reducing the core temperature of goods.**

Refrigerated Temp Loads:

Requested Temp _____F_____C

Temp at Receiving: _____F_____C

Date _____ Time _____

RECEIVED $ _____

To apply in prepayment of charges on the property described hereon

Cash/MC/VISA/Check#_____

SHIPPER (SIGNATURE REQUIRED)		CARRIER	
Brenda J Sheets		AML	
PER Brenda J Sheets	DATE 9/30/21	PER	DATE 9/30/21

Shipper agrees that the custody and carriage of goods identified shall be subject to the terms and conditions on the reverse (or page 2) as well as the Carrier's tariff, which may be reviewed at: www.aml.lynden.com

(Rev 11-19-2020)

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter) 09210500283

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: CESQG

Manifest Document No.: 02831

2. Page 1 of

3. Generator's Name and Mailing Address:
Alaska DOT - Dillingham
803 Airport Rd
Dillingham, AK 99576
4. Generator's Phone ( ): (907) 479-0600

Site Address: SAME

5. Transporter 1 Company Name: Alaska Marine Lines
6. US EPA ID Number: WAD991281809
A. State Transporter's ID:
B. Transporter 1 Phone: (206) 763-4244

7. Transporter 2 Company Name: Lynden Transportation
8. US EPA ID Number: WAD002799260
C. State Transporter's ID:
D. Transporter 2 Phone: (800) 526-5702

9. Designated Facility Name and Site Address:
Clean Harbors Environmental Services, Inc.
2247 South Highway 71
Kimball, NE 69145
10. US EPA ID Number: NED981723513
E. State Facility's ID:
F. Facility's Phone: (308) 235-4012

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. MATERIAL NOT REGULATED BY DOT, (PFAS SOIL)	023	DM	5,750	P
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above: 11a.CH2239347 23X55

H. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information:
EMERGENCY PHONE #: (800) 483-3718
GENERATOR: Alaska DOT - Dillingham

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Jon Taylor — Signature — Date: Month 10, Day 01, Year 2021

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Domico Robinson — Signature — Date: Month 10, Day 01, Year 2021

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month, Day, Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name — Signature — Date: Month, Day, Year

NON-HAZARDOUS WASTE

2105000283

NON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)	19. Generator ID Number	20. Page	21. Waste Tracking Number
	CESQG	2 / X	2831

22. Generator's Name: Alaska DOT- Dillingham

23. Transporter 3 Company Name: Clean Harbors Environmental Services — U.S. EPA ID Number: MAD039322250

24. Transporter ____ Company Name — U.S. EPA ID Number

GENERATOR

	25. Waste Shipping Name and Description	26. Containers No.	26. Containers Type	27. Total Quantity	28. Unit Wt./Vol.	

29. Special Handling Instructions and Additional Information

TRANSPORTER

30. Transporter ____ Acknowledgment of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Domico Robinson		10	1	2020

31. Transporter ____ Acknowledgment of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

DESIGNATED FACILITY

32. Discrepancy

170-BLC-O 5 11978 (Rev. 8/06)

GENERATOR'S/SHIPPER'S INITIAL COPY

PO BOX 24348
SEATTLE, WA 98106
1-800-326-8346

Booking Conf # RG19

Date:	September 29, 2021
Prepared For:	BRENDA SHEETS
Phone:	907 206-0834
Fax:	
Email:	sheets.brenda@cleanharbors.com
Prepared By:	Victoria Iritsky Hardin
	viritsky@lynden.com
Phone:	206 892-2591
Fax:	206 508-7615

Voyage #:	W1009S
Sailing Date:	October 6, 2021
Origin City:	Dock
Origin Port:	Dillingham
Destination Port:	Seattle
Destination City:	Kent,Wa,98032-7327
Route:	Dock to Door
PO Number:	
BL #:	
Project Name:	
Quote #:	
Temperature:	
Shipment Type:	T
Equip. Type:	D20.STD
Unit #:	

Shipper:	Consignee:	Bill To:
CLEAN HARBORS	CLEAN HARBORS ENVIRO	CLEAN HARBORS
C/O DOCK	26328 79TH AVE S	1010 COMMERCIAL ST
DILLINGHAM,AK 99576	KENT,WA 98032-7327	SAN JOSE,CA 95112
907-863-5107	253-639-4240	253-638-3550

Qty	UOM	Freight Description	Dimensions (LxWxH)	Weight
1	D20	NON-HAZARDOUS CONTAMINATED SOIL IN DRUMS		15,000

AML equipment will be subject to detention charges after allowed free days at the destination port. Please refer to AML Rules Tariff AKMR 100A (available at http://www.lynden.com/aml/tools/tariffs-and-forms.html) for applicable rates.

Green is good! Do your part in saving the environment by accessing documents electronically. Go to http://www.lynden.com/signup and sign up for EZ Commerce, making it easier to conduct business at your fingertips. You can request pickups, generate shipping documents, track shipments, receive invoices and make payments electronically. Service is free, sign up today!

APPENDIX D: GROUNDWATER GRADIENT DATA

Appendix D

Groundwater Gradient Data

Table D-1 - Data Logger Measurement Statistics

	MW11-35	MW10-40	MW05-45	MW04-25	MW03-30
Earliest	7/23/21 16:00	7/24/21 11:00	7/23/21 17:00	7/24/21 12:00	7/26/21 3:00
Latest	7/31/21 4:00	7/31/21 5:00	7/31/21 8:00	7/31/21 8:00	7/31/21 7:00
Count	181	163	184	165	125
Days	7.5	6.8	7.7	6.9	5.2
Max	47.0	42.9	45.6	45.5	49.4
Min	46.9	42.9	45.4	45.3	49.2
Range	0.1	0.1	0.2	0.1	0.2
Average	47.0	42.9	45.5	45.4	49.4
12hr-Max Var	0.07	0.07	0.07	0.08	0.10
12hr-Min Var	0.02	0.01	0.01	0.02	0.02

Table D-2 - Groundwater Elevation Measurements

Well Name	Date	Time	Depth to Water	Groundwater Surface Elevation
DLG-MW01-45	7/31/21	17:31	27.48	43.97
DLG-MW01-30	7/31/21	17:37	27.65	43.61
DLG-MW02-50	7/31/21	18:55	24.64	45.33
DLG-MW02-40	7/31/21	18:53	24.9	45.00
DLG-MW03-75	7/31/21	11:22	25.9	46.13
DLG-MW03-30	7/31/21	11:25	22.85	49.31
DLG-MW03-50	7/31/21	11:20	25.51	46.33
DLG-MW04-50	7/31/21	17:59	20.81	46.17
DLG-MW04-25	7/31/21	17:54	21.44	45.34
DLG-MW05-70	7/31/21	18:29	28.87	41.90
DLG-MW05-45	7/31/21	18:33	25.63	45.37
DLG-MW09-50	7/31/21	12:15	26.48	49.16
DLG-MW09-65	7/31/21	12:12	27.32	48.63
DLG-MW09-10	7/31/21	12:08	6.08	70.25
DLG-MW10-55	7/31/21	17:11	32.39	42.48
DLG-MW10-40	7/31/21	17:05	32.09	42.85
DLG-MW11-35	7/31/21	10:51	23.92	46.88
DLG-MW11-80	7/31/21	10:30	23.98	46.63
DLG-MW12-80	7/30/21	23:01	29.63	46.71
DLG-MW12-40	7/30/21	23:03	29.51	46.75
DLG-MW14-80	7/30/21	22:39	38.76	32.09
DLG-MW14-50	7/30/21	22:43	38.62	32.00

Note: Depth two water measured below top of well casing.

The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.

```
PROGRAM = datasheet95, VERSION = 8.12.5.13
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER 27, 2021
 DN1952 ***********************************************************************
 DN1952  SACS        -  This is a Secondary Airport Control Station.
 DN1952  DESIGNATION -  DLG B
 DN1952  PID         -  DN1952
 DN1952  STATE/COUNTY-  AK/DILLINGHAM CENSUS
 DN1952  COUNTRY     -  US
 DN1952  USGS QUAD   -  DILLINGHAM A-7 SW (2019)
 DN1952
 DN1952                        *CURRENT SURVEY CONTROL
 DN1952  ______________________________________________________________________
 DN1952* NAD 83(2011) POSITION- 59 02 25.75945(N) 158 30 44.12023(W)   ADJUSTED
 DN1952* NAD 83(2011) ELLIP HT-    35.537 (meters)        (06/27/12)   ADJUSTED
 DN1952* NAD 83(2011) EPOCH   -  2010.00
 DN1952* NAVD 88 ORTHO HEIGHT -    22.22  (meters)       72.9   (feet) h-N COMP
 DN1952  ______________________________________________________________________
 DN1952  GEOID HEIGHT    -         13.286 (meters)                     GEOID12B
 DN1952  NAD 83(2011) X  - -3,060,627.727 (meters)                     COMP
 DN1952  NAD 83(2011) Y  - -1,204,857.134 (meters)                     COMP
 DN1952  NAD 83(2011) Z  -  5,446,288.269 (meters)                     COMP
 DN1952  LAPLACE CORR    -          2.18  (seconds)                    DEFLEC12B
 DN1952
 DN1952  Network accuracy estimates per FGDC Geospatial Positioning Accuracy
 DN1952  Standards:
 DN1952         FGDC (95% conf, cm)     Standard deviation (cm)     CorrNE
 DN1952            Horiz  Ellip          SD_N   SD_E   SD_h      (unitless)
 DN1952  ------------------------------------------------------------------
 DN1952  NETWORK    1.66   2.33          0.77   0.55   1.19      0.07954960
 DN1952  ------------------------------------------------------------------
 DN1952  Click here for local accuracies and other accuracy information.
 DN1952
 DN1952
 DN1952.This mark is at Dillingham Airport (DLG)
 DN1952
 DN1952.The horizontal coordinates were established by GPS observations
 DN1952.and adjusted by the National Geodetic Survey in June 2012.
 DN1952
 DN1952.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
 DN1952.been affixed to the stable North American tectonic plate. See
 DN1952.NA2011 for more information.
 DN1952
 DN1952.The horizontal coordinates are valid at the epoch date displayed above
 DN1952.which is a decimal equivalence of Year/Month/Day.
 DN1952
 DN1952.The orthometric height was established by subtracting the geoid height
 DN1952.from an ellipsoid height for the control used in the least squares
 DN1952.adjustment.
 DN1952
 DN1952.GPS derived orthometric heights for airport stations designated as
 DN1952.PACS or SACS are published to 2 decimal places.  This maintains
 DN1952.centimeter relative accuracy between the PACS and SACS.  It does
 DN1952.not indicate centimeter accuracy relative to other marks which are
 DN1952.part of the NAVD 88 network.
 DN1952
```

DN1952.Significant digits in the geoid height do not necessarily reflect accuracy.
DN1952.GEOID12B height accuracy estimate available here.
DN1952
DN1952.Click photographs - Photos may exist for this station.
DN1952
DN1952.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DN1952
DN1952.The Laplace correction was computed from DEFLEC12B derived deflections.
DN1952
DN1952.The ellipsoidal height was determined by GPS observations
DN1952.and is referenced to NAD 83.
DN1952
DN1952. The following values were computed from the NAD 83(2011) position.
DN1952
DN1952;   North   East   Units Scale Factor Converg.
DN1952;SPC AK 6   -   561,319.912   470,595.652   MT 0.99991059   -0 26 21.4
DN1952;UTM 04   - 6,544,662.635   527,988.978   MT 0.99960960   +0 25 05.7
DN1952
DN1952!   - Elev Factor x Scale Factor =   Combined Factor
DN1952!SPC AK 6   -   0.99999444 x   0.99991059 =   0.99990503
DN1952!UTM 04   -   0.99999444 x   0.99960960 =   0.99960404
DN1952
DN1952_U.S. NATIONAL GRID SPATIAL ADDRESS: 4VEL2798844662(NAD 83)
DN1952
DN1952   SUPERSEDED SURVEY CONTROL
DN1952
DN1952 NAD 83(2007)- 59 02 25.75920(N)   158 30 44.11869(W) AD(2007.00) 1
DN1952 ELLIP H (08/04/11)   35.503 (m)   GP(2007.00) 4 2
DN1952 NAVD 88 (08/04/11)   22.21   (m) GEOID09 model used   GPS OBS
DN1952
DN1952.Superseded values are not recommended for survey control.
DN1952
DN1952.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DN1952.See file dsdata.pdf to determine how the superseded data were derived.
DN1952
DN1952_MARKER: F = FLANGE-ENCASED ROD
DN1952_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
DN1952_STAMPING: DLG B 2010
DN1952_MARK LOGO: DOWHKM
DN1952_PROJECTION: RECESSED 18 CENTIMETERS
DN1952_MAGNETIC: I = MARKER IS A STEEL ROD
DN1952_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
DN1952_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DN1952+SATELLITE: SATELLITE OBSERVATIONS - October 26, 2010
DN1952_ROD/PIPE-DEPTH: 7.9 meters
DN1952_SLEEVE-DEPTH : 1.2 meters
DN1952
DN1952 HISTORY   - Date   Condition   Report By
DN1952 HISTORY   - 20101026 MONUMENTED   DOWHKM
DN1952
DN1952   STATION DESCRIPTION
DN1952
DN1952'DESCRIBED BY DOWL HKM 2010 (AWS)
DN1952'THE STATION IS LOCATED IN DILLINGHAM AK, 310 MI (498.8 KM) NORTHEAST
DN1952'OF COLD BAY AK, 167 MI (268.7 KM) SOUTHEAST OF BETHEL AK, AND 67 MI
DN1952'(107.8 KM) NORTHWEST OF KING SALMON, AK. OWNERSHIP--STATE OF AK
DN1952'DOTPF-CENTRAL RGN, PO BOX 196900, ANCHORAGE AK 99519-6900, PHONE
DN1952'907-269-0751. CONTACT AIRPORT MANAGER NORMAN HEYANO AT 907-842-5511
DN1952'FOR ACCESS.
DN1952'
DN1952'TO REACH THE STATION FROM THE INTERSECTION OF THE END OF AIRPORT SPUR
DN1952'ROAD AND GATE 17 OF THE DILLINGHAM AIRPORT, THENCE THROUGH GATE 17
DN1952'PROCEED 250 FT (76.2 M) NORTHEAST TO THE STATION ON THE RIGHT SIDE OF
DN1952'A SMALL GRAVEL ROAD AND PRIOR TO TAXIWAY A.
DN1952'

DN1952'THE STATION IS 26 FT (7.9 M) OF 9/16 INCH (14 MM) STAINLESS STEEL ROD
DN1952'WITH 4 FT (1.2 M) OF FINNED SLEEVE 0.4 FT (0.1 M) BELOW THE LIP OF AN
DN1952'ALUMINUM ACCESS COVER, SET 0.2 FT (0.1 M) BELOW GRADE ON A 36 INCH (91
DN1952'CM) BY 36 INCH (91 CM) SAND FILLED, CONCRETED IN PLACE PVC PIPE. THE
DN1952'ROD WAS DRIVEN TO REFUSAL. THE STATION IS 311 FT (94.8 M) NORTH FROM
DN1952'A WINDCONE, 136 FT (41.5 M) SOUTHWEST OF TAXIWAY A, 100 FT (30.5 M)
DN1952'EAST OF AN AWOS BUILDING AND 2.8 FT (0.9 M) NORTHEAST OF A CARSONITE
DN1952'WITNESS POST. THE HH1 GPS IS 590225.76N, 1583044.12W. THIS STATION
DN1952'IS DESIGNATED AS A SECONDARY AIRPORT CONTROL STATION.

*** retrieval complete.
Elapsed Time = 00:00:02

	Y_coord	X_coord	Elevation of TOC	Survey Name
1	1843262.55700	1544815.09020	77.3	
2	1841597.07880	1543945.90080	72.9	
3	1847293.42410	1547407.18080	72.0	
10	1843262.57412	1544815.09999	77.34	DLG A ROD
11	1843262.58552	1544815.10509	77.34	DLG A ROD
14	1841597.07830	1543945.89900	72.90	DLG B ROD
15	1841597.07880	1543945.90080	72.90	DLG B ROD
PFAS T1	1843148.27564	1543925.42132	72.7986	
32	1842679.52101	1546432.29012	71.45	MW1 A
33	1842679.85070	1546424.89243	71.26	MW1 B
28	1841650.14669	1542732.18853	69.97	MW2 A
29	1841648.75973	1542728.85582	69.90	MW2 B
16	1841695.48308	1543771.62747	72.03	MW3 A
17	1841687.01782	1543776.99687	72.16	MW3 B
18	1841702.75199	1543779.47866	71.84	MW3 C
21	1842132.12642	1545099.88979	66.98	MW4 A
22	1842127.87044	1545098.03704	66.78	MW4 B
30	1841637.74550	1542195.20999	70.77	MW5 A
31	1841641.67791	1542194.25843	71.00	MW5 B
26	1842169.79888	1543059.87864	75.64	MW9 A
27	1842172.36555	1543054.30927	75.95	MW9 B
36	1842177.38213	1543047.71956	76.33	MW9 C
34	1842683.01982	1547068.00537	74.87	MW10 A
35	1842682.24017	1547064.45866	74.94	MW10 B
23	1843676.55340	1543502.34563	70.80	MW11 A
25	1843677.89503	1543499.13984	70.61	MW11B
12	1842934.39499	1544658.93437	76.34	MW12 A
13	1842933.35835	1544661.80235	76.26	MW12B
19	1840444.64078	1543227.20604	70.85	MW14 A
20	1840447.45784	1543222.03927	70.62	MW14 B

NAD 83(2011) refers to NAD 83 coordinates where the reference frame has been affixed to the stable North American tectonic plate. See NA2011 for more information.

APPENDIX E: ANALYTICAL RESULTS

Appendix E

Analytical Results

and QA/QC Summary

CONTENTS

- Quality Assurance/Quality Control (QA/QC) Summary
- Eurofins Environment Testing and SGS North America, Inc. Laboratory Reports
- DEC Laboratory Data Review Checklists (LDRCs)

APPENDIX E: ANALYTICAL RESULTS

QUALITY ASSURANCE (QA) / QUALITY CONTROL (QC) SUMMARY

This appendix summarizes Shannon & Wilson's review of analytical sample results for initial PFAS site characterization at the DLG. QA/QC procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory quality control samples and conducted our own QA assessment for this project. We reviewed the chain-of-custody (COC) records and laboratory-receipt forms to check custody was not breached, sample holding-times were met, and the samples were properly handled from the point of collection through analysis by the laboratory. Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

We reviewed analytical sample results from Eurofins work orders (WOs) 320-75676 Rev1, 76026, 76143, 76144 Rev1, 76363, 76365, 76675, 76677, 76864, 76865, and 77044, and 79756 and SGS WOs 1214332, 1214339, 1214673, 1214677, and 1214737 for this project. The laboratory reports, including case narratives describing laboratory QA results, along with completed DEC data-review, are also included in this Appendix. An overview of our QA analysis is presented below; details are presented in the laboratory data review checklists (LDRC) for each WO.

SAMPLE HANDLING

Coolers containing water, soil, sediment samples were shipped to the analytical laboratories to perform analyses noted on the COC. PFAS analyses were submitted to Eurofins, the other analyses were submitted to SGS. The coolers contained a temperature blank to measure whether samples were kept appropriately cold. Lab personnel measured the temperature blanks at the time the samples arrived at each of their facilities. Temperature blanks for this project were within the proper range upon arrival.

Our review of COC records and laboratory sample-receipt documents did not reveal sample-handling anomalies that would affect the quality or usability of the data, and the samples were processed within the appropriate method holding times excluding one sample in Eurofins WO 76365.

ANALYTICAL SENSITIVITY

We compared the soil and groundwater-sample reporting limit (RL) or limit of quantitation (LOQ) to DEC regulatory levels for each analyte.

For reported data, the laboratory RLs and LOQs were less than DEC-established cleanup levels, where applicable, excluding:

- 1,2,3-trichloropropane in water,
- several VOC and SVOC analytes in soil, and
- one PFOS result and one naphthalene result in sediment.

The laboratory runs a method blank with each sample batch to detect analyte carryover during analysis. In SGS WOs 1214339, 1214673, 1214332, and 1214737 analytes were detected below the LOQ in a method blank. Data qualifying flags were applied as per the Data-Validation Program Plan included in Appendix C of the GWP. The following analytical results were flagged 'UB' at the detected concentration or LOQ, whichever is greater:

- some GRO and DRO results in WOs 1214339 and 1214673; and
- some phenanthrene and DRO results in WO 1214332.

Additional detail regarding the qualifying flags applied to samples in this project is included in the enclosed LDRCs.

ACCURACY

The laboratory assessed the accuracy of its analytical procedures by analyzing laboratory duplicate samples. They also analyzed laboratory control samples and LCS duplicates (LCS/LCSD), which allow the laboratory to evaluate their ability to recover analytes added to clean matrices. Matrix spike and MS duplicate (MS/MSD) samples were also analyzed allowing the laboratory to evaluate matrix interference in these analyses. LCS/LCSD and/or MS/MSD samples were reported for each sample batch and analyte. Laboratory accuracy was also measured for each sample by assessing the recovery of analyte surrogates added to the individual project samples. All work orders with LCS/LCSD pairs were within quality control limits. All work orders with MS/MSD sample pairs were within quality control limits with the exceptions of Eurofins WOs 76026 and 76864.

The laboratory can also assess accuracy for a given project sample by adding surrogates or isotope dilution analytes (IDAs) and assessing the recoveries relative to the known concentration. Recoveries for one or more standards in Eurofins WOs 76363, 76026, 76143, 76675, 77044, and 79756 were outside quality control limits. Some samples in WO 76143 were completely or nearly completely affected by IDA recovery failures. Surrogate recovery for several standards in SGS WO 1214737 was also outside quality control limits. The data affected by these MS/MSD and recovery failures are flagged in the data tables and documented in their respective LDRCs.

Transition mass ratios for one or more analytes were outside control limits for Eurofins WOs 76363, 76143, 76365, 76677, 76864, 76675, and 79756. The laboratory initially applied 'I' flags; however, we replaced them with 'J' or 'JH' flags to denote the questionability of the results.

DRO in SGS WO 1214737 was affected by an equipment blank failure.

Data affected by these quality control failures have been appropriately flagged in the data tables.

PRECISION

We submitted twenty field duplicate samples in these WOs. To evaluate data precision and reproducibility of our sampling techniques, we calculated the relative percent difference (RPD) between the primary sample and its field duplicate. We could only evaluate RPDs where the results of the analysis for both the sample and its duplicate were greater than the LOQ for a given analyte. The field-duplicate RPDs for detected analytes were within the project-specified data quality objective of 30 percent for groundwater and 50 percent for soil, where calculable, with the following exceptions. The RPDs for a sediment field-duplicate pair in SGS WO 1214339 and soil field-duplicate pair in Eurofins WO 76677 were outside the recommended range for one or more analytes. The corresponding primary and duplicate sample results are flagged in the analytical data tables.

We also evaluated laboratory analytical precision using RPD calculations in LCS/LCSD and MS/MSD sample pairs. The LCS/LCSDs provide information regarding the reproducibility of laboratory procedures and are therefore a measure of the laboratory's analytical precision. The RPD results for the LCS/LCSD and MS/MSD sample pairs were within acceptable laboratory control limits.

DATA QUALITY SUMMARY

By working in general accordance with our proposed scope of services, we consider the samples we collected for this project to be representative of site conditions at the locations and times they were obtained. Based on our QA review, no samples were rejected as unusable due to quality control failures. In general, the quality of the analytical data for this project does not appear to have been compromised by analytical irregularities and is adequate for the purposes of our assessment.

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707
(907)479-0600

Report Number: **1214332**

Client Project: **102581-009 DLGPFAS**

Dear Marcy Nadel,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede
2021.08.04
08:06:47 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1214332**
Project Name/Site: **102581-009 DLGPFAS**
Project Contact: **Marcy Nadel**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 05/27/2021 for Mercury by EPA200.8, Nitrate as N by SM 4500NO3-F and VOCs by EPA 524.2) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SW-02	1214332001	07/13/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-03	1214332002	07/13/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-04	1214332003	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-104	1214332004	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-05	1214332005	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-06	1214332006	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-07	1214332007	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-08	1214332008	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-09	1214332009	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
SW-102	1214332010	07/14/2021	07/16/2021	Water (Surface, Eff., Ground)
Trip Blank	1214332011	07/13/2021	07/16/2021	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS LV
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **SW-02**
Lab Sample ID: 1214332001
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.455J	mg/L
Residual Range Organics	0.717	mg/L

Client Sample ID: **SW-03**
Lab Sample ID: 1214332002
Polynuclear Aromatics GC/MS
Semivolatile Organic Fuels

Parameter	Result	Units
Phenanthrene	0.0193J	ug/L
Diesel Range Organics	0.371J	mg/L
Residual Range Organics	0.342J	mg/L

Client Sample ID: **SW-04**
Lab Sample ID: 1214332003
Polynuclear Aromatics GC/MS
Semivolatile Organic Fuels

Parameter	Result	Units
Phenanthrene	0.0173J	ug/L
Diesel Range Organics	0.652	mg/L
Residual Range Organics	0.722	mg/L

Client Sample ID: **SW-104**
Lab Sample ID: 1214332004
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.830	mg/L
Residual Range Organics	0.862	mg/L

Client Sample ID: **SW-05**
Lab Sample ID: 1214332005
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.180J	mg/L

Client Sample ID: **SW-06**
Lab Sample ID: 1214332006
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.341J	mg/L
Residual Range Organics	0.165J	mg/L

Client Sample ID: **SW-07**
Lab Sample ID: 1214332007
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.335J	mg/L
Residual Range Organics	0.251J	mg/L

Client Sample ID: **SW-08**
Lab Sample ID: 1214332008
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.382J	mg/L
Residual Range Organics	0.324J	mg/L

Client Sample ID: **SW-09**
Lab Sample ID: 1214332009
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.275J	mg/L

Client Sample ID: **SW-102**
Lab Sample ID: 1214332010
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.595	mg/L
Residual Range Organics	0.943	mg/L

Volatile GC/MS

Parameter	Result	Units
Benzene	0.121J	ug/L

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Results of **SW-02**

Client Sample ID: **SW-02**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332001
Lab Project ID: 1214332

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
2-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		07/26/21 09:48
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		07/26/21 09:48
Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Naphthalene	0.0500	U	0.100	0.0310	ug/L	1		07/26/21 09:48
Phenanthrene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 09:48
Surrogates								
2-Methylnaphthalene-d10 (surr)	62.9		42-86		%	1		07/26/21 09:48
Fluoranthene-d10 (surr)	90		50-97		%	1		07/26/21 09:48

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 09:48
Container ID: 1214332001-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-02**

Client Sample ID: **SW-02**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332001
Lab Project ID: 1214332

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.455	J	0.577	0.173	mg/L	1		07/27/21 17:48
Surrogates								
5a Androstane (surr)	79.8		50-150		%	1		07/27/21 17:48

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 17:48
Container ID: 1214332001-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.717		0.481	0.144	mg/L	1		07/27/21 17:48
Surrogates								
n-Triacontane-d62 (surr)	82.4		50-150		%	1		07/27/21 17:48

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 17:48
Container ID: 1214332001-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-02**

Client Sample ID: **SW-02**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332001
Lab Project ID: 1214332

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 01:56
Surrogates								
4-Bromofluorobenzene (surr)	65		50-150		%	1		07/21/21 01:56

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 01:56
Container ID: 1214332001-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **SW-02**

Client Sample ID: **SW-02**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332001
Lab Project ID: 1214332

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 19:33
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 19:33
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 19:33
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 19:33
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33

Print Date: 08/03/2021 5:00:14PM

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Results of **SW-02**

Client Sample ID: **SW-02**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332001
Lab Project ID: 1214332

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:33
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/22/21 19:33
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Styrene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Toluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:33
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:33
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/22/21 19:33
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/22/21 19:33
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		07/22/21 19:33
4-Bromofluorobenzene (surr)	103		85-114		%	1		07/22/21 19:33
Toluene-d8 (surr)	100		89-112		%	1		07/22/21 19:33

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-02**

Client Sample ID: **SW-02**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332001
Lab Project ID: 1214332

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 19:33
Container ID: 1214332001-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **SW-03**

Client Sample ID: **SW-03**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332002
Lab Project ID: 1214332

Collection Date: 07/13/21 18:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
2-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		07/26/21 10:09
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		07/26/21 10:09
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		07/26/21 10:09
Phenanthrene	0.0193	J	0.0490	0.0147	ug/L	1		07/26/21 10:09
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:09
Surrogates								
2-Methylnaphthalene-d10 (surr)	67.4		42-86		%	1		07/26/21 10:09
Fluoranthene-d10 (surr)	87.3		50-97		%	1		07/26/21 10:09

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 10:09
Container ID: 1214332002-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **SW-03**

Client Sample ID: **SW-03**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332002
Lab Project ID: 1214332

Collection Date: 07/13/21 18:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.371	J	0.577	0.173	mg/L	1		07/27/21 17:58
Surrogates								
5a Androstane (surr)	93.2		50-150		%	1		07/27/21 17:58

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 17:58
Container ID: 1214332002-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.342	J	0.481	0.144	mg/L	1		07/27/21 17:58
Surrogates								
n-Triacontane-d62 (surr)	93.6		50-150		%	1		07/27/21 17:58

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 17:58
Container ID: 1214332002-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **SW-03**

Client Sample ID: **SW-03**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332002
Lab Project ID: 1214332

Collection Date: 07/13/21 18:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 02:32
Surrogates								
4-Bromofluorobenzene (surr)	67.4		50-150		%	1		07/21/21 02:32

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 02:32
Container ID: 1214332002-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-03**

Client Sample ID: **SW-03**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332002
Lab Project ID: 1214332

Collection Date: 07/13/21 18:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 19:48
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:48
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 19:48
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:48
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:48
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:48
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 19:48
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 19:48
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 19:48
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 19:48
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 19:48

Results of **SW-03**

Client Sample ID: **SW-03**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332002
Lab Project ID: 1214332

Collection Date: 07/13/21 18:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 19:48
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 19:48
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 19:48
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 19:48
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 19:48
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 19:48
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 19:48
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 19:48
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 19:48
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 19:48
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/22/21 19:48
4-Bromofluorobenzene (surr)	102		85-114		%	1		07/22/21 19:48
Toluene-d8 (surr)	99.9		89-112		%	1		07/22/21 19:48

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-03**

Client Sample ID: **SW-03**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332002
Lab Project ID: 1214332

Collection Date: 07/13/21 18:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 19:48
Container ID: 1214332002-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **SW-04**

Client Sample ID: **SW-04**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332003
Lab Project ID: 1214332

Collection Date: 07/14/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 10:29
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 10:29
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		07/26/21 10:29
Phenanthrene	0.0173	J	0.0481	0.0144	ug/L	1		07/26/21 10:29
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 10:29
Surrogates								
2-Methylnaphthalene-d10 (surr)	58.5		42-86		%	1		07/26/21 10:29
Fluoranthene-d10 (surr)	55.5		50-97		%	1		07/26/21 10:29

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 10:29
Container ID: 1214332003-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-04**

Client Sample ID: **SW-04**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332003
Lab Project ID: 1214332

Collection Date: 07/14/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.652		0.577	0.173	mg/L	1		07/27/21 18:08
Surrogates								
5a Androstane (surr)	89.8		50-150		%	1		07/27/21 18:08

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:08
Container ID: 1214332003-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.722		0.481	0.144	mg/L	1		07/27/21 18:08
Surrogates								
n-Triacontane-d62 (surr)	98.9		50-150		%	1		07/27/21 18:08

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:08
Container ID: 1214332003-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **SW-04**

Client Sample ID: **SW-04**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332003
Lab Project ID: 1214332

Collection Date: 07/14/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 02:51
Surrogates								
4-Bromofluorobenzene (surr)	68.3		50-150		%	1		07/21/21 02:51

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 02:51
Container ID: 1214332003-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-04**

Client Sample ID: **SW-04**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332003
Lab Project ID: 1214332

Collection Date: 07/14/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:03
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:03
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 20:03
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:03
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:03
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:03
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:03
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 20:03
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:03
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:03
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:03

Results of **SW-04**

Client Sample ID: **SW-04**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332003
Lab Project ID: 1214332

Collection Date: 07/14/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 20:03
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 20:03
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:03
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:03
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:03
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 20:03
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:03
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:03
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 20:03
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 20:03
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		07/22/21 20:03
4-Bromofluorobenzene (surr)	102		85-114		%	1		07/22/21 20:03
Toluene-d8 (surr)	99.7		89-112		%	1		07/22/21 20:03

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-04**

Client Sample ID: **SW-04**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332003
Lab Project ID: 1214332

Collection Date: 07/14/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 20:03
Container ID: 1214332003-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **SW-104**

Client Sample ID: **SW-104**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332004
Lab Project ID: 1214332

Collection Date: 07/14/21 09:10
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
2-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		07/26/21 10:50
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		07/26/21 10:50
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		07/26/21 10:50
Phenanthrene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		07/26/21 10:50
Surrogates								
2-Methylnaphthalene-d10 (surr)	65.9		42-86		%	1		07/26/21 10:50
Fluoranthene-d10 (surr)	62.8		50-97		%	1		07/26/21 10:50

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 10:50
Container ID: 1214332004-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-104**

Client Sample ID: **SW-104**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332004
Lab Project ID: 1214332

Collection Date: 07/14/21 09:10
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.830		0.588	0.176	mg/L	1		07/27/21 18:18
Surrogates								
5a Androstane (surr)	86.6		50-150		%	1		07/27/21 18:18

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:18
Container ID: 1214332004-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.862		0.490	0.147	mg/L	1		07/27/21 18:18
Surrogates								
n-Triacontane-d62 (surr)	107		50-150		%	1		07/27/21 18:18

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:18
Container ID: 1214332004-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **SW-104**

Client Sample ID: **SW-104**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332004
Lab Project ID: 1214332

Collection Date: 07/14/21 09:10
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 03:09
Surrogates								
4-Bromofluorobenzene (surr)	65.7		50-150		%	1		07/21/21 03:09

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 03:09
Container ID: 1214332004-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-104**

Client Sample ID: **SW-104**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332004
Lab Project ID: 1214332

Collection Date: 07/14/21 09:10
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:18
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:18
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 20:18
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:18
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:18
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:18
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:18
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 20:18
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:18
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:18
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:18

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-104**

Client Sample ID: **SW-104**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332004
Lab Project ID: 1214332

Collection Date: 07/14/21 09:10
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 20:18
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 20:18
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:18
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:18
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:18
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 20:18
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:18
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:18
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 20:18
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 20:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/22/21 20:18
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/22/21 20:18
Toluene-d8 (surr)	99.5		89-112		%	1		07/22/21 20:18

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-104**

Client Sample ID: **SW-104**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332004
Lab Project ID: 1214332

Collection Date: 07/14/21 09:10
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 20:18
Container ID: 1214332004-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **SW-05**

Client Sample ID: **SW-05**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332005
Lab Project ID: 1214332

Collection Date: 07/14/21 10:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 11:10
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 11:10
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		07/26/21 11:10
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:10
Surrogates								
2-Methylnaphthalene-d10 (surr)	64.6		42-86		%	1		07/26/21 11:10
Fluoranthene-d10 (surr)	84.1		50-97		%	1		07/26/21 11:10

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 11:10
Container ID: 1214332005-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-05**

Client Sample ID: **SW-05**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332005
Lab Project ID: 1214332

Collection Date: 07/14/21 10:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.180	J	0.577	0.173	mg/L	1		07/27/21 18:28
Surrogates								
5a Androstane (surr)	90.1		50-150		%	1		07/27/21 18:28

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:28
Container ID: 1214332005-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.240	U	0.481	0.144	mg/L	1		07/27/21 18:28
Surrogates								
n-Triacontane-d62 (surr)	92.4		50-150		%	1		07/27/21 18:28

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:28
Container ID: 1214332005-D

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 07/25/21 15:31
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **SW-05**

Client Sample ID: **SW-05**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332005
Lab Project ID: 1214332

Collection Date: 07/14/21 10:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 03:27
Surrogates								
4-Bromofluorobenzene (surr)	66.6		50-150		%	1		07/21/21 03:27

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 03:27
Container ID: 1214332005-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-05**

Client Sample ID: **SW-05**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332005
Lab Project ID: 1214332

Collection Date: 07/14/21 10:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:33
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 20:33
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:33
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 20:33
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33

Results of **SW-05**

Client Sample ID: **SW-05**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332005
Lab Project ID: 1214332

Collection Date: 07/14/21 10:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:33
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/22/21 20:33
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Styrene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Toluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:33
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:33
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/22/21 20:33
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/22/21 20:33
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/22/21 20:33
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/22/21 20:33
Toluene-d8 (surr)	99.8		89-112		%	1		07/22/21 20:33

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-05**

Client Sample ID: **SW-05**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332005
Lab Project ID: 1214332

Collection Date: 07/14/21 10:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 20:33
Container ID: 1214332005-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **SW-06**

Client Sample ID: **SW-06**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332006
Lab Project ID: 1214332

Collection Date: 07/14/21 11:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 11:31
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 11:31
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		07/26/21 11:31
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 11:31
Surrogates								
2-Methylnaphthalene-d10 (surr)	58.7		42-86		%	1		07/26/21 11:31
Fluoranthene-d10 (surr)	77.3		50-97		%	1		07/26/21 11:31

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 11:31
Container ID: 1214332006-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-06**

Client Sample ID: **SW-06**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332006
Lab Project ID: 1214332

Collection Date: 07/14/21 11:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.341	J	0.588	0.176	mg/L	1		07/27/21 17:58
Surrogates								
5a Androstane (surr)	100		50-150		%	1		07/27/21 17:58

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 17:58
Container ID: 1214332006-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.165	J	0.490	0.147	mg/L	1		07/27/21 17:58
Surrogates								
n-Triacontane-d62 (surr)	105		50-150		%	1		07/27/21 17:58

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 17:58
Container ID: 1214332006-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **SW-06**

Client Sample ID: **SW-06**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332006
Lab Project ID: 1214332

Collection Date: 07/14/21 11:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 03:45
Surrogates								
4-Bromofluorobenzene (surr)	67.2		50-150		%	1		07/21/21 03:45

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 03:45
Container ID: 1214332006-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-06**

Client Sample ID: **SW-06**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332006
Lab Project ID: 1214332

Collection Date: 07/14/21 11:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:48
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:48
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 20:48
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:48
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:48
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:48
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 20:48
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 20:48
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 20:48
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 20:48
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 20:48

Results of **SW-06**

Client Sample ID: **SW-06**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332006
Lab Project ID: 1214332

Collection Date: 07/14/21 11:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 20:48
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 20:48
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:48
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:48
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:48
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 20:48
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 20:48
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 20:48
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 20:48
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 20:48
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/22/21 20:48
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/22/21 20:48
Toluene-d8 (surr)	98.8		89-112		%	1		07/22/21 20:48

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-06**

Client Sample ID: **SW-06**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332006
Lab Project ID: 1214332

Collection Date: 07/14/21 11:50
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 20:48
Container ID: 1214332006-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **SW-07**

Client Sample ID: **SW-07**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332007
Lab Project ID: 1214332

Collection Date: 07/14/21 13:45
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
2-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		07/26/21 11:51
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		07/26/21 11:51
Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Naphthalene	0.0500	U	0.100	0.0310	ug/L	1		07/26/21 11:51
Phenanthrene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		07/26/21 11:51
Surrogates								
2-Methylnaphthalene-d10 (surr)	55.3		42-86		%	1		07/26/21 11:51
Fluoranthene-d10 (surr)	77.9		50-97		%	1		07/26/21 11:51

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 11:51
Container ID: 1214332007-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-07**

Client Sample ID: **SW-07**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332007
Lab Project ID: 1214332

Collection Date: 07/14/21 13:45
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.335	J	0.588	0.176	mg/L	1		07/27/21 18:28
Surrogates								
5a Androstane (surr)	87.5		50-150		%	1		07/27/21 18:28

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:28
Container ID: 1214332007-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.251	J	0.490	0.147	mg/L	1		07/27/21 18:28
Surrogates								
n-Triacontane-d62 (surr)	101		50-150		%	1		07/27/21 18:28

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:28
Container ID: 1214332007-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **SW-07**

Client Sample ID: **SW-07**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332007
Lab Project ID: 1214332

Collection Date: 07/14/21 13:45
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 05:16
Surrogates								
4-Bromofluorobenzene (surr)	68.4		50-150		%	1		07/21/21 05:16

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 05:16
Container ID: 1214332007-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **SW-07**

Client Sample ID: **SW-07**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332007
Lab Project ID: 1214332

Collection Date: 07/14/21 13:45
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:02
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 21:02
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:02
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 21:02
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02

Results of **SW-07**

Client Sample ID: **SW-07**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332007
Lab Project ID: 1214332

Collection Date: 07/14/21 13:45
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:02
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/22/21 21:02
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Styrene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Toluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:02
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:02
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/22/21 21:02
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/22/21 21:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/22/21 21:02
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/22/21 21:02
Toluene-d8 (surr)	99.8		89-112		%	1		07/22/21 21:02

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-07**

Client Sample ID: **SW-07**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332007
Lab Project ID: 1214332

Collection Date: 07/14/21 13:45
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 21:02
Container ID: 1214332007-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-08**

Client Sample ID: **SW-08**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332008
Lab Project ID: 1214332

Collection Date: 07/14/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 12:12
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 12:12
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		07/26/21 12:12
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:12
Surrogates								
2-Methylnaphthalene-d10 (surr)	63.5		42-86		%	1		07/26/21 12:12
Fluoranthene-d10 (surr)	78.7		50-97		%	1		07/26/21 12:12

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 12:12
Container ID: 1214332008-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-08**

Client Sample ID: **SW-08**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332008
Lab Project ID: 1214332

Collection Date: 07/14/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.382	J	0.588	0.176	mg/L	1		07/27/21 18:38
Surrogates								
5a Androstane (surr)	89.5		50-150		%	1		07/27/21 18:38

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:38
Container ID: 1214332008-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.324	J	0.490	0.147	mg/L	1		07/27/21 18:38
Surrogates								
n-Triacontane-d62 (surr)	99.3		50-150		%	1		07/27/21 18:38

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:38
Container ID: 1214332008-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **SW-08**

Client Sample ID: **SW-08**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332008
Lab Project ID: 1214332

Collection Date: 07/14/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 05:34
Surrogates								
4-Bromofluorobenzene (surr)	70		50-150		%	1		07/21/21 05:34

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 05:34
Container ID: 1214332008-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-08**

Client Sample ID: **SW-08**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332008
Lab Project ID: 1214332

Collection Date: 07/14/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:17
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:17
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 21:17
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:17
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:17
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:17
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:17
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 21:17
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:17
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:17
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:17

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-08**

Client Sample ID: **SW-08**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332008
Lab Project ID: 1214332

Collection Date: 07/14/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 21:17
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 21:17
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:17
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:17
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:17
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 21:17
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:17
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:17
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 21:17
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 21:17
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		07/22/21 21:17
4-Bromofluorobenzene (surr)	102		85-114		%	1		07/22/21 21:17
Toluene-d8 (surr)	99.2		89-112		%	1		07/22/21 21:17

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-08**

Client Sample ID: **SW-08**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332008
Lab Project ID: 1214332

Collection Date: 07/14/21 16:30
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 21:17
Container ID: 1214332008-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **SW-09**

Client Sample ID: **SW-09**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332009
Lab Project ID: 1214332

Collection Date: 07/14/21 18:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
2-Methylnaphthalene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Acenaphthene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Acenaphthylene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Benzo(a)Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Benzo[a]pyrene	0.00945	U	0.0189	0.00585	ug/L	1		07/26/21 12:32
Benzo[b]Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Benzo[g,h,i]perylene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Benzo[k]fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Chrysene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Dibenzo[a,h]anthracene	0.00945	U	0.0189	0.00585	ug/L	1		07/26/21 12:32
Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Fluorene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Indeno[1,2,3-c,d] pyrene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Naphthalene	0.0471	U	0.0943	0.0292	ug/L	1		07/26/21 12:32
Phenanthrene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Pyrene	0.0236	U	0.0472	0.0142	ug/L	1		07/26/21 12:32
Surrogates								
2-Methylnaphthalene-d10 (surr)	62.5		42-86		%	1		07/26/21 12:32
Fluoranthene-d10 (surr)	85.1		50-97		%	1		07/26/21 12:32

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 12:32
Container ID: 1214332009-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-09**

Client Sample ID: **SW-09**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332009
Lab Project ID: 1214332

Collection Date: 07/14/21 18:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.275	J	0.600	0.180	mg/L	1		07/27/21 18:48
Surrogates								
5a Androstane (surr)	88.3		50-150		%	1		07/27/21 18:48

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:48
Container ID: 1214332009-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.250	U	0.500	0.150	mg/L	1		07/27/21 18:48
Surrogates								
n-Triacontane-d62 (surr)	99.7		50-150		%	1		07/27/21 18:48

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:48
Container ID: 1214332009-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Results of **SW-09**

Client Sample ID: **SW-09**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332009
Lab Project ID: 1214332

Collection Date: 07/14/21 18:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 05:52
Surrogates								
4-Bromofluorobenzene (surr)	67.3		50-150		%	1		07/21/21 05:52

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 05:52
Container ID: 1214332009-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-09**

Client Sample ID: **SW-09**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332009
Lab Project ID: 1214332

Collection Date: 07/14/21 18:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:32
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 21:32
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:32
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 21:32
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32

Results of **SW-09**

Client Sample ID: **SW-09**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332009
Lab Project ID: 1214332

Collection Date: 07/14/21 18:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Chloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:32
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Freon-113	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
Naphthalene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
o-Xylene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		07/22/21 21:32
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Styrene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Toluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:32
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:32
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		07/22/21 21:32
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		07/22/21 21:32
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/22/21 21:32
4-Bromofluorobenzene (surr)	101		85-114		%	1		07/22/21 21:32
Toluene-d8 (surr)	99		89-112		%	1		07/22/21 21:32

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-09**

Client Sample ID: **SW-09**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332009
Lab Project ID: 1214332

Collection Date: 07/14/21 18:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 21:32
Container ID: 1214332009-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-102**

Client Sample ID: **SW-102**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332010
Lab Project ID: 1214332

Collection Date: 07/14/21 16:40
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 12:53
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		07/26/21 12:53
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		07/26/21 12:53
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		07/26/21 12:53
Surrogates								
2-Methylnaphthalene-d10 (surr)	62.9		42-86		%	1		07/26/21 12:53
Fluoranthene-d10 (surr)	83		50-97		%	1		07/26/21 12:53

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 07/26/21 12:53
Container ID: 1214332010-I

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 07/20/21 12:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-102**

Client Sample ID: **SW-102**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332010
Lab Project ID: 1214332

Collection Date: 07/14/21 16:40
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.595		0.588	0.176	mg/L	1		07/27/21 18:58
Surrogates								
5a Androstane (surr)	96.5		50-150		%	1		07/27/21 18:58

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 07/27/21 18:58
Container ID: 1214332010-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.943		0.490	0.147	mg/L	1		07/27/21 18:58
Surrogates								
n-Triacontane-d62 (surr)	104		50-150		%	1		07/27/21 18:58

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 07/27/21 18:58
Container ID: 1214332010-D

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 07/26/21 18:30
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **SW-102**

Client Sample ID: **SW-102**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332010
Lab Project ID: 1214332

Collection Date: 07/14/21 16:40
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 06:10
Surrogates								
4-Bromofluorobenzene (surr)	63		50-150		%	1		07/21/21 06:10

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 06:10
Container ID: 1214332010-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SW-102**

Client Sample ID: **SW-102**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332010
Lab Project ID: 1214332

Collection Date: 07/14/21 16:40
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 21:47
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:47
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 21:47
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:47
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:47
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:47
Benzene	0.121	J	0.400	0.120	ug/L	1		07/22/21 21:47
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 21:47
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 21:47
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 21:47
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 21:47

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Results of **SW-102**

Client Sample ID: **SW-102**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332010
Lab Project ID: 1214332

Collection Date: 07/14/21 16:40
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 21:47
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 21:47
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:47
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:47
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:47
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 21:47
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 21:47
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 21:47
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 21:47
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 21:47
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/22/21 21:47
4-Bromofluorobenzene (surr)	102		85-114		%	1		07/22/21 21:47
Toluene-d8 (surr)	100		89-112		%	1		07/22/21 21:47

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **SW-102**

Client Sample ID: **SW-102**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332010
Lab Project ID: 1214332

Collection Date: 07/14/21 16:40
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 21:47
Container ID: 1214332010-F

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332011
Lab Project ID: 1214332

Collection Date: 07/13/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		07/21/21 04:58
Surrogates								
4-Bromofluorobenzene (surr)	62.5		50-150		%	1		07/21/21 04:58

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/21/21 04:58
Container ID: 1214332011-A

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 07/20/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332011
Lab Project ID: 1214332

Collection Date: 07/13/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		07/22/21 17:34
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		07/22/21 17:34
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		07/22/21 17:34
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 17:34
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		07/22/21 17:34
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		07/22/21 17:34
Benzene	0.200	U	0.400	0.120	ug/L	1		07/22/21 17:34
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
Bromoform	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
Bromomethane	2.50	U	5.00	2.00	ug/L	1		07/22/21 17:34
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		07/22/21 17:34
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		07/22/21 17:34
Chloroethane	0.500	U	1.00	0.310	ug/L	1		07/22/21 17:34

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332011
Lab Project ID: 1214332

Collection Date: 07/13/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Chloromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		07/22/21 17:34
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		07/22/21 17:34
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Freon-113	5.00 U		10.0	3.10	ug/L	1		07/22/21 17:34
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		07/22/21 17:34
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		07/22/21 17:34
Naphthalene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
o-Xylene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		07/22/21 17:34
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Styrene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Toluene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		07/22/21 17:34
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		07/22/21 17:34
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		07/22/21 17:34
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		07/22/21 17:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		07/22/21 17:34
4-Bromofluorobenzene (surr)	103		85-114		%	1		07/22/21 17:34
Toluene-d8 (surr)	100		89-112		%	1		07/22/21 17:34

Print Date: 08/03/2021 5:00:14PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLGPFAS**
Lab Sample ID: 1214332011
Lab Project ID: 1214332

Collection Date: 07/13/21 09:00
Received Date: 07/16/21 16:24
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 07/22/21 17:34
Container ID: 1214332011-B

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 07/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1822670 [VXX/37460]
Blank Lab ID: 1624539

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	64.3	50-150		%

Batch Information

Analytical Batch: VFC15722
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: MDT
Analytical Date/Time: 7/21/2021 12:44:00AM

Prep Batch: VXX37460
Prep Method: SW5030B
Prep Date/Time: 7/20/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [VXX37460]
Blank Spike Lab ID: 1624540
Date Analyzed: 07/21/2021 04:21

Spike Duplicate ID: LCSD for HBN 1214332 [VXX37460]
Spike Duplicate Lab ID: 1624541
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.907	91	1.00	0.900	90	(60-120)	0.75	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		84	0.0500		87	(50-150)	3.80	

Batch Information

Analytical Batch: **VFC15722**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37460**
Prep Method: **SW5030B**
Prep Date/Time: **07/20/2021 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1822880 [VXX/37480]
Blank Lab ID: 1625250

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	2.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1822880 [VXX/37480]
Blank Lab ID: 1625250

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	101	89-112		%

Method Blank

Blank ID: MB for HBN 1822880 [VXX/37480]
Blank Lab ID: 1625250

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20957
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JMG
Analytical Date/Time: 7/22/2021 2:09:00PM

Prep Batch: VXX37480
Prep Method: SW5030B
Prep Date/Time: 7/22/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [VXX37480]
Blank Spike Lab ID: 1625251
Date Analyzed: 07/22/2021 14:23

Spike Duplicate ID: LCSD for HBN 1214332 [VXX37480]
Spike Duplicate Lab ID: 1625252
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	29.4	98	30	29.7	99	(78-124)	0.94	(< 20)
1,1,1-Trichloroethane	30	29.5	98	30	29.4	98	(74-131)	0.20	(< 20)
1,1,2,2-Tetrachloroethane	30	30.4	101	30	30.6	102	(71-121)	0.63	(< 20)
1,1,2-Trichloroethane	30	30.2	101	30	30.1	100	(80-119)	0.23	(< 20)
1,1-Dichloroethane	30	28.9	96	30	28.9	96	(77-125)	0.08	(< 20)
1,1-Dichloroethene	30	30.1	100	30	29.9	100	(71-131)	0.80	(< 20)
1,1-Dichloropropene	30	30.1	100	30	30.2	101	(79-125)	0.12	(< 20)
1,2,3-Trichlorobenzene	30	27.7	92	30	29.3	98	(69-129)	5.40	(< 20)
1,2,3-Trichloropropane	30	30.4	101	30	30.3	101	(73-122)	0.40	(< 20)
1,2,4-Trichlorobenzene	30	28.7	96	30	29.7	99	(69-130)	3.40	(< 20)
1,2,4-Trimethylbenzene	30	27.8	93	30	28.7	96	(79-124)	3.20	(< 20)
1,2-Dibromo-3-chloropropane	30	29.6	99	30	29.8	99	(62-128)	0.65	(< 20)
1,2-Dibromoethane	30	29.3	98	30	29.6	99	(77-121)	1.10	(< 20)
1,2-Dichlorobenzene	30	29.3	98	30	30.0	100	(80-119)	2.20	(< 20)
1,2-Dichloroethane	30	27.7	92	30	27.9	93	(73-128)	0.73	(< 20)
1,2-Dichloropropane	30	29.1	97	30	29.3	98	(78-122)	0.89	(< 20)
1,3,5-Trimethylbenzene	30	29.6	99	30	30.2	101	(75-124)	1.70	(< 20)
1,3-Dichlorobenzene	30	29.8	99	30	30.1	100	(80-119)	1.30	(< 20)
1,3-Dichloropropane	30	29.7	99	30	29.9	100	(80-119)	0.80	(< 20)
1,4-Dichlorobenzene	30	29.7	99	30	30.0	100	(79-118)	1.20	(< 20)
2,2-Dichloropropane	30	28.6	95	30	28.5	95	(60-139)	0.23	(< 20)
2-Butanone (MEK)	90	88.0	98	90	89.0	99	(56-143)	1.10	(< 20)
2-Chlorotoluene	30	30.4	101	30	30.4	101	(79-122)	0.18	(< 20)
2-Hexanone	90	85.6	95	90	86.4	96	(57-139)	0.91	(< 20)
4-Chlorotoluene	30	30.0	100	30	30.4	101	(78-122)	1.30	(< 20)
4-Isopropyltoluene	30	30.1	100	30	30.8	103	(77-127)	2.40	(< 20)
4-Methyl-2-pentanone (MIBK)	90	83.4	93	90	84.7	94	(67-130)	1.60	(< 20)
Benzene	30	29.4	98	30	29.0	97	(79-120)	1.30	(< 20)
Bromobenzene	30	29.9	100	30	30.3	101	(80-120)	1.20	(< 20)
Bromochloromethane	30	28.5	95	30	28.5	95	(78-123)	0.02	(< 20)
Bromodichloromethane	30	29.0	97	30	29.1	97	(79-125)	0.20	(< 20)
Bromoform	30	30.0	100	30	29.6	99	(66-130)	1.20	(< 20)
Bromomethane	30	28.9	96	30	30.8	103	(53-141)	6.50	(< 20)
Carbon disulfide	45	45.0	100	45	44.5	99	(64-133)	1.10	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [VXX37480]
Blank Spike Lab ID: 1625251
Date Analyzed: 07/22/2021 14:23

Spike Duplicate ID: LCSD for HBN 1214332 [VXX37480]
Spike Duplicate Lab ID: 1625252
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	29.9	100	30	30.0	100	(72-136)	0.35	(< 20)
Chlorobenzene	30	29.0	97	30	29.2	97	(82-118)	0.67	(< 20)
Chloroethane	30	36.0	120	30	31.9	106	(60-138)	12.10	(< 20)
Chloroform	30	28.3	94	30	28.4	95	(79-124)	0.28	(< 20)
Chloromethane	30	28.2	94	30	27.9	93	(50-139)	0.77	(< 20)
cis-1,2-Dichloroethene	30	28.6	95	30	28.7	96	(78-123)	0.38	(< 20)
cis-1,3-Dichloropropene	30	28.8	96	30	28.9	96	(75-124)	0.43	(< 20)
Dibromochloromethane	30	29.5	98	30	29.7	99	(74-126)	0.57	(< 20)
Dibromomethane	30	28.8	96	30	28.7	96	(79-123)	0.16	(< 20)
Dichlorodifluoromethane	30	31.0	103	30	30.3	101	(32-152)	2.00	(< 20)
Ethylbenzene	30	29.2	97	30	29.4	98	(79-121)	0.91	(< 20)
Freon-113	45	46.4	103	45	45.9	102	(70-136)	1.10	(< 20)
Hexachlorobutadiene	30	30.2	101	30	30.8	103	(66-134)	2.00	(< 20)
Isopropylbenzene (Cumene)	30	29.6	99	30	30.4	101	(72-131)	2.70	(< 20)
Methylene chloride	30	29.0	97	30	29.1	97	(74-124)	0.44	(< 20)
Methyl-t-butyl ether	45	43.1	96	45	43.3	96	(71-124)	0.35	(< 20)
Naphthalene	30	26.0	87	30	27.6	92	(61-128)	6.00	(< 20)
n-Butylbenzene	30	31.0	103	30	31.6	105	(75-128)	2.00	(< 20)
n-Propylbenzene	30	31.0	103	30	31.3	104	(76-126)	1.10	(< 20)
o-Xylene	30	28.8	96	30	29.3	98	(78-122)	1.50	(< 20)
P & M -Xylene	60	57.3	96	60	58.4	97	(80-121)	1.90	(< 20)
sec-Butylbenzene	30	31.2	104	30	31.8	106	(77-126)	2.00	(< 20)
Styrene	30	27.9	93	30	28.6	95	(78-123)	2.40	(< 20)
tert-Butylbenzene	30	30.4	101	30	31.0	103	(78-124)	1.70	(< 20)
Tetrachloroethene	30	29.9	100	30	30.2	101	(74-129)	0.98	(< 20)
Toluene	30	28.6	95	30	28.9	96	(80-121)	1.10	(< 20)
trans-1,2-Dichloroethene	30	29.1	97	30	29.2	97	(75-124)	0.33	(< 20)
trans-1,3-Dichloropropene	30	29.7	99	30	30.1	100	(73-127)	1.40	(< 20)
Trichloroethene	30	29.5	98	30	29.5	98	(79-123)	0.09	(< 20)
Trichlorofluoromethane	30	31.1	104	30	30.2	101	(65-141)	3.20	(< 20)
Vinyl acetate	30	29.0	97	30	29.2	97	(54-146)	0.64	(< 20)
Vinyl chloride	30	29.5	98	30	29.0	97	(58-137)	1.60	(< 20)
Xylenes (total)	90	86.1	96	90	87.7	97	(79-121)	1.80	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [VXX37480]
Blank Spike Lab ID: 1625251
Date Analyzed: 07/22/2021 14:23

Spike Duplicate ID: LCSD for HBN 1214332 [VXX37480]
Spike Duplicate Lab ID: 1625252
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010, 1214332011

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		101	30		100	(81-118)	0.81	
4-Bromofluorobenzene (surr)	30		101	30		101	(85-114)	0.08	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.32	

Batch Information

Analytical Batch: **VMS20957**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JMG**

Prep Batch: **VXX37480**
Prep Method: **SW5030B**
Prep Date/Time: **07/22/2021 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1822543 [XXX/45184]
Blank Lab ID: 1623952

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0321J	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	73.5	42-86		%
Fluoranthene-d10 (surr)	89.4	50-97		%

Batch Information

Analytical Batch: XMS12776
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: LAW
Analytical Date/Time: 7/26/2021 7:25:00AM

Prep Batch: XXX45184
Prep Method: SW3535A
Prep Date/Time: 7/20/2021 12:00:06PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [XXX45184]
Blank Spike Lab ID: 1623953
Date Analyzed: 07/26/2021 07:46

Spike Duplicate ID: LCSD for HBN 1214332 [XXX45184]
Spike Duplicate Lab ID: 1623954
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.28	64	2	1.34	67	(41-115)	4.30	(< 20)
2-Methylnaphthalene	2	1.27	64	2	1.33	67	(39-114)	4.60	(< 20)
Acenaphthene	2	1.41	71	2	1.46	73	(48-114)	3.50	(< 20)
Acenaphthylene	2	1.46	73	2	1.47	73	(35-121)	0.47	(< 20)
Anthracene	2	1.43	72	2	1.47	74	(53-119)	2.70	(< 20)
Benzo(a)Anthracene	2	1.49	75	2	1.49	75	(59-120)	0.08	(< 20)
Benzo[a]pyrene	2	1.60	80	2	1.58	79	(53-120)	0.76	(< 20)
Benzo[b]Fluoranthene	2	1.60	80	2	1.50	75	(53-126)	6.50	(< 20)
Benzo[g,h,i]perylene	2	1.62	81	2	1.59	80	(44-128)	1.50	(< 20)
Benzo[k]fluoranthene	2	1.56	78	2	1.65	82	(54-125)	5.10	(< 20)
Chrysene	2	1.54	77	2	1.54	77	(57-120)	0.17	(< 20)
Dibenzo[a,h]anthracene	2	1.61	80	2	1.57	79	(44-131)	2.10	(< 20)
Fluoranthene	2	1.48	74	2	1.49	75	(58-120)	0.95	(< 20)
Fluorene	2	1.46	73	2	1.49	74	(50-118)	1.70	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.62	81	2	1.58	79	(48-130)	2.00	(< 20)
Naphthalene	2	1.31	65	2	1.37	68	(43-114)	4.70	(< 20)
Phenanthrene	2	1.46	73	2	1.48	74	(53-115)	1.30	(< 20)
Pyrene	2	1.52	76	2	1.50	75	(53-121)	0.92	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2		67	2		73	(42-86)	7.90	
Fluoranthene-d10 (surr)	2		79	2		84	(50-97)	5.50	

Batch Information

Analytical Batch: **XMS12776**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **LAW**

Prep Batch: **XXX45184**
Prep Method: **SW3535A**
Prep Date/Time: **07/20/2021 12:00**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1822946 [XXX/45233]
Blank Lab ID: 1625512

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	73.8	60-120		%

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: A.A
Analytical Date/Time: 7/27/2021 2:09:00PM

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 7/25/2021 3:31:41PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:33PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [XXX45233]
Blank Spike Lab ID: 1625513
Date Analyzed: 07/27/2021 14:19

Spike Duplicate ID: LCSD for HBN 1214332 [XXX45233]
Spike Duplicate Lab ID: 1625514
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.2	91	20	18.4	92	(75-125)	0.98	(< 20)
Surrogates									
5a Androstane (surr)	0.4		97	0.4		100	(60-120)	3.00	

Batch Information

Analytical Batch: **XFC16019**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **A.A**

Prep Batch: **XXX45233**
Prep Method: **SW3520C**
Prep Date/Time: **07/25/2021 15:31**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:35PM

Method Blank

Blank ID: MB for HBN 1822946 [XXX/45233]
Blank Lab ID: 1625512

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332001, 1214332002, 1214332003, 1214332004, 1214332005

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	92.9	60-120		%

Batch Information

Analytical Batch: XFC16019
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: A.A
Analytical Date/Time: 7/27/2021 2:09:00PM

Prep Batch: XXX45233
Prep Method: SW3520C
Prep Date/Time: 7/25/2021 3:31:41PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [XXX45233]
Blank Spike Lab ID: 1625513
Date Analyzed: 07/27/2021 14:19

Spike Duplicate ID: LCSD for HBN 1214332 [XXX45233]
Spike Duplicate Lab ID: 1625514
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332001, 1214332002, 1214332003, 1214332004, 1214332005

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	19.1	96	20	19.5	98	(60-120)	2.00	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4		90	0.4		94	(60-120)	4.50	

Batch Information

Analytical Batch: **XFC16019**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **A.A**

Prep Batch: **XXX45233**
Prep Method: **SW3520C**
Prep Date/Time: **07/25/2021 15:31**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:40PM

Method Blank

Blank ID: MB for HBN 1823014 [XXX/45241]
Blank Lab ID: 1625777

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.214J	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	108	60-120		%

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: A.A
Analytical Date/Time: 7/27/2021 2:00:00PM

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 7/26/2021 6:30:50PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [XXX45241]
Blank Spike Lab ID: 1625778
Date Analyzed: 07/27/2021 15:59

Spike Duplicate ID: LCSD for HBN 1214332 [XXX45241]
Spike Duplicate Lab ID: 1625779
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	21.5	108	20	21.6	108	(75-125)	0.18	(< 20)
Surrogates									
5a Androstane (surr)	0.4		116	0.4		115	(60-120)	0.10	

Batch Information

Analytical Batch: **XFC16021**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **A.A**

Prep Batch: **XXX45241**
Prep Method: **SW3520C**
Prep Date/Time: **07/26/2021 18:30**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1823014 [XXX/45241]
Blank Lab ID: 1625777

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	110	60-120		%

Batch Information

Analytical Batch: XFC16021
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: A.A
Analytical Date/Time: 7/27/2021 2:00:00PM

Prep Batch: XXX45241
Prep Method: SW3520C
Prep Date/Time: 7/26/2021 6:30:50PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214332 [XXX45241]
Blank Spike Lab ID: 1625778
Date Analyzed: 07/27/2021 15:59

Spike Duplicate ID: LCSD for HBN 1214332 [XXX45241]
Spike Duplicate Lab ID: 1625779
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	21.1	106	20	21.0	105	(60-120)	0.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4		107	0.4		109	(60-120)	1.80	

Batch Information

Analytical Batch: **XFC16021**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **A.A**

Prep Batch: **XXX45241**
Prep Method: **SW3520C**
Prep Date/Time: **07/26/2021 18:30**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:49PM

1214332

CHAIN-OF-CUSTODY RECORD

Page 1 of 2

SHANNON GEOTECHNICAL AND

2355
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Laboratory SGS
Attn: Jen Hawkins

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: MSA-SGS-2016

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	GRO (AK101)	DRO/RRO (AK102/103)	VOC (8260D)	PAH (TAH+TAqH)				Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SW-02		1630	7/13/21	X	X	X	X				10	surface water
SW-03		1830	7/13/21	X	X	X	X					
SW-04		0900	7/14/21	X	X	X	X					
SW-104		0910		X	X	X	X					
SW-05		1050		X	X	X	X					
SW-06		1150		X	X	X	X					
SW-07		1345		X	X	X	X					
SW-08		1630		X	X	X	X					
SW-09		1800		X	X	X	X					
SW-102		1640	7/13/21	X	X	X	X					

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	100
Name:	DLGPFAS	COC Seals/Intact? Y/N/NA	
Contact:	Marcy Nadeau	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	VTY	Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1800	Signature: Time:	Signature: Time:
Printed Name: Date: 7/15/21 Veselina Jakimova	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 16:24
Printed Name: Date:	Printed Name: Date:	Printed Name: VH Date: 7/16/21
Company:	Company:	Company: 2.7 DSS

Notes:

samples contain plant and organic matter.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

IF

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Jen Dawkins

Turn Around Time:	Quote No:	MSA Number: MSA-SGS-2016	J-Flags: ☒ Yes ☐ No
☒ Normal ☐ Rush			
Please Specify			

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	VOC (8260D)	GRO (AK 101)						Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
11-C Trip blank				X	X							water

Project Information	
Number:	102581-009
Name:	DLG PFAS
Contact:	Mary Nadeau
Ongoing Project?	Yes ☒ No ☐
Sampler:	VTY, DHF

Sample Receipt	
Total No. of Containers:	100
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: Time: 1800	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/15/24	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Notes:

Trip blank was present in cooler with samples at all times.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No.

2114
2104PM

027 DLG 7664 8246 027-7664 8246

Shipper's Name and Address	Shipper's Account Number	Not Negotiable
Shannon and Wilson Inc 2355 Hill Rd Fairbanks, AK 99712 USA Tel: 907-479-0600	27400200733 Customer's ID Number 10926	**Air Waybill** Issued By Alaska AIR CARGO P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM
Consignee's Name and Address	**Consignee's Account Number**	**Also notify**
SGS North America 200 W Potter Drive Anchorage, AK 99518 USA Tel: 907-562-2343	27400215947	Tel:
Issuing Carrier's Agent and City		**Accounting Information** 10926
		Shannon and Wilson Inc 2355 Hill Rd Fairbanks, AK 99712 USA SRN/102581 GoldStreak
Agent's IATA Code	**Account No.**	
Airport of Departure (Addr. of First Carrier) and Requested Routing		
Dillingham		

To	By First Carrier	To / By	To / By	Currency		WT/VAL		Other		Declared Value For Carriage	Declared Value For Customs
ANC	Alaska Airlines			USD	PX	X		X		NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Anchorage	AS 2114/16		XXX

Handling Information

BIOLOGICAL SUBSTANCE, CAT B (UN3373) - DGD AND NOTOC NOT REQUIRED
BIOLOGICAL SUBSTANCE, CAT B (UN3373) - DGD AND NOTOC NOT REQUIRED

SCI

No of Pieces	Gross Weight	kg lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
2	102.0	L Q		102.0		AS AGREED	SAMPLES Dims: 24 x 13 x14 x 2 GSX RDS COL
2	102.0					AS AGREED	Volume: 5.056

Prepaid	Weight Charge	Collect	Other Charges
AS AGREED			XBC 10.00
Valuation Charge			
Tax			
Total Other Charges Due Agent			
Total Other Charges Due Carrier			
Total Prepaid	Total Collect		
AS AGREED			

Shipper certifies that the particulars on the face hereof are correct and that **insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.**

For: Shannon and Wilson Inc

Signature of Shipper or his Agent

☐ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

☑ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

16 Jul 2021 09:15 Dillingham Alaska Airlines

Executed On (Date) at (Place) Signature of Issuing Carrier or its Agent

027-7664 8246

Alert Expeditors Inc. **#413277**

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 7/16/21

From S-W

To SCS

Collect ☐	Prepay ☐	Advance Charges ☐
Job # DLG	PO# AS	7645246

#3507350

2 pc

Shipped Signature

Total Charge

e-Sample Receipt Form

SGS Workorder #: **1214332**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 2.7 °C Therm. ID: D55
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		N/A ***Exemption permitted for metals (e.g,200.8/6020B).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214332001-A	HCL to pH < 2	OK	1214332005-J	No Preservative Required	OK
1214332001-B	HCL to pH < 2	OK	1214332006-A	HCL to pH < 2	OK
1214332001-C	HCL to pH < 2	OK	1214332006-B	HCL to pH < 2	OK
1214332001-D	HCL to pH < 2	OK	1214332006-C	HCL to pH < 2	OK
1214332001-E	HCL to pH < 2	OK	1214332006-D	No Preservative Required	OK
1214332001-F	HCL to pH < 2	OK	1214332006-E	No Preservative Required	OK
1214332001-G	HCL to pH < 2	OK	1214332006-F	HCL to pH < 2	OK
1214332001-H	HCL to pH < 2	OK	1214332006-G	HCL to pH < 2	OK
1214332001-I	No Preservative Required	OK	1214332006-H	HCL to pH < 2	OK
1214332001-J	No Preservative Required	OK	1214332006-I	No Preservative Required	OK
1214332002-A	HCL to pH < 2	OK	1214332006-J	No Preservative Required	OK
1214332002-B	HCL to pH < 2	OK	1214332007-A	HCL to pH < 2	OK
1214332002-C	HCL to pH < 2	OK	1214332007-B	HCL to pH < 2	OK
1214332002-D	HCL to pH < 2	OK	1214332007-C	HCL to pH < 2	OK
1214332002-E	HCL to pH < 2	OK	1214332007-D	HCL to pH < 2	OK
1214332002-F	HCL to pH < 2	OK	1214332007-E	HCL to pH < 2	OK
1214332002-G	HCL to pH < 2	OK	1214332007-F	HCL to pH < 2	OK
1214332002-H	HCL to pH < 2	OK	1214332007-G	HCL to pH < 2	OK
1214332002-I	No Preservative Required	OK	1214332007-H	HCL to pH < 2	OK
1214332002-J	No Preservative Required	OK	1214332007-I	No Preservative Required	OK
1214332003-A	HCL to pH < 2	OK	1214332007-J	No Preservative Required	OK
1214332003-B	HCL to pH < 2	OK	1214332008-A	HCL to pH < 2	OK
1214332003-C	HCL to pH < 2	OK	1214332008-B	HCL to pH < 2	OK
1214332003-D	HCL to pH < 2	OK	1214332008-C	HCL to pH < 2	OK
1214332003-E	HCL to pH < 2	OK	1214332008-D	HCL to pH < 2	OK
1214332003-F	HCL to pH < 2	OK	1214332008-E	HCL to pH < 2	OK
1214332003-G	HCL to pH < 2	OK	1214332008-F	HCL to pH < 2	OK
1214332003-H	HCL to pH < 2	OK	1214332008-G	HCL to pH < 2	OK
1214332003-I	No Preservative Required	OK	1214332008-H	HCL to pH < 2	OK
1214332003-J	No Preservative Required	OK	1214332008-I	No Preservative Required	OK
1214332004-A	HCL to pH < 2	OK	1214332008-J	No Preservative Required	OK
1214332004-B	HCL to pH < 2	OK	1214332009-A	HCL to pH < 2	OK
1214332004-C	HCL to pH < 2	OK	1214332009-B	HCL to pH < 2	OK
1214332004-D	HCL to pH < 2	OK	1214332009-C	HCL to pH < 2	OK
1214332004-E	HCL to pH < 2	OK	1214332009-D	HCL to pH < 2	OK
1214332004-F	HCL to pH < 2	OK	1214332009-E	HCL to pH < 2	OK
1214332004-G	HCL to pH < 2	OK	1214332009-F	HCL to pH < 2	OK
1214332004-H	HCL to pH < 2	OK	1214332009-G	HCL to pH < 2	OK
1214332004-I	No Preservative Required	OK	1214332009-H	HCL to pH < 2	OK
1214332004-J	No Preservative Required	OK	1214332009-I	No Preservative Required	OK
1214332005-A	HCL to pH < 2	OK	1214332009-J	No Preservative Required	OK
1214332005-B	HCL to pH < 2	OK	1214332010-A	HCL to pH < 2	OK
1214332005-C	HCL to pH < 2	OK	1214332010-B	HCL to pH < 2	OK
1214332005-D	HCL to pH < 2	OK	1214332010-C	HCL to pH < 2	OK
1214332005-E	HCL to pH < 2	OK	1214332010-D	HCL to pH < 2	OK
1214332005-F	HCL to pH < 2	OK	1214332010-E	HCL to pH < 2	OK
1214332005-G	HCL to pH < 2	OK	1214332010-F	HCL to pH < 2	OK
1214332005-H	HCL to pH < 2	OK	1214332010-G	HCL to pH < 2	OK
1214332005-I	No Preservative Required	OK	1214332010-H	HCL to pH < 2	OK

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214332010-I	No Preservative Required	OK			
1214332010-J	No Preservative Required	OK			
1214332011-A	HCL to pH < 2	OK			
1214332011-B	HCL to pH < 2	OK			
1214332011-C	HCL to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 31, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1214332

Laboratory Report Date:

August 4, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

1214332

Laboratory Report Date:

August 4, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the SGS North America, Inc. (SGS) laboratory in Anchorage, AK. SGS has been approved by the DEC CS program and certified by the DoD National Environmental Laboratory Accreditation Program (NELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   The samples were not transferred to a network laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt forms note that the samples arrived in good condition and properly preserved.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

No discrepancies were identified by the laboratory.

e. Data quality or usability affected?

Comments:

Data quality/usability is not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☐ No☐ N/A☒ Comments:

No discrepancies, errors, or QC failures were identified by the laboratory.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not necessary based upon the documentation in the Case Narrative.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative does not specify an effect on data quality/usability. See sections 5 and 6 for further assessment.

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5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not submitted with this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

The LOD for 1,2,3-Trichloropropane is above the DEC Groundwater cleanup level.

e. Data quality or usability affected?

We cannot determine if 1,2,3-trichloropropane is present at concentrations above the DEC regulatory limit but below the limit of detection (LOD).

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

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ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☐ No☒ N/A☐ Comments:

The method blank associated with preparatory batch XXX45184 detected a concentration of phenanthrene below the LOQ. Due to this method blank detection the project samples except *Trip Blank* are associated. Phenanthrene was reported above the DL and less than the LOQ in samples *SW-03* and *SW-04*; therefore, these results are considered estimated with no direction of bias and have been flagged 'UB' at their respective LOQs. Phenanthrene was not detected in the other project samples; therefore, no data qualifications are required, and the data validity is unaffected.

The method blank associated with preparatory batch XXX45241 detected concentrations of DRO below the LOQ. Due to this method blank detection project samples *SW-06, SW-07, SW-08, SW-09,* and *SW-102* DRO are affected. The detected DRO results for the affected sample were reported above the DL and less than the LOQ except for project sample *SW-102*. The results for the samples are considered estimated with no direction of bias and have been flagged 'UB' at their respective LOQs. The DRO concentration in sample *SW-102* was above the LOQ and less than five-times the method blank concentration; therefore, this result is considered estimate with no direction of bias and has been flagged 'UB' at the detected concentration in the analytical database.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Multiple samples were affected; see 6.ii.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See 6.ii.

v. Data quality or usability affected?

Comments:

The data usability is not affected. See the applied qualifiers above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

LCS/LCSD pairs were reported for methods AK101, AK102, AK103, SW8260D, and 8270D SIM (PAH).

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ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptable limits; see 6.b.iii.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification of the results was not required; see section 6.b.v above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

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c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

MS/MSD samples were not reported in this work order.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

MS/MSD samples were not reported in this work order.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

MS/MSD samples were not reported in this work order.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Samples are unaffected; see 6.c.iii and 6.c.iv.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

N/A; see above.

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vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected. Precision and accuracy are determined using LCS/LCSD pairs.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No qualifications were required; see 6.e.ii.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

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ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Analytes were not detected in the trip blank

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

Samples are unaffected; see above.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate samples *SW-02/SW-102* and *SW-04/SW-104* were submitted.

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iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

RPDs were within DQO, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality/usability is not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☒ N/A☐ Comments:

Reusable equipment was not used in this sampling event; therefore, an equipment blank was not necessary.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank was not submitted with this work order.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment blank was not submitted with this work order.

iii. Data quality or usability affected?

Comments:

Data quality or usability is not affected.

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

   a. Defined and appropriate?

      Yes☐ No☐ N/A☒ Comments:

No additional data flags/qualifiers are required.

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707
(907)479-0600

Report Number: **1214339**

Client Project: **102581-009 DLG PFAS**

Dear Marcy Nadel,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede 2021.08.09 08:16:59 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1214339**
Project Name/Site: **102581-009 DLG PFAS**
Project Contact: **Marcy Nadel**

Refer to sample receipt form for information on sample condition.

SS-Grid-A3 (1214339001) PS

8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to the dark color of the extract.

SS-Grid-A4 (1214339002) PS

8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to the dark color of the extract.

SED-02 (1214339004) PS

8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to the dark color of the extract.

SED-102 (1214339005) PS

8270D SIM - PAH surrogate recoveries for 2-methylnaphthalene-d10 and fluoranthene-d10 do not meet QC criteria. All associated analytes are not detect above the LOQ.

SED-06 (1214339010) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria, sample analyzed twice and results confirm.

LCS for HBN 1822609 [XXX/45196 (1624227) LCS

8270D SIM - PAH LCS surrogate recoveries for 2-methylnaphthalene-d10 and fluoranthene-d10 do not meet QC criteria. Associated method blank and samples meet surrogate criteria.
8270D SIM - PAH LCS recovery for acenaphthene does not meet QC criteria. Associated samples are reporting this analyte at less than the LOQ.

MB for HBN 1822606 [XXX/45195] (1624211) MB

AK102 - DRO is detected in the MB over 1/2 LOQ, but less than LOQ.

MB for HBN 1823173 [VXX/37520] (1626444) MB

AK101 - MB GRO recovery does not meet QC criteria, however it is below the LOQ.

1214339005(1625399MS) (1625400) MS

8260D - MS recovery for Trichlorofluoromethane does not meet QC criteria. See LCS for accuracy requirements.

1214339007(1625656MS) (1625657) MS

8260D - MS recovery for Trichlorofluoromethane does not meet QC criteria. See LCS for accuracy requirements.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1214339**
Project Name/Site: **102581-009 DLG PFAS**
Project Contact: **Marcy Nadel**

1214339007(1625656MSD) (1625658) MSD

8260D - MS//MSD RPD for Trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the PS.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 05/27/2021 for Nitrate as N by SM 4500NO3-F) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SS-Grid-A3	1214339001	07/08/2021	07/16/2021	Soil/Solid (dry weight)
SS-Grid-A4	1214339002	07/08/2021	07/16/2021	Soil/Solid (dry weight)
SB7-29.8-30.3	1214339003	07/12/2021	07/16/2021	Soil/Solid (dry weight)
SED-02	1214339004	07/13/2021	07/16/2021	Soil/Solid (dry weight)
SED-102	1214339005	07/13/2021	07/16/2021	Soil/Solid (dry weight)
SED-03	1214339006	07/13/2021	07/16/2021	Soil/Solid (dry weight)
SED-04	1214339007	07/14/2021	07/16/2021	Soil/Solid (dry weight)
SED-05	1214339008	07/14/2021	07/16/2021	Soil/Solid (dry weight)
SED-104	1214339009	07/14/2021	07/16/2021	Soil/Solid (dry weight)
SED-06	1214339010	07/14/2021	07/16/2021	Soil/Solid (dry weight)
SED-07	1214339011	07/14/2021	07/16/2021	Soil/Solid (dry weight)
SED-08	1214339012	07/14/2021	07/16/2021	Soil/Solid (dry weight)
SED-09	1214339013	07/14/2021	07/16/2021	Soil/Solid (dry weight)
Trip Blank	1214339014	07/08/2021	07/16/2021	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK103	Diesel/Residual Range Organics
AK102	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260D	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **SS-Grid-A3**
Lab Sample ID: 1214339001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	35.2	mg/kg
	Residual Range Organics	363	mg/kg
Volatile Fuels	Gasoline Range Organics	0.856J	mg/kg
Volatile GC/MS	Chloroform	0.000798J	mg/kg

Client Sample ID: **SS-Grid-A4**
Lab Sample ID: 1214339002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	62.0	mg/kg
	Residual Range Organics	617	mg/kg
Volatile Fuels	Gasoline Range Organics	0.891J	mg/kg

Client Sample ID: **SB7-29.8-30.3**
Lab Sample ID: 1214339003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	9.32J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.77J	mg/kg

Client Sample ID: **SED-02**
Lab Sample ID: 1214339004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	79.3	mg/kg
	Residual Range Organics	367	mg/kg
Volatile Fuels	Gasoline Range Organics	1.88J	mg/kg

Client Sample ID: **SED-102**
Lab Sample ID: 1214339005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	74.4	mg/kg
	Residual Range Organics	333	mg/kg
Volatile Fuels	Gasoline Range Organics	1.57J	mg/kg

Client Sample ID: **SED-03**
Lab Sample ID: 1214339006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	71.9	mg/kg
	Residual Range Organics	712	mg/kg
Volatile Fuels	Gasoline Range Organics	1.55J	mg/kg
Volatile GC/MS	Toluene	0.0470	mg/kg

Client Sample ID: **SED-04**
Lab Sample ID: 1214339007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	35.0	mg/kg
	Residual Range Organics	150	mg/kg
Volatile Fuels	Gasoline Range Organics	1.35J	mg/kg

Client Sample ID: **SED-05**
Lab Sample ID: 1214339008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	22.2J	mg/kg
	Residual Range Organics	60.3J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.62J	mg/kg

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Detectable Results Summary

Client Sample ID: **SED-104**
Lab Sample ID: 1214339009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	30.3	mg/kg
	Residual Range Organics	66.8J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.58J	mg/kg

Client Sample ID: **SED-06**
Lab Sample ID: 1214339010

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	299	mg/kg
	Residual Range Organics	925	mg/kg
Volatile Fuels	Gasoline Range Organics	4.67J	mg/kg
Volatile GC/MS	Acetone	0.456J	mg/kg

Client Sample ID: **SED-07**
Lab Sample ID: 1214339011

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	509	mg/kg
	Residual Range Organics	2520	mg/kg
Volatile Fuels	Gasoline Range Organics	3.87J	mg/kg

Client Sample ID: **SED-08**
Lab Sample ID: 1214339012

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	307	mg/kg
	Residual Range Organics	1760	mg/kg
Volatile Fuels	Gasoline Range Organics	20.4J	mg/kg
Volatile GC/MS	Toluene	0.197J	mg/kg

Client Sample ID: **SED-09**
Lab Sample ID: 1214339013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	22.9J	mg/kg
	Residual Range Organics	87.4J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.63J	mg/kg

Client Sample ID: **Trip Blank**
Lab Sample ID: 1214339014

	Parameter	Result	Units
Volatile Fuels	Gasoline Range Organics	1.09J	mg/kg

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Results of **SS-Grid-A3**

Client Sample ID: **SS-Grid-A3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339001
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):94.9
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
2-Methylnaphthalene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Acenaphthene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Acenaphthylene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Anthracene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Benzo(a)Anthracene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Benzo[a]pyrene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Benzo[b]Fluoranthene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Benzo[g,h,i]perylene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Benzo[k]fluoranthene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Chrysene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Dibenzo[a,h]anthracene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Fluoranthene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Fluorene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Indeno[1,2,3-c,d] pyrene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Naphthalene	0.0420	U	0.0840	0.0210	mg/kg	4		07/25/21 01:03
Phenanthrene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Pyrene	0.0525	U	0.105	0.0263	mg/kg	4		07/25/21 01:03
Surrogates								
2-Methylnaphthalene-d10 (surr)	89.8		58-103		%	4		07/25/21 01:03
Fluoranthene-d10 (surr)	92.9		54-113		%	4		07/25/21 01:03

Batch Information

Analytical Batch: XMS12775
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 07/25/21 01:03
Container ID: 1214339001-B

Prep Batch: XXX45180
Prep Method: SW3550C
Prep Date/Time: 07/19/21 06:40
Prep Initial Wt./Vol.: 22.568 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SS-Grid-A3**

Client Sample ID: **SS-Grid-A3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339001
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):94.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	35.2		21.1	6.53	mg/kg	1		07/19/21 20:32
Surrogates								
5a Androstane (surr)	95		50-150		%	1		07/19/21 20:32

Batch Information

Analytical Batch: XFC16004
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/19/21 20:32
Container ID: 1214339001-B

Prep Batch: XXX45183
Prep Method: SW3550C
Prep Date/Time: 07/19/21 08:51
Prep Initial Wt./Vol.: 30.009 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	363		105	45.3	mg/kg	1		07/19/21 20:32
Surrogates								
n-Triacontane-d62 (surr)	88.3		50-150		%	1		07/19/21 20:32

Batch Information

Analytical Batch: XFC16004
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/19/21 20:32
Container ID: 1214339001-B

Prep Batch: XXX45183
Prep Method: SW3550C
Prep Date/Time: 07/19/21 08:51
Prep Initial Wt./Vol.: 30.009 g
Prep Extract Vol: 5 mL

Results of **SS-Grid-A3**

Client Sample ID: **SS-Grid-A3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339001
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):94.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.856	J	2.00	0.599	mg/kg	1		07/24/21 04:40
Surrogates								
4-Bromofluorobenzene (surr)	88.7		50-150		%	1		07/24/21 04:40

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 04:40
Container ID: 1214339001-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/08/21 19:05
Prep Initial Wt./Vol.: 76.169 g
Prep Extract Vol: 28.8603 mL

Results of **SS-Grid-A3**

Client Sample ID: **SS-Grid-A3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339001
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):94.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.00800	U	0.0160	0.00495	mg/kg	1		07/19/21 19:12
1,1,1-Trichloroethane	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,1,2,2-Tetrachloroethane	0.000800	U	0.00160	0.000495	mg/kg	1		07/19/21 19:12
1,1,2-Trichloroethane	0.000320	U	0.000639	0.000200	mg/kg	1		07/19/21 19:12
1,1-Dichloroethane	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,1-Dichloroethene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,1-Dichloropropene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,2,3-Trichlorobenzene	0.0199	U	0.0399	0.0120	mg/kg	1		07/19/21 19:12
1,2,3-Trichloropropane	0.000800	U	0.00160	0.000495	mg/kg	1		07/19/21 19:12
1,2,4-Trichlorobenzene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,2,4-Trimethylbenzene	0.0199	U	0.0399	0.0120	mg/kg	1		07/19/21 19:12
1,2-Dibromo-3-chloropropane	0.0399	U	0.0798	0.0247	mg/kg	1		07/19/21 19:12
1,2-Dibromoethane	0.000399	U	0.000798	0.000319	mg/kg	1		07/19/21 19:12
1,2-Dichlorobenzene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,2-Dichloroethane	0.000800	U	0.00160	0.000559	mg/kg	1		07/19/21 19:12
1,2-Dichloropropane	0.00399	U	0.00798	0.00247	mg/kg	1		07/19/21 19:12
1,3,5-Trimethylbenzene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,3-Dichlorobenzene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
1,3-Dichloropropane	0.00399	U	0.00798	0.00247	mg/kg	1		07/19/21 19:12
1,4-Dichlorobenzene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
2,2-Dichloropropane	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
2-Butanone (MEK)	0.100	U	0.200	0.0623	mg/kg	1		07/19/21 19:12
2-Chlorotoluene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
2-Hexanone	0.0399	U	0.0798	0.0247	mg/kg	1		07/19/21 19:12
4-Chlorotoluene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
4-Isopropyltoluene	0.0399	U	0.0798	0.0200	mg/kg	1		07/19/21 19:12
4-Methyl-2-pentanone (MIBK)	0.100	U	0.200	0.0623	mg/kg	1		07/19/21 19:12
Acetone	0.100	U	0.200	0.0623	mg/kg	1		07/19/21 19:12
Benzene	0.00499	U	0.00998	0.00311	mg/kg	1		07/19/21 19:12
Bromobenzene	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
Bromochloromethane	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
Bromodichloromethane	0.000800	U	0.00160	0.000495	mg/kg	1		07/19/21 19:12
Bromoform	0.0100	U	0.0200	0.00623	mg/kg	1		07/19/21 19:12
Bromomethane	0.00800	U	0.0160	0.00495	mg/kg	1		07/19/21 19:12
Carbon disulfide	0.0399	U	0.0798	0.0247	mg/kg	1		07/19/21 19:12
Carbon tetrachloride	0.00499	U	0.00998	0.00311	mg/kg	1		07/19/21 19:12

Results of **SS-Grid-A3**

Client Sample ID: **SS-Grid-A3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339001
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):94.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
Chloroethane	0.0800 U		0.160	0.0495	mg/kg	1		07/19/21 19:12
Chloroform	0.000798 J		0.00319	0.000798	mg/kg	1		07/19/21 19:12
Chloromethane	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
cis-1,2-Dichloroethene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
cis-1,3-Dichloropropene	0.00499 U		0.00998	0.00311	mg/kg	1		07/19/21 19:12
Dibromochloromethane	0.00200 U		0.00399	0.00120	mg/kg	1		07/19/21 19:12
Dibromomethane	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
Dichlorodifluoromethane	0.0199 U		0.0399	0.0120	mg/kg	1		07/19/21 19:12
Ethylbenzene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
Freon-113	0.0399 U		0.0798	0.0247	mg/kg	1		07/19/21 19:12
Hexachlorobutadiene	0.00800 U		0.0160	0.00495	mg/kg	1		07/19/21 19:12
Isopropylbenzene (Cumene)	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
Methylene chloride	0.0399 U		0.0798	0.0247	mg/kg	1		07/19/21 19:12
Methyl-t-butyl ether	0.0399 U		0.0798	0.0247	mg/kg	1		07/19/21 19:12
Naphthalene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
n-Butylbenzene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
n-Propylbenzene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
o-Xylene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
P & M -Xylene	0.0199 U		0.0399	0.0120	mg/kg	1		07/19/21 19:12
sec-Butylbenzene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
Styrene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
tert-Butylbenzene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
Tetrachloroethene	0.00499 U		0.00998	0.00311	mg/kg	1		07/19/21 19:12
Toluene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
trans-1,2-Dichloroethene	0.0100 U		0.0200	0.00623	mg/kg	1		07/19/21 19:12
trans-1,3-Dichloropropene	0.00499 U		0.00998	0.00311	mg/kg	1		07/19/21 19:12
Trichloroethene	0.00200 U		0.00399	0.00120	mg/kg	1		07/19/21 19:12
Trichlorofluoromethane	0.0199 U		0.0399	0.0120	mg/kg	1		07/19/21 19:12
Vinyl acetate	0.0399 U		0.0798	0.0247	mg/kg	1		07/19/21 19:12
Vinyl chloride	0.000320 U		0.000639	0.000200	mg/kg	1		07/19/21 19:12
Xylenes (total)	0.0300 U		0.0599	0.0182	mg/kg	1		07/19/21 19:12
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		71-136		%	1		07/19/21 19:12
4-Bromofluorobenzene (surr)	104		55-151		%	1		07/19/21 19:12
Toluene-d8 (surr)	94.9		85-116		%	1		07/19/21 19:12

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SS-Grid-A3**

Client Sample ID: **SS-Grid-A3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339001
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):94.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20941
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/19/21 19:12
Container ID: 1214339001-A

Prep Batch: VXX37454
Prep Method: SW5035A
Prep Date/Time: 07/08/21 19:05
Prep Initial Wt./Vol.: 76.169 g
Prep Extract Vol: 28.8603 mL

Results of **SS-Grid-A4**

Client Sample ID: **SS-Grid-A4**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339002
Lab Project ID: 1214339

Collection Date: 07/08/21 19:10
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):95.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
2-Methylnaphthalene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Acenaphthene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Acenaphthylene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Anthracene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Benzo(a)Anthracene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Benzo[a]pyrene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Benzo[b]Fluoranthene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Benzo[g,h,i]perylene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Benzo[k]fluoranthene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Chrysene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Dibenzo[a,h]anthracene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Fluoranthene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Fluorene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Indeno[1,2,3-c,d] pyrene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Naphthalene	0.103	U	0.206	0.0516	mg/kg	10		07/25/21 01:23
Phenanthrene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Pyrene	0.129	U	0.258	0.0645	mg/kg	10		07/25/21 01:23
Surrogates								
2-Methylnaphthalene-d10 (surr)	90.7		58-103		%	10		07/25/21 01:23
Fluoranthene-d10 (surr)	92.7		54-113		%	10		07/25/21 01:23

Batch Information

Analytical Batch: XMS12775
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 07/25/21 01:23
Container ID: 1214339002-B

Prep Batch: XXX45180
Prep Method: SW3550C
Prep Date/Time: 07/19/21 06:40
Prep Initial Wt./Vol.: 22.896 g
Prep Extract Vol: 5 mL

Results of **SS-Grid-A4**

Client Sample ID: **SS-Grid-A4**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339002
Lab Project ID: 1214339

Collection Date: 07/08/21 19:10
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):95.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	62.0		20.7	6.43	mg/kg	1		07/19/21 20:42
Surrogates								
5a Androstane (surr)	92.9		50-150		%	1		07/19/21 20:42

Batch Information

Analytical Batch: XFC16004
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/19/21 20:42
Container ID: 1214339002-B

Prep Batch: XXX45183
Prep Method: SW3550C
Prep Date/Time: 07/19/21 08:51
Prep Initial Wt./Vol.: 30.37 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	617		104	44.6	mg/kg	1		07/19/21 20:42
Surrogates								
n-Triacontane-d62 (surr)	91.5		50-150		%	1		07/19/21 20:42

Batch Information

Analytical Batch: XFC16004
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/19/21 20:42
Container ID: 1214339002-B

Prep Batch: XXX45183
Prep Method: SW3550C
Prep Date/Time: 07/19/21 08:51
Prep Initial Wt./Vol.: 30.37 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

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Results of **SS-Grid-A4**

Client Sample ID: **SS-Grid-A4**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339002
Lab Project ID: 1214339

Collection Date: 07/08/21 19:10
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):95.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.891	J	2.05	0.615	mg/kg	1		07/24/21 04:58
Surrogates								
4-Bromofluorobenzene (surr)	89.3		50-150		%	1		07/24/21 04:58

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 04:58
Container ID: 1214339002-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/08/21 19:10
Prep Initial Wt./Vol.: 72.838 g
Prep Extract Vol: 28.4537 mL

Results of **SS-Grid-A4**

Client Sample ID: **SS-Grid-A4**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339002
Lab Project ID: 1214339

Collection Date: 07/08/21 19:10
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):95.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.00820	U	0.0164	0.00509	mg/kg	1		07/20/21 19:06
1,1,1-Trichloroethane	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,1,2,2-Tetrachloroethane	0.000820	U	0.00164	0.000509	mg/kg	1		07/20/21 19:06
1,1,2-Trichloroethane	0.000328	U	0.000656	0.000205	mg/kg	1		07/20/21 19:06
1,1-Dichloroethane	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,1-Dichloroethene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,1-Dichloropropene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,2,3-Trichlorobenzene	0.0205	U	0.0410	0.0123	mg/kg	1		07/20/21 19:06
1,2,3-Trichloropropane	0.000820	U	0.00164	0.000509	mg/kg	1		07/20/21 19:06
1,2,4-Trichlorobenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,2,4-Trimethylbenzene	0.0205	U	0.0410	0.0123	mg/kg	1		07/20/21 19:06
1,2-Dibromo-3-chloropropane	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
1,2-Dibromoethane	0.000410	U	0.000820	0.000328	mg/kg	1		07/20/21 19:06
1,2-Dichlorobenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,2-Dichloroethane	0.000820	U	0.00164	0.000574	mg/kg	1		07/20/21 19:06
1,2-Dichloropropane	0.00410	U	0.00820	0.00254	mg/kg	1		07/20/21 19:06
1,3,5-Trimethylbenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,3-Dichlorobenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
1,3-Dichloropropane	0.00410	U	0.00820	0.00254	mg/kg	1		07/20/21 19:06
1,4-Dichlorobenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
2,2-Dichloropropane	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
2-Butanone (MEK)	0.103	U	0.205	0.0640	mg/kg	1		07/20/21 19:06
2-Chlorotoluene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
2-Hexanone	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
4-Chlorotoluene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
4-Isopropyltoluene	0.0410	U	0.0820	0.0205	mg/kg	1		07/20/21 19:06
4-Methyl-2-pentanone (MIBK)	0.103	U	0.205	0.0640	mg/kg	1		07/20/21 19:06
Acetone	0.103	U	0.205	0.0640	mg/kg	1		07/20/21 19:06
Benzene	0.00515	U	0.0103	0.00320	mg/kg	1		07/20/21 19:06
Bromobenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Bromochloromethane	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Bromodichloromethane	0.000820	U	0.00164	0.000509	mg/kg	1		07/20/21 19:06
Bromoform	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Bromomethane	0.00820	U	0.0164	0.00509	mg/kg	1		07/20/21 19:06
Carbon disulfide	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
Carbon tetrachloride	0.00515	U	0.0103	0.00320	mg/kg	1		07/20/21 19:06

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Results of **SS-Grid-A4**

Client Sample ID: **SS-Grid-A4**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339002
Lab Project ID: 1214339

Collection Date: 07/08/21 19:10
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):95.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Chloroethane	0.0820	U	0.164	0.0509	mg/kg	1		07/20/21 19:06
Chloroform	0.00164	U	0.00328	0.000820	mg/kg	1		07/20/21 19:06
Chloromethane	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
cis-1,2-Dichloroethene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
cis-1,3-Dichloropropene	0.00515	U	0.0103	0.00320	mg/kg	1		07/20/21 19:06
Dibromochloromethane	0.00205	U	0.00410	0.00123	mg/kg	1		07/20/21 19:06
Dibromomethane	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Dichlorodifluoromethane	0.0205	U	0.0410	0.0123	mg/kg	1		07/20/21 19:06
Ethylbenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Freon-113	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
Hexachlorobutadiene	0.00820	U	0.0164	0.00509	mg/kg	1		07/20/21 19:06
Isopropylbenzene (Cumene)	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Methylene chloride	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
Methyl-t-butyl ether	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
Naphthalene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
n-Butylbenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
n-Propylbenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
o-Xylene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
P & M -Xylene	0.0205	U	0.0410	0.0123	mg/kg	1		07/20/21 19:06
sec-Butylbenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Styrene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
tert-Butylbenzene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
Tetrachloroethene	0.00515	U	0.0103	0.00320	mg/kg	1		07/20/21 19:06
Toluene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
trans-1,2-Dichloroethene	0.0103	U	0.0205	0.00640	mg/kg	1		07/20/21 19:06
trans-1,3-Dichloropropene	0.00515	U	0.0103	0.00320	mg/kg	1		07/20/21 19:06
Trichloroethene	0.00205	U	0.00410	0.00123	mg/kg	1		07/20/21 19:06
Trichlorofluoromethane	0.0205	U	0.0410	0.0123	mg/kg	1		07/20/21 19:06
Vinyl acetate	0.0410	U	0.0820	0.0254	mg/kg	1		07/20/21 19:06
Vinyl chloride	0.000328	U	0.000656	0.000205	mg/kg	1		07/20/21 19:06
Xylenes (total)	0.0308	U	0.0615	0.0187	mg/kg	1		07/20/21 19:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.9		71-136		%	1		07/20/21 19:06
4-Bromofluorobenzene (surr)	103		55-151		%	1		07/20/21 19:06
Toluene-d8 (surr)	96.4		85-116		%	1		07/20/21 19:06

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J flagging is activated

Results of **SS-Grid-A4**

Client Sample ID: **SS-Grid-A4**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339002
Lab Project ID: 1214339

Collection Date: 07/08/21 19:10
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):95.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20942
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/20/21 19:06
Container ID: 1214339002-A

Prep Batch: VXX37457
Prep Method: SW5035A
Prep Date/Time: 07/08/21 19:10
Prep Initial Wt./Vol.: 72.838 g
Prep Extract Vol: 28.4537 mL

Results of **SB7-29.8-30.3**

Client Sample ID: **SB7-29.8-30.3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339003
Lab Project ID: 1214339

Collection Date: 07/12/21 23:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
2-Methylnaphthalene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Acenaphthene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Acenaphthylene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Anthracene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Benzo(a)Anthracene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Benzo[a]pyrene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Benzo[b]Fluoranthene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Benzo[g,h,i]perylene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Benzo[k]fluoranthene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Chrysene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Dibenzo[a,h]anthracene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Fluoranthene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Fluorene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Indeno[1,2,3-c,d] pyrene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Naphthalene	0.0117	U	0.0233	0.00583	mg/kg	1		07/26/21 20:51
Phenanthrene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Pyrene	0.0146	U	0.0292	0.00729	mg/kg	1		07/26/21 20:51
Surrogates								
2-Methylnaphthalene-d10 (surr)	90.9		58-103		%	1		07/26/21 20:51
Fluoranthene-d10 (surr)	90.7		54-113		%	1		07/26/21 20:51

Batch Information

Analytical Batch: XMS12777
Analytical Method: 8270D SIM (PAH)
Analyst: CDM
Analytical Date/Time: 07/26/21 20:51
Container ID: 1214339003-B

Prep Batch: XXX45196
Prep Method: SW3550C
Prep Date/Time: 07/20/21 09:56
Prep Initial Wt./Vol.: 22.606 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SB7-29.8-30.3**

Client Sample ID: **SB7-29.8-30.3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339003
Lab Project ID: 1214339

Collection Date: 07/12/21 23:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	9.32 J		23.3	7.21	mg/kg	1		07/19/21 18:21
Surrogates								
5a Androstane (surr)	105		50-150		%	1		07/19/21 18:21

Batch Information

Analytical Batch: XFC16007
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/19/21 18:21
Container ID: 1214339003-B

Prep Batch: XXX45186
Prep Method: SW3550C
Prep Date/Time: 07/19/21 13:14
Prep Initial Wt./Vol.: 30.232 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	58.0 U		116	50.0	mg/kg	1		07/19/21 18:21
Surrogates								
n-Triacontane-d62 (surr)	102		50-150		%	1		07/19/21 18:21

Batch Information

Analytical Batch: XFC16007
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/19/21 18:21
Container ID: 1214339003-B

Prep Batch: XXX45186
Prep Method: SW3550C
Prep Date/Time: 07/19/21 13:14
Prep Initial Wt./Vol.: 30.232 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SB7-29.8-30.3**

Client Sample ID: **SB7-29.8-30.3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339003
Lab Project ID: 1214339

Collection Date: 07/12/21 23:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.77	J	2.81	0.843	mg/kg	1		07/24/21 05:52
Surrogates								
4-Bromofluorobenzene (surr)	76.1		50-150		%	1		07/24/21 05:52

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 05:52
Container ID: 1214339003-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/12/21 23:05
Prep Initial Wt./Vol.: 75.233 g
Prep Extract Vol: 36.0535 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SB7-29.8-30.3**

Client Sample ID: **SB7-29.8-30.3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339003
Lab Project ID: 1214339

Collection Date: 07/12/21 23:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0113	U	0.0225	0.00697	mg/kg	1		07/21/21 21:06
1,1,1-Trichloroethane	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,1,2,2-Tetrachloroethane	0.00113	U	0.00225	0.000697	mg/kg	1		07/21/21 21:06
1,1,2-Trichloroethane	0.000450	U	0.000899	0.000281	mg/kg	1		07/21/21 21:06
1,1-Dichloroethane	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,1-Dichloroethene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,1-Dichloropropene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,2,3-Trichlorobenzene	0.0281	U	0.0562	0.0169	mg/kg	1		07/21/21 21:06
1,2,3-Trichloropropane	0.00113	U	0.00225	0.000697	mg/kg	1		07/21/21 21:06
1,2,4-Trichlorobenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,2,4-Trimethylbenzene	0.0281	U	0.0562	0.0169	mg/kg	1		07/21/21 21:06
1,2-Dibromo-3-chloropropane	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
1,2-Dibromoethane	0.000560	U	0.00112	0.000449	mg/kg	1		07/21/21 21:06
1,2-Dichlorobenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,2-Dichloroethane	0.00113	U	0.00225	0.000786	mg/kg	1		07/21/21 21:06
1,2-Dichloropropane	0.00560	U	0.0112	0.00348	mg/kg	1		07/21/21 21:06
1,3,5-Trimethylbenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,3-Dichlorobenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
1,3-Dichloropropane	0.00560	U	0.0112	0.00348	mg/kg	1		07/21/21 21:06
1,4-Dichlorobenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
2,2-Dichloropropane	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
2-Butanone (MEK)	0.141	U	0.281	0.0876	mg/kg	1		07/21/21 21:06
2-Chlorotoluene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
2-Hexanone	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
4-Chlorotoluene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
4-Isopropyltoluene	0.0560	U	0.112	0.0281	mg/kg	1		07/21/21 21:06
4-Methyl-2-pentanone (MIBK)	0.141	U	0.281	0.0876	mg/kg	1		07/21/21 21:06
Acetone	0.141	U	0.281	0.0876	mg/kg	1		07/21/21 21:06
Benzene	0.00700	U	0.0140	0.00438	mg/kg	1		07/21/21 21:06
Bromobenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Bromochloromethane	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Bromodichloromethane	0.00113	U	0.00225	0.000697	mg/kg	1		07/21/21 21:06
Bromoform	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Bromomethane	0.0113	U	0.0225	0.00697	mg/kg	1		07/21/21 21:06
Carbon disulfide	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
Carbon tetrachloride	0.00700	U	0.0140	0.00438	mg/kg	1		07/21/21 21:06

Results of **SB7-29.8-30.3**

Client Sample ID: **SB7-29.8-30.3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339003
Lab Project ID: 1214339

Collection Date: 07/12/21 23:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Chloroethane	0.113	U	0.225	0.0697	mg/kg	1		07/21/21 21:06
Chloroform	0.00225	U	0.00449	0.00112	mg/kg	1		07/21/21 21:06
Chloromethane	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
cis-1,2-Dichloroethene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
cis-1,3-Dichloropropene	0.00700	U	0.0140	0.00438	mg/kg	1		07/21/21 21:06
Dibromochloromethane	0.00281	U	0.00562	0.00169	mg/kg	1		07/21/21 21:06
Dibromomethane	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Dichlorodifluoromethane	0.0281	U	0.0562	0.0169	mg/kg	1		07/21/21 21:06
Ethylbenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Freon-113	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
Hexachlorobutadiene	0.0113	U	0.0225	0.00697	mg/kg	1		07/21/21 21:06
Isopropylbenzene (Cumene)	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Methylene chloride	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
Methyl-t-butyl ether	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
Naphthalene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
n-Butylbenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
n-Propylbenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
o-Xylene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
P & M -Xylene	0.0281	U	0.0562	0.0169	mg/kg	1		07/21/21 21:06
sec-Butylbenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Styrene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
tert-Butylbenzene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
Tetrachloroethene	0.00700	U	0.0140	0.00438	mg/kg	1		07/21/21 21:06
Toluene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
trans-1,2-Dichloroethene	0.0141	U	0.0281	0.00876	mg/kg	1		07/21/21 21:06
trans-1,3-Dichloropropene	0.00700	U	0.0140	0.00438	mg/kg	1		07/21/21 21:06
Trichloroethene	0.00281	U	0.00562	0.00169	mg/kg	1		07/21/21 21:06
Trichlorofluoromethane	0.0281	U	0.0562	0.0169	mg/kg	1		07/21/21 21:06
Vinyl acetate	0.0560	U	0.112	0.0348	mg/kg	1		07/21/21 21:06
Vinyl chloride	0.000450	U	0.000899	0.000281	mg/kg	1		07/21/21 21:06
Xylenes (total)	0.0422	U	0.0843	0.0256	mg/kg	1		07/21/21 21:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	107		71-136		%	1		07/21/21 21:06
4-Bromofluorobenzene (surr)	91.8		55-151		%	1		07/21/21 21:06
Toluene-d8 (surr)	98.6		85-116		%	1		07/21/21 21:06

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J flagging is activated

Results of **SB7-29.8-30.3**

Client Sample ID: **SB7-29.8-30.3**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339003
Lab Project ID: 1214339

Collection Date: 07/12/21 23:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20953
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/21/21 21:06
Container ID: 1214339003-A

Prep Batch: VXX37470
Prep Method: SW5035A
Prep Date/Time: 07/12/21 23:05
Prep Initial Wt./Vol.: 75.233 g
Prep Extract Vol: 36.0535 mL

Results of **SED-02**

Client Sample ID: **SED-02**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339004
Lab Project ID: 1214339

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):77.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
2-Methylnaphthalene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Acenaphthene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Acenaphthylene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Anthracene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Benzo(a)Anthracene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Benzo[a]pyrene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Benzo[b]Fluoranthene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Benzo[g,h,i]perylene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Benzo[k]fluoranthene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Chrysene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Dibenzo[a,h]anthracene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Fluoranthene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Fluorene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Indeno[1,2,3-c,d] pyrene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Naphthalene	0.0630	U	0.126	0.0316	mg/kg	5		07/26/21 21:11
Phenanthrene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Pyrene	0.0790	U	0.158	0.0395	mg/kg	5		07/26/21 21:11
Surrogates								
2-Methylnaphthalene-d10 (surr)	95		58-103		%	5		07/26/21 21:11
Fluoranthene-d10 (surr)	97.2		54-113		%	5		07/26/21 21:11

Batch Information

Analytical Batch: XMS12777
Analytical Method: 8270D SIM (PAH)
Analyst: CDM
Analytical Date/Time: 07/26/21 21:11
Container ID: 1214339004-B

Prep Batch: XXX45196
Prep Method: SW3550C
Prep Date/Time: 07/20/21 09:56
Prep Initial Wt./Vol.: 22.983 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-02**

Client Sample ID: **SED-02**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339004
Lab Project ID: 1214339

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):77.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	79.3		25.7	7.96	mg/kg	1		07/20/21 17:28
Surrogates								
5a Androstane (surr)	104		50-150		%	1		07/20/21 17:28

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 17:28
Container ID: 1214339004-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.164 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	367		128	55.2	mg/kg	1		07/20/21 17:28
Surrogates								
n-Triacontane-d62 (surr)	98.7		50-150		%	1		07/20/21 17:28

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 17:28
Container ID: 1214339004-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.164 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-02**

Client Sample ID: **SED-02**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339004
Lab Project ID: 1214339

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):77.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.88	J	4.82	1.45	mg/kg	1		07/24/21 06:10
Surrogates								
4-Bromofluorobenzene (surr)	81.1		50-150		%	1		07/24/21 06:10

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 06:10
Container ID: 1214339004-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/13/21 16:30
Prep Initial Wt./Vol.: 47.885 g
Prep Extract Vol: 35.7855 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-02**

Client Sample ID: **SED-02**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339004
Lab Project ID: 1214339

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):77.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0193	U	0.0386	0.0120	mg/kg	1		07/21/21 21:23
1,1,1-Trichloroethane	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,1,2,2-Tetrachloroethane	0.00193	U	0.00386	0.00120	mg/kg	1		07/21/21 21:23
1,1,2-Trichloroethane	0.000770	U	0.00154	0.000482	mg/kg	1		07/21/21 21:23
1,1-Dichloroethane	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,1-Dichloroethene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,1-Dichloropropene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,2,3-Trichlorobenzene	0.0483	U	0.0965	0.0289	mg/kg	1		07/21/21 21:23
1,2,3-Trichloropropane	0.00193	U	0.00386	0.00120	mg/kg	1		07/21/21 21:23
1,2,4-Trichlorobenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,2,4-Trimethylbenzene	0.0483	U	0.0965	0.0289	mg/kg	1		07/21/21 21:23
1,2-Dibromo-3-chloropropane	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
1,2-Dibromoethane	0.000965	U	0.00193	0.000772	mg/kg	1		07/21/21 21:23
1,2-Dichlorobenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,2-Dichloroethane	0.00193	U	0.00386	0.00135	mg/kg	1		07/21/21 21:23
1,2-Dichloropropane	0.00965	U	0.0193	0.00598	mg/kg	1		07/21/21 21:23
1,3,5-Trimethylbenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,3-Dichlorobenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
1,3-Dichloropropane	0.00965	U	0.0193	0.00598	mg/kg	1		07/21/21 21:23
1,4-Dichlorobenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
2,2-Dichloropropane	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
2-Butanone (MEK)	0.241	U	0.482	0.150	mg/kg	1		07/21/21 21:23
2-Chlorotoluene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
2-Hexanone	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
4-Chlorotoluene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
4-Isopropyltoluene	0.0965	U	0.193	0.0482	mg/kg	1		07/21/21 21:23
4-Methyl-2-pentanone (MIBK)	0.241	U	0.482	0.150	mg/kg	1		07/21/21 21:23
Acetone	0.241	U	0.482	0.150	mg/kg	1		07/21/21 21:23
Benzene	0.0121	U	0.0241	0.00752	mg/kg	1		07/21/21 21:23
Bromobenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Bromochloromethane	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Bromodichloromethane	0.00193	U	0.00386	0.00120	mg/kg	1		07/21/21 21:23
Bromoform	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Bromomethane	0.0193	U	0.0386	0.0120	mg/kg	1		07/21/21 21:23
Carbon disulfide	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
Carbon tetrachloride	0.0121	U	0.0241	0.00752	mg/kg	1		07/21/21 21:23

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-02**

Client Sample ID: **SED-02**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339004
Lab Project ID: 1214339

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):77.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Chloroethane	0.193	U	0.386	0.120	mg/kg	1		07/21/21 21:23
Chloroform	0.00386	U	0.00772	0.00193	mg/kg	1		07/21/21 21:23
Chloromethane	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
cis-1,2-Dichloroethene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
cis-1,3-Dichloropropene	0.0121	U	0.0241	0.00752	mg/kg	1		07/21/21 21:23
Dibromochloromethane	0.00483	U	0.00965	0.00289	mg/kg	1		07/21/21 21:23
Dibromomethane	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Dichlorodifluoromethane	0.0483	U	0.0965	0.0289	mg/kg	1		07/21/21 21:23
Ethylbenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Freon-113	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
Hexachlorobutadiene	0.0193	U	0.0386	0.0120	mg/kg	1		07/21/21 21:23
Isopropylbenzene (Cumene)	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Methylene chloride	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
Methyl-t-butyl ether	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
Naphthalene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
n-Butylbenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
n-Propylbenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
o-Xylene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
P & M -Xylene	0.0483	U	0.0965	0.0289	mg/kg	1		07/21/21 21:23
sec-Butylbenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Styrene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
tert-Butylbenzene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
Tetrachloroethene	0.0121	U	0.0241	0.00752	mg/kg	1		07/21/21 21:23
Toluene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
trans-1,2-Dichloroethene	0.0241	U	0.0482	0.0150	mg/kg	1		07/21/21 21:23
trans-1,3-Dichloropropene	0.0121	U	0.0241	0.00752	mg/kg	1		07/21/21 21:23
Trichloroethene	0.00483	U	0.00965	0.00289	mg/kg	1		07/21/21 21:23
Trichlorofluoromethane	0.0483	U	0.0965	0.0289	mg/kg	1		07/21/21 21:23
Vinyl acetate	0.0965	U	0.193	0.0598	mg/kg	1		07/21/21 21:23
Vinyl chloride	0.000770	U	0.00154	0.000482	mg/kg	1		07/21/21 21:23
Xylenes (total)	0.0725	U	0.145	0.0440	mg/kg	1		07/21/21 21:23
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/21/21 21:23
4-Bromofluorobenzene (surr)	98.8		55-151		%	1		07/21/21 21:23
Toluene-d8 (surr)	99.1		85-116		%	1		07/21/21 21:23

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J flagging is activated

Results of **SED-02**

Client Sample ID: **SED-02**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339004
Lab Project ID: 1214339

Collection Date: 07/13/21 16:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):77.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20953
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/21/21 21:23
Container ID: 1214339004-A

Prep Batch: VXX37470
Prep Method: SW5035A
Prep Date/Time: 07/13/21 16:30
Prep Initial Wt./Vol.: 47.885 g
Prep Extract Vol: 35.7855 mL

Results of **SED-102**

Client Sample ID: **SED-102**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339005
Lab Project ID: 1214339

Collection Date: 07/13/21 16:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):79.1
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
2-Methylnaphthalene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Acenaphthene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Acenaphthylene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Anthracene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Benzo(a)Anthracene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Benzo[a]pyrene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Benzo[b]Fluoranthene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Benzo[g,h,i]perylene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Benzo[k]fluoranthene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Chrysene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Dibenzo[a,h]anthracene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Fluoranthene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Fluorene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Indeno[1,2,3-c,d] pyrene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Naphthalene	0.0126 U		0.0251	0.00627	mg/kg	1		07/26/21 21:32
Phenanthrene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Pyrene	0.0157 U		0.0314	0.00784	mg/kg	1		07/26/21 21:32
Surrogates								
2-Methylnaphthalene-d10 (surr)	114	*	58-103		%	1		07/26/21 21:32
Fluoranthene-d10 (surr)	118	*	54-113		%	1		07/26/21 21:32

Batch Information

Analytical Batch: XMS12777
Analytical Method: 8270D SIM (PAH)
Analyst: CDM
Analytical Date/Time: 07/26/21 21:32
Container ID: 1214339005-B

Prep Batch: XXX45196
Prep Method: SW3550C
Prep Date/Time: 07/20/21 09:56
Prep Initial Wt./Vol.: 22.689 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-102**

Client Sample ID: **SED-102**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339005
Lab Project ID: 1214339

Collection Date: 07/13/21 16:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):79.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	74.4		25.2	7.80	mg/kg	1		07/20/21 17:37
Surrogates								
5a Androstane (surr)	92		50-150		%	1		07/20/21 17:37

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 17:37
Container ID: 1214339005-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.155 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	333		126	54.1	mg/kg	1		07/20/21 17:37
Surrogates								
n-Triacontane-d62 (surr)	85.9		50-150		%	1		07/20/21 17:37

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 17:37
Container ID: 1214339005-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.155 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-102**

Client Sample ID: **SED-102**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339005
Lab Project ID: 1214339

Collection Date: 07/13/21 16:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):79.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.57	J	4.09	1.23	mg/kg	1		07/24/21 06:27
Surrogates								
4-Bromofluorobenzene (surr)	93.1		50-150		%	1		07/24/21 06:27

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 06:27
Container ID: 1214339005-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/13/21 16:40
Prep Initial Wt./Vol.: 57.075 g
Prep Extract Vol: 36.9432 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-102**

Client Sample ID: **SED-102**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339005
Lab Project ID: 1214339

Collection Date: 07/13/21 16:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):79.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0164 U		0.0327	0.0102	mg/kg	1		07/23/21 15:21
1,1,1-Trichloroethane	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,1,2,2-Tetrachloroethane	0.00164 U		0.00327	0.00102	mg/kg	1		07/23/21 15:21
1,1,2-Trichloroethane	0.000655 U		0.00131	0.000409	mg/kg	1		07/23/21 15:21
1,1-Dichloroethane	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,1-Dichloroethene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,1-Dichloropropene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,2,3-Trichlorobenzene	0.0410 U		0.0819	0.0246	mg/kg	1		07/23/21 15:21
1,2,3-Trichloropropane	0.00164 U		0.00327	0.00102	mg/kg	1		07/23/21 15:21
1,2,4-Trichlorobenzene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,2,4-Trimethylbenzene	0.0410 U		0.0819	0.0246	mg/kg	1		07/23/21 15:21
1,2-Dibromo-3-chloropropane	0.0820 U		0.164	0.0508	mg/kg	1		07/23/21 15:21
1,2-Dibromoethane	0.000820 U		0.00164	0.000655	mg/kg	1		07/23/21 15:21
1,2-Dichlorobenzene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,2-Dichloroethane	0.00164 U		0.00327	0.00115	mg/kg	1		07/23/21 15:21
1,2-Dichloropropane	0.00820 U		0.0164	0.00508	mg/kg	1		07/23/21 15:21
1,3,5-Trimethylbenzene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,3-Dichlorobenzene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
1,3-Dichloropropane	0.00820 U		0.0164	0.00508	mg/kg	1		07/23/21 15:21
1,4-Dichlorobenzene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
2,2-Dichloropropane	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
2-Butanone (MEK)	0.205 U		0.409	0.128	mg/kg	1		07/23/21 15:21
2-Chlorotoluene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
2-Hexanone	0.0820 U		0.164	0.0508	mg/kg	1		07/23/21 15:21
4-Chlorotoluene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
4-Isopropyltoluene	0.0820 U		0.164	0.0409	mg/kg	1		07/23/21 15:21
4-Methyl-2-pentanone (MIBK)	0.205 U		0.409	0.128	mg/kg	1		07/23/21 15:21
Acetone	0.205 U		0.409	0.128	mg/kg	1		07/23/21 15:21
Benzene	0.0103 U		0.0205	0.00638	mg/kg	1		07/23/21 15:21
Bromobenzene	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
Bromochloromethane	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
Bromodichloromethane	0.00164 U		0.00327	0.00102	mg/kg	1		07/23/21 15:21
Bromoform	0.0204 U		0.0409	0.0128	mg/kg	1		07/23/21 15:21
Bromomethane	0.0164 U		0.0327	0.0102	mg/kg	1		07/23/21 15:21
Carbon disulfide	0.0820 U		0.164	0.0508	mg/kg	1		07/23/21 15:21
Carbon tetrachloride	0.0103 U		0.0205	0.00638	mg/kg	1		07/23/21 15:21

Results of **SED-102**

Client Sample ID: **SED-102**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339005
Lab Project ID: 1214339

Collection Date: 07/13/21 16:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):79.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
Chloroethane	0.164	U	0.327	0.102	mg/kg	1		07/23/21 15:21
Chloroform	0.00328	U	0.00655	0.00164	mg/kg	1		07/23/21 15:21
Chloromethane	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
cis-1,2-Dichloroethene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
cis-1,3-Dichloropropene	0.0103	U	0.0205	0.00638	mg/kg	1		07/23/21 15:21
Dibromochloromethane	0.00409	U	0.00819	0.00246	mg/kg	1		07/23/21 15:21
Dibromomethane	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
Dichlorodifluoromethane	0.0410	U	0.0819	0.0246	mg/kg	1		07/23/21 15:21
Ethylbenzene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
Freon-113	0.0820	U	0.164	0.0508	mg/kg	1		07/23/21 15:21
Hexachlorobutadiene	0.0164	U	0.0327	0.0102	mg/kg	1		07/23/21 15:21
Isopropylbenzene (Cumene)	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
Methylene chloride	0.0820	U	0.164	0.0508	mg/kg	1		07/23/21 15:21
Methyl-t-butyl ether	0.0820	U	0.164	0.0508	mg/kg	1		07/23/21 15:21
Naphthalene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
n-Butylbenzene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
n-Propylbenzene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
o-Xylene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
P & M -Xylene	0.0410	U	0.0819	0.0246	mg/kg	1		07/23/21 15:21
sec-Butylbenzene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
Styrene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
tert-Butylbenzene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
Tetrachloroethene	0.0103	U	0.0205	0.00638	mg/kg	1		07/23/21 15:21
Toluene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
trans-1,2-Dichloroethene	0.0204	U	0.0409	0.0128	mg/kg	1		07/23/21 15:21
trans-1,3-Dichloropropene	0.0103	U	0.0205	0.00638	mg/kg	1		07/23/21 15:21
Trichloroethene	0.00409	U	0.00819	0.00246	mg/kg	1		07/23/21 15:21
Trichlorofluoromethane	0.0410	U	0.0819	0.0246	mg/kg	1		07/23/21 15:21
Vinyl acetate	0.0820	U	0.164	0.0508	mg/kg	1		07/23/21 15:21
Vinyl chloride	0.000655	U	0.00131	0.000409	mg/kg	1		07/23/21 15:21
Xylenes (total)	0.0615	U	0.123	0.0373	mg/kg	1		07/23/21 15:21
Surrogates								
1,2-Dichloroethane-D4 (surr)	112		71-136		%	1		07/23/21 15:21
4-Bromofluorobenzene (surr)	113		55-151		%	1		07/23/21 15:21
Toluene-d8 (surr)	100		85-116		%	1		07/23/21 15:21

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-102**

Client Sample ID: **SED-102**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339005
Lab Project ID: 1214339

Collection Date: 07/13/21 16:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):79.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20962
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/23/21 15:21
Container ID: 1214339005-A

Prep Batch: VXX37485
Prep Method: SW5035A
Prep Date/Time: 07/13/21 16:40
Prep Initial Wt./Vol.: 57.075 g
Prep Extract Vol: 36.9432 mL

Results of **SED-03**

Client Sample ID: **SED-03**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339006
Lab Project ID: 1214339

Collection Date: 07/13/21 18:38
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	71.9		23.0	7.14	mg/kg	1		07/20/21 19:38
Surrogates								
5a Androstane (surr)	104		50-150		%	1		07/20/21 19:38

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 19:38
Container ID: 1214339006-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.171 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	712		115	49.5	mg/kg	1		07/20/21 19:38
Surrogates								
n-Triacontane-d62 (surr)	105		50-150		%	1		07/20/21 19:38

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 19:38
Container ID: 1214339006-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.171 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-03**

Client Sample ID: **SED-03**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339006
Lab Project ID: 1214339

Collection Date: 07/13/21 18:38
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.55	J	3.73	1.12	mg/kg	1		07/24/21 06:45
Surrogates								
4-Bromofluorobenzene (surr)	97.1		50-150		%	1		07/24/21 06:45

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 06:45
Container ID: 1214339006-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/13/21 18:38
Prep Initial Wt./Vol.: 49.304 g
Prep Extract Vol: 31.7578 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-03**

Client Sample ID: **SED-03**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339006
Lab Project ID: 1214339

Collection Date: 07/13/21 18:38
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0150 U		0.0299	0.00926	mg/kg	1		07/23/21 15:37
1,1,1-Trichloroethane	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,1,2,2-Tetrachloroethane	0.00150 U		0.00299	0.000926	mg/kg	1		07/23/21 15:37
1,1,2-Trichloroethane	0.000595 U		0.00119	0.000373	mg/kg	1		07/23/21 15:37
1,1-Dichloroethane	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,1-Dichloroethene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,1-Dichloropropene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,2,3-Trichlorobenzene	0.0373 U		0.0746	0.0224	mg/kg	1		07/23/21 15:37
1,2,3-Trichloropropane	0.00150 U		0.00299	0.000926	mg/kg	1		07/23/21 15:37
1,2,4-Trichlorobenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,2,4-Trimethylbenzene	0.0373 U		0.0746	0.0224	mg/kg	1		07/23/21 15:37
1,2-Dibromo-3-chloropropane	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
1,2-Dibromoethane	0.000745 U		0.00149	0.000597	mg/kg	1		07/23/21 15:37
1,2-Dichlorobenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,2-Dichloroethane	0.00150 U		0.00299	0.00105	mg/kg	1		07/23/21 15:37
1,2-Dichloropropane	0.00745 U		0.0149	0.00463	mg/kg	1		07/23/21 15:37
1,3,5-Trimethylbenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,3-Dichlorobenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
1,3-Dichloropropane	0.00745 U		0.0149	0.00463	mg/kg	1		07/23/21 15:37
1,4-Dichlorobenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
2,2-Dichloropropane	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
2-Butanone (MEK)	0.187 U		0.373	0.116	mg/kg	1		07/23/21 15:37
2-Chlorotoluene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
2-Hexanone	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
4-Chlorotoluene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
4-Isopropyltoluene	0.0745 U		0.149	0.0373	mg/kg	1		07/23/21 15:37
4-Methyl-2-pentanone (MIBK)	0.187 U		0.373	0.116	mg/kg	1		07/23/21 15:37
Acetone	0.187 U		0.373	0.116	mg/kg	1		07/23/21 15:37
Benzene	0.00935 U		0.0187	0.00582	mg/kg	1		07/23/21 15:37
Bromobenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Bromochloromethane	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Bromodichloromethane	0.00150 U		0.00299	0.000926	mg/kg	1		07/23/21 15:37
Bromoform	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Bromomethane	0.0150 U		0.0299	0.00926	mg/kg	1		07/23/21 15:37
Carbon disulfide	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
Carbon tetrachloride	0.00935 U		0.0187	0.00582	mg/kg	1		07/23/21 15:37

Results of **SED-03**

Client Sample ID: **SED-03**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339006
Lab Project ID: 1214339

Collection Date: 07/13/21 18:38
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Chloroethane	0.149 U		0.299	0.0926	mg/kg	1		07/23/21 15:37
Chloroform	0.00298 U		0.00597	0.00149	mg/kg	1		07/23/21 15:37
Chloromethane	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
cis-1,2-Dichloroethene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
cis-1,3-Dichloropropene	0.00935 U		0.0187	0.00582	mg/kg	1		07/23/21 15:37
Dibromochloromethane	0.00373 U		0.00746	0.00224	mg/kg	1		07/23/21 15:37
Dibromomethane	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Dichlorodifluoromethane	0.0373 U		0.0746	0.0224	mg/kg	1		07/23/21 15:37
Ethylbenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Freon-113	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
Hexachlorobutadiene	0.0150 U		0.0299	0.00926	mg/kg	1		07/23/21 15:37
Isopropylbenzene (Cumene)	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Methylene chloride	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
Methyl-t-butyl ether	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
Naphthalene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
n-Butylbenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
n-Propylbenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
o-Xylene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
P & M -Xylene	0.0373 U		0.0746	0.0224	mg/kg	1		07/23/21 15:37
sec-Butylbenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Styrene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
tert-Butylbenzene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
Tetrachloroethene	0.00935 U		0.0187	0.00582	mg/kg	1		07/23/21 15:37
Toluene	0.0470		0.0373	0.0116	mg/kg	1		07/23/21 15:37
trans-1,2-Dichloroethene	0.0187 U		0.0373	0.0116	mg/kg	1		07/23/21 15:37
trans-1,3-Dichloropropene	0.00935 U		0.0187	0.00582	mg/kg	1		07/23/21 15:37
Trichloroethene	0.00373 U		0.00746	0.00224	mg/kg	1		07/23/21 15:37
Trichlorofluoromethane	0.0373 U		0.0746	0.0224	mg/kg	1		07/23/21 15:37
Vinyl acetate	0.0745 U		0.149	0.0463	mg/kg	1		07/23/21 15:37
Vinyl chloride	0.000595 U		0.00119	0.000373	mg/kg	1		07/23/21 15:37
Xylenes (total)	0.0560 U		0.112	0.0340	mg/kg	1		07/23/21 15:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/23/21 15:37
4-Bromofluorobenzene (surr)	110		55-151		%	1		07/23/21 15:37
Toluene-d8 (surr)	99.4		85-116		%	1		07/23/21 15:37

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J flagging is activated

Results of **SED-03**

Client Sample ID: **SED-03**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339006
Lab Project ID: 1214339

Collection Date: 07/13/21 18:38
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20962
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/23/21 15:37
Container ID: 1214339006-A

Prep Batch: VXX37485
Prep Method: SW5035A
Prep Date/Time: 07/13/21 18:38
Prep Initial Wt./Vol.: 49.304 g
Prep Extract Vol: 31.7578 mL

Results of **SED-04**

Client Sample ID: **SED-04**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339007
Lab Project ID: 1214339

Collection Date: 07/14/21 09:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	35.0		24.3	7.52	mg/kg	1		07/20/21 17:47
Surrogates								
5a Androstane (surr)	105		50-150		%	1		07/20/21 17:47

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 17:47
Container ID: 1214339007-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.169 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	150		121	52.1	mg/kg	1		07/20/21 17:47
Surrogates								
n-Triacontane-d62 (surr)	105		50-150		%	1		07/20/21 17:47

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 17:47
Container ID: 1214339007-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.169 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-04**

Client Sample ID: **SED-04**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339007
Lab Project ID: 1214339

Collection Date: 07/14/21 09:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.35	J	3.85	1.15	mg/kg	1		07/24/21 07:03
Surrogates								
4-Bromofluorobenzene (surr)	92.5		50-150		%	1		07/24/21 07:03

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 07:03
Container ID: 1214339007-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/14/21 09:30
Prep Initial Wt./Vol.: 55.467 g
Prep Extract Vol: 34.9876 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-04**

Client Sample ID: **SED-04**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339007
Lab Project ID: 1214339

Collection Date: 07/14/21 09:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0154 U		0.0308	0.00954	mg/kg	1		07/24/21 18:44
1,1,1-Trichloroethane	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,1,2,2-Tetrachloroethane	0.00154 U		0.00308	0.000954	mg/kg	1		07/24/21 18:44
1,1,2-Trichloroethane	0.000615 U		0.00123	0.000385	mg/kg	1		07/24/21 18:44
1,1-Dichloroethane	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,1-Dichloroethene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,1-Dichloropropene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,2,3-Trichlorobenzene	0.0385 U		0.0769	0.0231	mg/kg	1		07/24/21 18:44
1,2,3-Trichloropropane	0.00154 U		0.00308	0.000954	mg/kg	1		07/24/21 18:44
1,2,4-Trichlorobenzene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,2,4-Trimethylbenzene	0.0385 U		0.0769	0.0231	mg/kg	1		07/24/21 18:44
1,2-Dibromo-3-chloropropane	0.0770 U		0.154	0.0477	mg/kg	1		07/24/21 18:44
1,2-Dibromoethane	0.000770 U		0.00154	0.000615	mg/kg	1		07/24/21 18:44
1,2-Dichlorobenzene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,2-Dichloroethane	0.00154 U		0.00308	0.00108	mg/kg	1		07/24/21 18:44
1,2-Dichloropropane	0.00770 U		0.0154	0.00477	mg/kg	1		07/24/21 18:44
1,3,5-Trimethylbenzene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,3-Dichlorobenzene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
1,3-Dichloropropane	0.00770 U		0.0154	0.00477	mg/kg	1		07/24/21 18:44
1,4-Dichlorobenzene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
2,2-Dichloropropane	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
2-Butanone (MEK)	0.193 U		0.385	0.120	mg/kg	1		07/24/21 18:44
2-Chlorotoluene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
2-Hexanone	0.0770 U		0.154	0.0477	mg/kg	1		07/24/21 18:44
4-Chlorotoluene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
4-Isopropyltoluene	0.0770 U		0.154	0.0385	mg/kg	1		07/24/21 18:44
4-Methyl-2-pentanone (MIBK)	0.193 U		0.385	0.120	mg/kg	1		07/24/21 18:44
Acetone	0.193 U		0.385	0.120	mg/kg	1		07/24/21 18:44
Benzene	0.00960 U		0.0192	0.00600	mg/kg	1		07/24/21 18:44
Bromobenzene	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
Bromochloromethane	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
Bromodichloromethane	0.00154 U		0.00308	0.000954	mg/kg	1		07/24/21 18:44
Bromoform	0.0193 U		0.0385	0.0120	mg/kg	1		07/24/21 18:44
Bromomethane	0.0154 U		0.0308	0.00954	mg/kg	1		07/24/21 18:44
Carbon disulfide	0.0770 U		0.154	0.0477	mg/kg	1		07/24/21 18:44
Carbon tetrachloride	0.00960 U		0.0192	0.00600	mg/kg	1		07/24/21 18:44

Results of **SED-04**

Client Sample ID: **SED-04**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339007
Lab Project ID: 1214339

Collection Date: 07/14/21 09:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
Chloroethane	0.154	U	0.308	0.0954	mg/kg	1		07/24/21 18:44
Chloroform	0.00308	U	0.00615	0.00154	mg/kg	1		07/24/21 18:44
Chloromethane	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
cis-1,2-Dichloroethene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
cis-1,3-Dichloropropene	0.00960	U	0.0192	0.00600	mg/kg	1		07/24/21 18:44
Dibromochloromethane	0.00385	U	0.00769	0.00231	mg/kg	1		07/24/21 18:44
Dibromomethane	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
Dichlorodifluoromethane	0.0385	U	0.0769	0.0231	mg/kg	1		07/24/21 18:44
Ethylbenzene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
Freon-113	0.0770	U	0.154	0.0477	mg/kg	1		07/24/21 18:44
Hexachlorobutadiene	0.0154	U	0.0308	0.00954	mg/kg	1		07/24/21 18:44
Isopropylbenzene (Cumene)	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
Methylene chloride	0.0770	U	0.154	0.0477	mg/kg	1		07/24/21 18:44
Methyl-t-butyl ether	0.0770	U	0.154	0.0477	mg/kg	1		07/24/21 18:44
Naphthalene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
n-Butylbenzene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
n-Propylbenzene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
o-Xylene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
P & M -Xylene	0.0385	U	0.0769	0.0231	mg/kg	1		07/24/21 18:44
sec-Butylbenzene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
Styrene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
tert-Butylbenzene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
Tetrachloroethene	0.00960	U	0.0192	0.00600	mg/kg	1		07/24/21 18:44
Toluene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
trans-1,2-Dichloroethene	0.0193	U	0.0385	0.0120	mg/kg	1		07/24/21 18:44
trans-1,3-Dichloropropene	0.00960	U	0.0192	0.00600	mg/kg	1		07/24/21 18:44
Trichloroethene	0.00385	U	0.00769	0.00231	mg/kg	1		07/24/21 18:44
Trichlorofluoromethane	0.0385	U	0.0769	0.0231	mg/kg	1		07/24/21 18:44
Vinyl acetate	0.0770	U	0.154	0.0477	mg/kg	1		07/24/21 18:44
Vinyl chloride	0.000615	U	0.00123	0.000385	mg/kg	1		07/24/21 18:44
Xylenes (total)	0.0575	U	0.115	0.0351	mg/kg	1		07/24/21 18:44
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/24/21 18:44
4-Bromofluorobenzene (surr)	111		55-151		%	1		07/24/21 18:44
Toluene-d8 (surr)	99.6		85-116		%	1		07/24/21 18:44

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J flagging is activated

Results of **SED-04**

Client Sample ID: **SED-04**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339007
Lab Project ID: 1214339

Collection Date: 07/14/21 09:30
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):82.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 18:44
Container ID: 1214339007-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 09:30
Prep Initial Wt./Vol.: 55.467 g
Prep Extract Vol: 34.9876 mL

Results of **SED-05**

Client Sample ID: **SED-05**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339008
Lab Project ID: 1214339

Collection Date: 07/14/21 11:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	22.2	J	23.7	7.35	mg/kg	1		07/20/21 17:57
Surrogates								
5a Androstane (surr)	96.5		50-150		%	1		07/20/21 17:57

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 17:57
Container ID: 1214339008-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.303 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	60.3	J	119	51.0	mg/kg	1		07/20/21 17:57
Surrogates								
n-Triacontane-d62 (surr)	89.2		50-150		%	1		07/20/21 17:57

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 17:57
Container ID: 1214339008-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.303 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-05**

Client Sample ID: **SED-05**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339008
Lab Project ID: 1214339

Collection Date: 07/14/21 11:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.62	J	3.88	1.16	mg/kg	1		07/24/21 07:21
Surrogates								
4-Bromofluorobenzene (surr)	85.4		50-150		%	1		07/24/21 07:21

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 07:21
Container ID: 1214339008-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/14/21 11:05
Prep Initial Wt./Vol.: 51.776 g
Prep Extract Vol: 33.5555 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-05**

Client Sample ID: **SED-05**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339008
Lab Project ID: 1214339

Collection Date: 07/14/21 11:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0156	U	0.0311	0.00963	mg/kg	1		07/24/21 19:00
1,1,1-Trichloroethane	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,1,2,2-Tetrachloroethane	0.00156	U	0.00311	0.000963	mg/kg	1		07/24/21 19:00
1,1,2-Trichloroethane	0.000620	U	0.00124	0.000388	mg/kg	1		07/24/21 19:00
1,1-Dichloroethane	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,1-Dichloroethene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,1-Dichloropropene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,2,3-Trichlorobenzene	0.0388	U	0.0776	0.0233	mg/kg	1		07/24/21 19:00
1,2,3-Trichloropropane	0.00156	U	0.00311	0.000963	mg/kg	1		07/24/21 19:00
1,2,4-Trichlorobenzene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,2,4-Trimethylbenzene	0.0388	U	0.0776	0.0233	mg/kg	1		07/24/21 19:00
1,2-Dibromo-3-chloropropane	0.0775	U	0.155	0.0481	mg/kg	1		07/24/21 19:00
1,2-Dibromoethane	0.000775	U	0.00155	0.000621	mg/kg	1		07/24/21 19:00
1,2-Dichlorobenzene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,2-Dichloroethane	0.00156	U	0.00311	0.00109	mg/kg	1		07/24/21 19:00
1,2-Dichloropropane	0.00775	U	0.0155	0.00481	mg/kg	1		07/24/21 19:00
1,3,5-Trimethylbenzene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,3-Dichlorobenzene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
1,3-Dichloropropane	0.00775	U	0.0155	0.00481	mg/kg	1		07/24/21 19:00
1,4-Dichlorobenzene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
2,2-Dichloropropane	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
2-Butanone (MEK)	0.194	U	0.388	0.121	mg/kg	1		07/24/21 19:00
2-Chlorotoluene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
2-Hexanone	0.0775	U	0.155	0.0481	mg/kg	1		07/24/21 19:00
4-Chlorotoluene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
4-Isopropyltoluene	0.0775	U	0.155	0.0388	mg/kg	1		07/24/21 19:00
4-Methyl-2-pentanone (MIBK)	0.194	U	0.388	0.121	mg/kg	1		07/24/21 19:00
Acetone	0.194	U	0.388	0.121	mg/kg	1		07/24/21 19:00
Benzene	0.00970	U	0.0194	0.00606	mg/kg	1		07/24/21 19:00
Bromobenzene	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
Bromochloromethane	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
Bromodichloromethane	0.00156	U	0.00311	0.000963	mg/kg	1		07/24/21 19:00
Bromoform	0.0194	U	0.0388	0.0121	mg/kg	1		07/24/21 19:00
Bromomethane	0.0156	U	0.0311	0.00963	mg/kg	1		07/24/21 19:00
Carbon disulfide	0.0775	U	0.155	0.0481	mg/kg	1		07/24/21 19:00
Carbon tetrachloride	0.00970	U	0.0194	0.00606	mg/kg	1		07/24/21 19:00

Results of **SED-05**

Client Sample ID: **SED-05**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339008
Lab Project ID: 1214339

Collection Date: 07/14/21 11:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
Chloroethane	0.156 U		0.311	0.0963	mg/kg	1		07/24/21 19:00
Chloroform	0.00311 U		0.00621	0.00155	mg/kg	1		07/24/21 19:00
Chloromethane	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
cis-1,2-Dichloroethene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
cis-1,3-Dichloropropene	0.00970 U		0.0194	0.00606	mg/kg	1		07/24/21 19:00
Dibromochloromethane	0.00388 U		0.00776	0.00233	mg/kg	1		07/24/21 19:00
Dibromomethane	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
Dichlorodifluoromethane	0.0388 U		0.0776	0.0233	mg/kg	1		07/24/21 19:00
Ethylbenzene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
Freon-113	0.0775 U		0.155	0.0481	mg/kg	1		07/24/21 19:00
Hexachlorobutadiene	0.0156 U		0.0311	0.00963	mg/kg	1		07/24/21 19:00
Isopropylbenzene (Cumene)	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
Methylene chloride	0.0775 U		0.155	0.0481	mg/kg	1		07/24/21 19:00
Methyl-t-butyl ether	0.0775 U		0.155	0.0481	mg/kg	1		07/24/21 19:00
Naphthalene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
n-Butylbenzene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
n-Propylbenzene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
o-Xylene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
P & M -Xylene	0.0388 U		0.0776	0.0233	mg/kg	1		07/24/21 19:00
sec-Butylbenzene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
Styrene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
tert-Butylbenzene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
Tetrachloroethene	0.00970 U		0.0194	0.00606	mg/kg	1		07/24/21 19:00
Toluene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
trans-1,2-Dichloroethene	0.0194 U		0.0388	0.0121	mg/kg	1		07/24/21 19:00
trans-1,3-Dichloropropene	0.00970 U		0.0194	0.00606	mg/kg	1		07/24/21 19:00
Trichloroethene	0.00388 U		0.00776	0.00233	mg/kg	1		07/24/21 19:00
Trichlorofluoromethane	0.0388 U		0.0776	0.0233	mg/kg	1		07/24/21 19:00
Vinyl acetate	0.0775 U		0.155	0.0481	mg/kg	1		07/24/21 19:00
Vinyl chloride	0.000620 U		0.00124	0.000388	mg/kg	1		07/24/21 19:00
Xylenes (total)	0.0580 U		0.116	0.0354	mg/kg	1		07/24/21 19:00
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		07/24/21 19:00
4-Bromofluorobenzene (surr)	105		55-151		%	1		07/24/21 19:00
Toluene-d8 (surr)	98.2		85-116		%	1		07/24/21 19:00

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Results of **SED-05**

Client Sample ID: **SED-05**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339008
Lab Project ID: 1214339

Collection Date: 07/14/21 11:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 19:00
Container ID: 1214339008-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 11:05
Prep Initial Wt./Vol.: 51.776 g
Prep Extract Vol: 33.5555 mL

Results of **SED-104**

Client Sample ID: **SED-104**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339009
Lab Project ID: 1214339

Collection Date: 07/14/21 09:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	30.3		23.8	7.38	mg/kg	1		07/20/21 18:07
Surrogates								
5a Androstane (surr)	85.5		50-150		%	1		07/20/21 18:07

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 18:07
Container ID: 1214339009-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.15 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	66.8	J	119	51.2	mg/kg	1		07/20/21 18:07
Surrogates								
n-Triacontane-d62 (surr)	80.7		50-150		%	1		07/20/21 18:07

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 18:07
Container ID: 1214339009-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.15 g
Prep Extract Vol: 5 mL

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Results of **SED-104**

Client Sample ID: **SED-104**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339009
Lab Project ID: 1214339

Collection Date: 07/14/21 09:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.58 J		4.19	1.26	mg/kg	1		07/24/21 07:39
Surrogates								
4-Bromofluorobenzene (surr)	87.3		50-150		%	1		07/24/21 07:39

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/24/21 07:39
Container ID: 1214339009-A

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 07/14/21 09:40
Prep Initial Wt./Vol.: 46.671 g
Prep Extract Vol: 32.6642 mL

Results of **SED-104**

Client Sample ID: **SED-104**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339009
Lab Project ID: 1214339

Collection Date: 07/14/21 09:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0168 U		0.0335	0.0104	mg/kg	1		07/24/21 19:17
1,1,1-Trichloroethane	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,1,2,2-Tetrachloroethane	0.00168 U		0.00335	0.00104	mg/kg	1		07/24/21 19:17
1,1,2-Trichloroethane	0.000670 U		0.00134	0.000419	mg/kg	1		07/24/21 19:17
1,1-Dichloroethane	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,1-Dichloroethene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,1-Dichloropropene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,2,3-Trichlorobenzene	0.0419 U		0.0837	0.0251	mg/kg	1		07/24/21 19:17
1,2,3-Trichloropropane	0.00168 U		0.00335	0.00104	mg/kg	1		07/24/21 19:17
1,2,4-Trichlorobenzene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,2,4-Trimethylbenzene	0.0419 U		0.0837	0.0251	mg/kg	1		07/24/21 19:17
1,2-Dibromo-3-chloropropane	0.0835 U		0.167	0.0519	mg/kg	1		07/24/21 19:17
1,2-Dibromoethane	0.000835 U		0.00167	0.000670	mg/kg	1		07/24/21 19:17
1,2-Dichlorobenzene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,2-Dichloroethane	0.00168 U		0.00335	0.00117	mg/kg	1		07/24/21 19:17
1,2-Dichloropropane	0.00835 U		0.0167	0.00519	mg/kg	1		07/24/21 19:17
1,3,5-Trimethylbenzene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,3-Dichlorobenzene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
1,3-Dichloropropane	0.00835 U		0.0167	0.00519	mg/kg	1		07/24/21 19:17
1,4-Dichlorobenzene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
2,2-Dichloropropane	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
2-Butanone (MEK)	0.209 U		0.419	0.131	mg/kg	1		07/24/21 19:17
2-Chlorotoluene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
2-Hexanone	0.0835 U		0.167	0.0519	mg/kg	1		07/24/21 19:17
4-Chlorotoluene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
4-Isopropyltoluene	0.0835 U		0.167	0.0419	mg/kg	1		07/24/21 19:17
4-Methyl-2-pentanone (MIBK)	0.209 U		0.419	0.131	mg/kg	1		07/24/21 19:17
Acetone	0.209 U		0.419	0.131	mg/kg	1		07/24/21 19:17
Benzene	0.0104 U		0.0209	0.00653	mg/kg	1		07/24/21 19:17
Bromobenzene	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
Bromochloromethane	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
Bromodichloromethane	0.00168 U		0.00335	0.00104	mg/kg	1		07/24/21 19:17
Bromoform	0.0210 U		0.0419	0.0131	mg/kg	1		07/24/21 19:17
Bromomethane	0.0168 U		0.0335	0.0104	mg/kg	1		07/24/21 19:17
Carbon disulfide	0.0835 U		0.167	0.0519	mg/kg	1		07/24/21 19:17
Carbon tetrachloride	0.0104 U		0.0209	0.00653	mg/kg	1		07/24/21 19:17

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Results of **SED-104**

Client Sample ID: **SED-104**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339009
Lab Project ID: 1214339

Collection Date: 07/14/21 09:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
Chloroethane	0.168	U	0.335	0.104	mg/kg	1		07/24/21 19:17
Chloroform	0.00335	U	0.00670	0.00167	mg/kg	1		07/24/21 19:17
Chloromethane	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
cis-1,2-Dichloroethene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
cis-1,3-Dichloropropene	0.0104	U	0.0209	0.00653	mg/kg	1		07/24/21 19:17
Dibromochloromethane	0.00418	U	0.00837	0.00251	mg/kg	1		07/24/21 19:17
Dibromomethane	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
Dichlorodifluoromethane	0.0419	U	0.0837	0.0251	mg/kg	1		07/24/21 19:17
Ethylbenzene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
Freon-113	0.0835	U	0.167	0.0519	mg/kg	1		07/24/21 19:17
Hexachlorobutadiene	0.0168	U	0.0335	0.0104	mg/kg	1		07/24/21 19:17
Isopropylbenzene (Cumene)	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
Methylene chloride	0.0835	U	0.167	0.0519	mg/kg	1		07/24/21 19:17
Methyl-t-butyl ether	0.0835	U	0.167	0.0519	mg/kg	1		07/24/21 19:17
Naphthalene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
n-Butylbenzene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
n-Propylbenzene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
o-Xylene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
P & M -Xylene	0.0419	U	0.0837	0.0251	mg/kg	1		07/24/21 19:17
sec-Butylbenzene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
Styrene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
tert-Butylbenzene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
Tetrachloroethene	0.0104	U	0.0209	0.00653	mg/kg	1		07/24/21 19:17
Toluene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
trans-1,2-Dichloroethene	0.0210	U	0.0419	0.0131	mg/kg	1		07/24/21 19:17
trans-1,3-Dichloropropene	0.0104	U	0.0209	0.00653	mg/kg	1		07/24/21 19:17
Trichloroethene	0.00418	U	0.00837	0.00251	mg/kg	1		07/24/21 19:17
Trichlorofluoromethane	0.0419	U	0.0837	0.0251	mg/kg	1		07/24/21 19:17
Vinyl acetate	0.0835	U	0.167	0.0519	mg/kg	1		07/24/21 19:17
Vinyl chloride	0.000670	U	0.00134	0.000419	mg/kg	1		07/24/21 19:17
Xylenes (total)	0.0630	U	0.126	0.0382	mg/kg	1		07/24/21 19:17
Surrogates								
1,2-Dichloroethane-D4 (surr)	112		71-136		%	1		07/24/21 19:17
4-Bromofluorobenzene (surr)	107		55-151		%	1		07/24/21 19:17
Toluene-d8 (surr)	99.1		85-116		%	1		07/24/21 19:17

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Results of **SED-104**

Client Sample ID: **SED-104**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339009
Lab Project ID: 1214339

Collection Date: 07/14/21 09:40
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):83.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 19:17
Container ID: 1214339009-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 09:40
Prep Initial Wt./Vol.: 46.671 g
Prep Extract Vol: 32.6642 mL

Results of **SED-06**

Client Sample ID: **SED-06**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339010
Lab Project ID: 1214339

Collection Date: 07/14/21 12:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):45.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	299		87.7	27.2	mg/kg	1		07/20/21 18:27
Surrogates								
5a Androstane (surr)	86.2		50-150		%	1		07/20/21 18:27

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 18:27
Container ID: 1214339010-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 15.031 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	925		438	189	mg/kg	1		07/20/21 18:27
Surrogates								
n-Triacontane-d62 (surr)	77.6		50-150		%	1		07/20/21 18:27

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 18:27
Container ID: 1214339010-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 15.031 g
Prep Extract Vol: 5 mL

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Results of **SED-06**

Client Sample ID: **SED-06**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339010
Lab Project ID: 1214339

Collection Date: 07/14/21 12:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):45.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.67 J		13.7	4.12	mg/kg	1		07/28/21 17:39
Surrogates								
4-Bromofluorobenzene (surr)	45.1	*	50-150		%	1		07/28/21 17:39

Batch Information

Analytical Batch: VFC15737
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/28/21 17:39
Container ID: 1214339010-A

Prep Batch: VXX37520
Prep Method: SW5035A
Prep Date/Time: 07/14/21 12:00
Prep Initial Wt./Vol.: 35.387 g
Prep Extract Vol: 44.2765 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-06**

Client Sample ID: **SED-06**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339010
Lab Project ID: 1214339

Collection Date: 07/14/21 12:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):45.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0550	U	0.110	0.0341	mg/kg	1		07/24/21 19:34
1,1,1-Trichloroethane	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,1,2,2-Tetrachloroethane	0.00550	U	0.0110	0.00341	mg/kg	1		07/24/21 19:34
1,1,2-Trichloroethane	0.00220	U	0.00440	0.00137	mg/kg	1		07/24/21 19:34
1,1-Dichloroethane	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,1-Dichloroethene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,1-Dichloropropene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,2,3-Trichlorobenzene	0.138	U	0.275	0.0824	mg/kg	1		07/24/21 19:34
1,2,3-Trichloropropane	0.00550	U	0.0110	0.00341	mg/kg	1		07/24/21 19:34
1,2,4-Trichlorobenzene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,2,4-Trimethylbenzene	0.138	U	0.275	0.0824	mg/kg	1		07/24/21 19:34
1,2-Dibromo-3-chloropropane	0.275	U	0.550	0.170	mg/kg	1		07/24/21 19:34
1,2-Dibromoethane	0.00275	U	0.00550	0.00220	mg/kg	1		07/24/21 19:34
1,2-Dichlorobenzene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,2-Dichloroethane	0.00550	U	0.0110	0.00385	mg/kg	1		07/24/21 19:34
1,2-Dichloropropane	0.0275	U	0.0550	0.0170	mg/kg	1		07/24/21 19:34
1,3,5-Trimethylbenzene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,3-Dichlorobenzene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
1,3-Dichloropropane	0.0275	U	0.0550	0.0170	mg/kg	1		07/24/21 19:34
1,4-Dichlorobenzene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
2,2-Dichloropropane	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
2-Butanone (MEK)	0.685	U	1.37	0.429	mg/kg	1		07/24/21 19:34
2-Chlorotoluene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
2-Hexanone	0.275	U	0.550	0.170	mg/kg	1		07/24/21 19:34
4-Chlorotoluene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
4-Isopropyltoluene	0.275	U	0.550	0.137	mg/kg	1		07/24/21 19:34
4-Methyl-2-pentanone (MIBK)	0.685	U	1.37	0.429	mg/kg	1		07/24/21 19:34
Acetone	0.456	J	1.37	0.429	mg/kg	1		07/24/21 19:34
Benzene	0.0344	U	0.0687	0.0214	mg/kg	1		07/24/21 19:34
Bromobenzene	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
Bromochloromethane	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
Bromodichloromethane	0.00550	U	0.0110	0.00341	mg/kg	1		07/24/21 19:34
Bromoform	0.0685	U	0.137	0.0429	mg/kg	1		07/24/21 19:34
Bromomethane	0.0550	U	0.110	0.0341	mg/kg	1		07/24/21 19:34
Carbon disulfide	0.275	U	0.550	0.170	mg/kg	1		07/24/21 19:34
Carbon tetrachloride	0.0344	U	0.0687	0.0214	mg/kg	1		07/24/21 19:34

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Results of **SED-06**

Client Sample ID: **SED-06**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339010
Lab Project ID: 1214339

Collection Date: 07/14/21 12:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):45.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
Chloroethane	0.550 U		1.10	0.341	mg/kg	1		07/24/21 19:34
Chloroform	0.0110 U		0.0220	0.00550	mg/kg	1		07/24/21 19:34
Chloromethane	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
cis-1,2-Dichloroethene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
cis-1,3-Dichloropropene	0.0344 U		0.0687	0.0214	mg/kg	1		07/24/21 19:34
Dibromochloromethane	0.0138 U		0.0275	0.00824	mg/kg	1		07/24/21 19:34
Dibromomethane	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
Dichlorodifluoromethane	0.138 U		0.275	0.0824	mg/kg	1		07/24/21 19:34
Ethylbenzene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
Freon-113	0.275 U		0.550	0.170	mg/kg	1		07/24/21 19:34
Hexachlorobutadiene	0.0550 U		0.110	0.0341	mg/kg	1		07/24/21 19:34
Isopropylbenzene (Cumene)	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
Methylene chloride	0.275 U		0.550	0.170	mg/kg	1		07/24/21 19:34
Methyl-t-butyl ether	0.275 U		0.550	0.170	mg/kg	1		07/24/21 19:34
Naphthalene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
n-Butylbenzene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
n-Propylbenzene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
o-Xylene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
P & M -Xylene	0.138 U		0.275	0.0824	mg/kg	1		07/24/21 19:34
sec-Butylbenzene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
Styrene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
tert-Butylbenzene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
Tetrachloroethene	0.0344 U		0.0687	0.0214	mg/kg	1		07/24/21 19:34
Toluene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
trans-1,2-Dichloroethene	0.0685 U		0.137	0.0429	mg/kg	1		07/24/21 19:34
trans-1,3-Dichloropropene	0.0344 U		0.0687	0.0214	mg/kg	1		07/24/21 19:34
Trichloroethene	0.0138 U		0.0275	0.00824	mg/kg	1		07/24/21 19:34
Trichlorofluoromethane	0.138 U		0.275	0.0824	mg/kg	1		07/24/21 19:34
Vinyl acetate	0.275 U		0.550	0.170	mg/kg	1		07/24/21 19:34
Vinyl chloride	0.00220 U		0.00440	0.00137	mg/kg	1		07/24/21 19:34
Xylenes (total)	0.206 U		0.412	0.125	mg/kg	1		07/24/21 19:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/24/21 19:34
4-Bromofluorobenzene (surr)	62.2		55-151		%	1		07/24/21 19:34
Toluene-d8 (surr)	98.3		85-116		%	1		07/24/21 19:34

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Results of **SED-06**

Client Sample ID: **SED-06**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339010
Lab Project ID: 1214339

Collection Date: 07/14/21 12:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):45.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 19:34
Container ID: 1214339010-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 12:00
Prep Initial Wt./Vol.: 35.387 g
Prep Extract Vol: 44.2765 mL

Results of **SED-07**

Client Sample ID: **SED-07**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339011
Lab Project ID: 1214339

Collection Date: 07/14/21 14:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):55.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	509		143	44.4	mg/kg	4		07/20/21 20:08
Surrogates								
5a Androstane (surr)	78		50-150		%	4		07/20/21 20:08

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 20:08
Container ID: 1214339011-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.342 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	2520		716	308	mg/kg	4		07/20/21 20:08
Surrogates								
n-Triacontane-d62 (surr)	74.8		50-150		%	4		07/20/21 20:08

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 20:08
Container ID: 1214339011-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.342 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

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Results of **SED-07**

Client Sample ID: **SED-07**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339011
Lab Project ID: 1214339

Collection Date: 07/14/21 14:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):55.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.87	J	11.2	3.36	mg/kg	1		07/28/21 17:57
Surrogates								
4-Bromofluorobenzene (surr)	74.1		50-150		%	1		07/28/21 17:57

Batch Information

Analytical Batch: VFC15737
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/28/21 17:57
Container ID: 1214339011-A

Prep Batch: VXX37520
Prep Method: SW5035A
Prep Date/Time: 07/14/21 14:00
Prep Initial Wt./Vol.: 31.613 g
Prep Extract Vol: 39.1544 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-07**

Client Sample ID: **SED-07**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339011
Lab Project ID: 1214339

Collection Date: 07/14/21 14:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):55.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0449	U	0.0897	0.0278	mg/kg	1		07/24/21 19:50
1,1,1-Trichloroethane	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,1,2,2-Tetrachloroethane	0.00449	U	0.00897	0.00278	mg/kg	1		07/24/21 19:50
1,1,2-Trichloroethane	0.00179	U	0.00359	0.00112	mg/kg	1		07/24/21 19:50
1,1-Dichloroethane	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,1-Dichloroethene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,1-Dichloropropene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,2,3-Trichlorobenzene	0.112	U	0.224	0.0673	mg/kg	1		07/24/21 19:50
1,2,3-Trichloropropane	0.00449	U	0.00897	0.00278	mg/kg	1		07/24/21 19:50
1,2,4-Trichlorobenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,2,4-Trimethylbenzene	0.112	U	0.224	0.0673	mg/kg	1		07/24/21 19:50
1,2-Dibromo-3-chloropropane	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
1,2-Dibromoethane	0.00225	U	0.00449	0.00179	mg/kg	1		07/24/21 19:50
1,2-Dichlorobenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,2-Dichloroethane	0.00449	U	0.00897	0.00314	mg/kg	1		07/24/21 19:50
1,2-Dichloropropane	0.0225	U	0.0449	0.0139	mg/kg	1		07/24/21 19:50
1,3,5-Trimethylbenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,3-Dichlorobenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
1,3-Dichloropropane	0.0225	U	0.0449	0.0139	mg/kg	1		07/24/21 19:50
1,4-Dichlorobenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
2,2-Dichloropropane	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
2-Butanone (MEK)	0.560	U	1.12	0.350	mg/kg	1		07/24/21 19:50
2-Chlorotoluene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
2-Hexanone	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
4-Chlorotoluene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
4-Isopropyltoluene	0.225	U	0.449	0.112	mg/kg	1		07/24/21 19:50
4-Methyl-2-pentanone (MIBK)	0.560	U	1.12	0.350	mg/kg	1		07/24/21 19:50
Acetone	0.560	U	1.12	0.350	mg/kg	1		07/24/21 19:50
Benzene	0.0281	U	0.0561	0.0175	mg/kg	1		07/24/21 19:50
Bromobenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Bromochloromethane	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Bromodichloromethane	0.00449	U	0.00897	0.00278	mg/kg	1		07/24/21 19:50
Bromoform	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Bromomethane	0.0449	U	0.0897	0.0278	mg/kg	1		07/24/21 19:50
Carbon disulfide	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
Carbon tetrachloride	0.0281	U	0.0561	0.0175	mg/kg	1		07/24/21 19:50

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Results of **SED-07**

Client Sample ID: **SED-07**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339011
Lab Project ID: 1214339

Collection Date: 07/14/21 14:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):55.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Chloroethane	0.449	U	0.897	0.278	mg/kg	1		07/24/21 19:50
Chloroform	0.00895	U	0.0179	0.00449	mg/kg	1		07/24/21 19:50
Chloromethane	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
cis-1,2-Dichloroethene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
cis-1,3-Dichloropropene	0.0281	U	0.0561	0.0175	mg/kg	1		07/24/21 19:50
Dibromochloromethane	0.0112	U	0.0224	0.00673	mg/kg	1		07/24/21 19:50
Dibromomethane	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Dichlorodifluoromethane	0.112	U	0.224	0.0673	mg/kg	1		07/24/21 19:50
Ethylbenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Freon-113	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
Hexachlorobutadiene	0.0449	U	0.0897	0.0278	mg/kg	1		07/24/21 19:50
Isopropylbenzene (Cumene)	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Methylene chloride	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
Methyl-t-butyl ether	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
Naphthalene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
n-Butylbenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
n-Propylbenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
o-Xylene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
P & M -Xylene	0.112	U	0.224	0.0673	mg/kg	1		07/24/21 19:50
sec-Butylbenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Styrene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
tert-Butylbenzene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
Tetrachloroethene	0.0281	U	0.0561	0.0175	mg/kg	1		07/24/21 19:50
Toluene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
trans-1,2-Dichloroethene	0.0560	U	0.112	0.0350	mg/kg	1		07/24/21 19:50
trans-1,3-Dichloropropene	0.0281	U	0.0561	0.0175	mg/kg	1		07/24/21 19:50
Trichloroethene	0.0112	U	0.0224	0.00673	mg/kg	1		07/24/21 19:50
Trichlorofluoromethane	0.112	U	0.224	0.0673	mg/kg	1		07/24/21 19:50
Vinyl acetate	0.225	U	0.449	0.139	mg/kg	1		07/24/21 19:50
Vinyl chloride	0.00179	U	0.00359	0.00112	mg/kg	1		07/24/21 19:50
Xylenes (total)	0.168	U	0.336	0.102	mg/kg	1		07/24/21 19:50
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		71-136		%	1		07/24/21 19:50
4-Bromofluorobenzene (surr)	85.4		55-151		%	1		07/24/21 19:50
Toluene-d8 (surr)	99.4		85-116		%	1		07/24/21 19:50

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-07**

Client Sample ID: **SED-07**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339011
Lab Project ID: 1214339

Collection Date: 07/14/21 14:00
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):55.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 19:50
Container ID: 1214339011-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 14:00
Prep Initial Wt./Vol.: 31.613 g
Prep Extract Vol: 39.1544 mL

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Results of **SED-08**

Client Sample ID: **SED-08**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339012
Lab Project ID: 1214339

Collection Date: 07/14/21 16:45
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):17.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	307		116	35.9	mg/kg	1		07/20/21 19:28
Surrogates								
5a Androstane (surr)	77.3		50-150		%	1		07/20/21 19:28

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/20/21 19:28
Container ID: 1214339012-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.193 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1760		580	249	mg/kg	1		07/20/21 19:28
Surrogates								
n-Triacontane-d62 (surr)	70.9		50-150		%	1		07/20/21 19:28

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/20/21 19:28
Container ID: 1214339012-B

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 07/20/21 07:38
Prep Initial Wt./Vol.: 30.193 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

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Results of **SED-08**

Client Sample ID: **SED-08**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339012
Lab Project ID: 1214339

Collection Date: 07/14/21 16:45
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):17.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	20.4	J	56.3	16.9	mg/kg	1		07/28/21 18:14
Surrogates								
4-Bromofluorobenzene (surr)	92.2		50-150		%	1		07/28/21 18:14

Batch Information

Analytical Batch: VFC15737
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/28/21 18:14
Container ID: 1214339012-A

Prep Batch: VXX37520
Prep Method: SW5035A
Prep Date/Time: 07/14/21 16:45
Prep Initial Wt./Vol.: 22.693 g
Prep Extract Vol: 43.8035 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-08**

Client Sample ID: **SED-08**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339012
Lab Project ID: 1214339

Collection Date: 07/14/21 16:45
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):17.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.225	U	0.450	0.140	mg/kg	1		07/24/21 20:07
1,1,1-Trichloroethane	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,1,2,2-Tetrachloroethane	0.0225	U	0.0450	0.0140	mg/kg	1		07/24/21 20:07
1,1,2-Trichloroethane	0.00900	U	0.0180	0.00563	mg/kg	1		07/24/21 20:07
1,1-Dichloroethane	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,1-Dichloroethene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,1-Dichloropropene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,2,3-Trichlorobenzene	0.565	U	1.13	0.338	mg/kg	1		07/24/21 20:07
1,2,3-Trichloropropane	0.0225	U	0.0450	0.0140	mg/kg	1		07/24/21 20:07
1,2,4-Trichlorobenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,2,4-Trimethylbenzene	0.565	U	1.13	0.338	mg/kg	1		07/24/21 20:07
1,2-Dibromo-3-chloropropane	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
1,2-Dibromoethane	0.0113	U	0.0225	0.00901	mg/kg	1		07/24/21 20:07
1,2-Dichlorobenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,2-Dichloroethane	0.0225	U	0.0450	0.0158	mg/kg	1		07/24/21 20:07
1,2-Dichloropropane	0.113	U	0.225	0.0698	mg/kg	1		07/24/21 20:07
1,3,5-Trimethylbenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,3-Dichlorobenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
1,3-Dichloropropane	0.113	U	0.225	0.0698	mg/kg	1		07/24/21 20:07
1,4-Dichlorobenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
2,2-Dichloropropane	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
2-Butanone (MEK)	2.81	U	5.63	1.76	mg/kg	1		07/24/21 20:07
2-Chlorotoluene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
2-Hexanone	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
4-Chlorotoluene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
4-Isopropyltoluene	1.13	U	2.25	0.563	mg/kg	1		07/24/21 20:07
4-Methyl-2-pentanone (MIBK)	2.81	U	5.63	1.76	mg/kg	1		07/24/21 20:07
Acetone	2.81	U	5.63	1.76	mg/kg	1		07/24/21 20:07
Benzene	0.141	U	0.282	0.0878	mg/kg	1		07/24/21 20:07
Bromobenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Bromochloromethane	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Bromodichloromethane	0.0225	U	0.0450	0.0140	mg/kg	1		07/24/21 20:07
Bromoform	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Bromomethane	0.225	U	0.450	0.140	mg/kg	1		07/24/21 20:07
Carbon disulfide	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
Carbon tetrachloride	0.141	U	0.282	0.0878	mg/kg	1		07/24/21 20:07

Results of **SED-08**

Client Sample ID: **SED-08**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339012
Lab Project ID: 1214339

Collection Date: 07/14/21 16:45
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):17.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Chloroethane	2.25	U	4.50	1.40	mg/kg	1		07/24/21 20:07
Chloroform	0.0451	U	0.0901	0.0225	mg/kg	1		07/24/21 20:07
Chloromethane	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
cis-1,2-Dichloroethene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
cis-1,3-Dichloropropene	0.141	U	0.282	0.0878	mg/kg	1		07/24/21 20:07
Dibromochloromethane	0.0565	U	0.113	0.0338	mg/kg	1		07/24/21 20:07
Dibromomethane	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Dichlorodifluoromethane	0.565	U	1.13	0.338	mg/kg	1		07/24/21 20:07
Ethylbenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Freon-113	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
Hexachlorobutadiene	0.225	U	0.450	0.140	mg/kg	1		07/24/21 20:07
Isopropylbenzene (Cumene)	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Methylene chloride	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
Methyl-t-butyl ether	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
Naphthalene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
n-Butylbenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
n-Propylbenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
o-Xylene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
P & M -Xylene	0.565	U	1.13	0.338	mg/kg	1		07/24/21 20:07
sec-Butylbenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Styrene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
tert-Butylbenzene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
Tetrachloroethene	0.141	U	0.282	0.0878	mg/kg	1		07/24/21 20:07
Toluene	0.197	J	0.563	0.176	mg/kg	1		07/24/21 20:07
trans-1,2-Dichloroethene	0.282	U	0.563	0.176	mg/kg	1		07/24/21 20:07
trans-1,3-Dichloropropene	0.141	U	0.282	0.0878	mg/kg	1		07/24/21 20:07
Trichloroethene	0.0565	U	0.113	0.0338	mg/kg	1		07/24/21 20:07
Trichlorofluoromethane	0.565	U	1.13	0.338	mg/kg	1		07/24/21 20:07
Vinyl acetate	1.13	U	2.25	0.698	mg/kg	1		07/24/21 20:07
Vinyl chloride	0.00900	U	0.0180	0.00563	mg/kg	1		07/24/21 20:07
Xylenes (total)	0.845	U	1.69	0.514	mg/kg	1		07/24/21 20:07
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/24/21 20:07
4-Bromofluorobenzene (surr)	114		55-151		%	1		07/24/21 20:07
Toluene-d8 (surr)	100		85-116		%	1		07/24/21 20:07

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Results of **SED-08**

Client Sample ID: **SED-08**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339012
Lab Project ID: 1214339

Collection Date: 07/14/21 16:45
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):17.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 20:07
Container ID: 1214339012-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 16:45
Prep Initial Wt./Vol.: 22.693 g
Prep Extract Vol: 43.8035 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **SED-09**

Client Sample ID: **SED-09**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339013
Lab Project ID: 1214339

Collection Date: 07/14/21 18:15
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	22.9	J	23.0	7.14	mg/kg	1		07/21/21 21:10
Surrogates								
5a Androstane (surr)	89.9		50-150		%	1		07/21/21 21:10

Batch Information

Analytical Batch: XFC16012
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 07/21/21 21:10
Container ID: 1214339013-B

Prep Batch: XXX45205
Prep Method: SW3550C
Prep Date/Time: 07/21/21 13:44
Prep Initial Wt./Vol.: 30.387 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	87.4	J	115	49.5	mg/kg	1		07/21/21 21:10
Surrogates								
n-Triacontane-d62 (surr)	87.5		50-150		%	1		07/21/21 21:10

Batch Information

Analytical Batch: XFC16012
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 07/21/21 21:10
Container ID: 1214339013-B

Prep Batch: XXX45205
Prep Method: SW3550C
Prep Date/Time: 07/21/21 13:44
Prep Initial Wt./Vol.: 30.387 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-09**

Client Sample ID: **SED-09**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339013
Lab Project ID: 1214339

Collection Date: 07/14/21 18:15
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.63	J	4.31	1.29	mg/kg	1		07/28/21 18:32
Surrogates								
4-Bromofluorobenzene (surr)	85.8		50-150		%	1		07/28/21 18:32

Batch Information

Analytical Batch: VFC15737
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/28/21 18:32
Container ID: 1214339013-A

Prep Batch: VXX37520
Prep Method: SW5035A
Prep Date/Time: 07/14/21 18:15
Prep Initial Wt./Vol.: 41.91 g
Prep Extract Vol: 30.9764 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-09**

Client Sample ID: **SED-09**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339013
Lab Project ID: 1214339

Collection Date: 07/14/21 18:15
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0173 U		0.0345	0.0107	mg/kg	1		07/24/21 20:23
1,1,1-Trichloroethane	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,1,2,2-Tetrachloroethane	0.00173 U		0.00345	0.00107	mg/kg	1		07/24/21 20:23
1,1,2-Trichloroethane	0.000690 U		0.00138	0.000431	mg/kg	1		07/24/21 20:23
1,1-Dichloroethane	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,1-Dichloroethene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,1-Dichloropropene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,2,3-Trichlorobenzene	0.0431 U		0.0862	0.0259	mg/kg	1		07/24/21 20:23
1,2,3-Trichloropropane	0.00173 U		0.00345	0.00107	mg/kg	1		07/24/21 20:23
1,2,4-Trichlorobenzene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,2,4-Trimethylbenzene	0.0431 U		0.0862	0.0259	mg/kg	1		07/24/21 20:23
1,2-Dibromo-3-chloropropane	0.0860 U		0.172	0.0534	mg/kg	1		07/24/21 20:23
1,2-Dibromoethane	0.000860 U		0.00172	0.000690	mg/kg	1		07/24/21 20:23
1,2-Dichlorobenzene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,2-Dichloroethane	0.00173 U		0.00345	0.00121	mg/kg	1		07/24/21 20:23
1,2-Dichloropropane	0.00860 U		0.0172	0.00534	mg/kg	1		07/24/21 20:23
1,3,5-Trimethylbenzene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,3-Dichlorobenzene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
1,3-Dichloropropane	0.00860 U		0.0172	0.00534	mg/kg	1		07/24/21 20:23
1,4-Dichlorobenzene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
2,2-Dichloropropane	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
2-Butanone (MEK)	0.216 U		0.431	0.134	mg/kg	1		07/24/21 20:23
2-Chlorotoluene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
2-Hexanone	0.0860 U		0.172	0.0534	mg/kg	1		07/24/21 20:23
4-Chlorotoluene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
4-Isopropyltoluene	0.0860 U		0.172	0.0431	mg/kg	1		07/24/21 20:23
4-Methyl-2-pentanone (MIBK)	0.216 U		0.431	0.134	mg/kg	1		07/24/21 20:23
Acetone	0.216 U		0.431	0.134	mg/kg	1		07/24/21 20:23
Benzene	0.0108 U		0.0216	0.00672	mg/kg	1		07/24/21 20:23
Bromobenzene	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
Bromochloromethane	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
Bromodichloromethane	0.00173 U		0.00345	0.00107	mg/kg	1		07/24/21 20:23
Bromoform	0.0216 U		0.0431	0.0134	mg/kg	1		07/24/21 20:23
Bromomethane	0.0173 U		0.0345	0.0107	mg/kg	1		07/24/21 20:23
Carbon disulfide	0.0860 U		0.172	0.0534	mg/kg	1		07/24/21 20:23
Carbon tetrachloride	0.0108 U		0.0216	0.00672	mg/kg	1		07/24/21 20:23

Results of **SED-09**

Client Sample ID: **SED-09**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339013
Lab Project ID: 1214339

Collection Date: 07/14/21 18:15
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
Chloroethane	0.173	U	0.345	0.107	mg/kg	1		07/24/21 20:23
Chloroform	0.00345	U	0.00690	0.00172	mg/kg	1		07/24/21 20:23
Chloromethane	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
cis-1,2-Dichloroethene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
cis-1,3-Dichloropropene	0.0108	U	0.0216	0.00672	mg/kg	1		07/24/21 20:23
Dibromochloromethane	0.00431	U	0.00862	0.00259	mg/kg	1		07/24/21 20:23
Dibromomethane	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
Dichlorodifluoromethane	0.0431	U	0.0862	0.0259	mg/kg	1		07/24/21 20:23
Ethylbenzene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
Freon-113	0.0860	U	0.172	0.0534	mg/kg	1		07/24/21 20:23
Hexachlorobutadiene	0.0173	U	0.0345	0.0107	mg/kg	1		07/24/21 20:23
Isopropylbenzene (Cumene)	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
Methylene chloride	0.0860	U	0.172	0.0534	mg/kg	1		07/24/21 20:23
Methyl-t-butyl ether	0.0860	U	0.172	0.0534	mg/kg	1		07/24/21 20:23
Naphthalene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
n-Butylbenzene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
n-Propylbenzene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
o-Xylene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
P & M -Xylene	0.0431	U	0.0862	0.0259	mg/kg	1		07/24/21 20:23
sec-Butylbenzene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
Styrene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
tert-Butylbenzene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
Tetrachloroethene	0.0108	U	0.0216	0.00672	mg/kg	1		07/24/21 20:23
Toluene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
trans-1,2-Dichloroethene	0.0216	U	0.0431	0.0134	mg/kg	1		07/24/21 20:23
trans-1,3-Dichloropropene	0.0108	U	0.0216	0.00672	mg/kg	1		07/24/21 20:23
Trichloroethene	0.00431	U	0.00862	0.00259	mg/kg	1		07/24/21 20:23
Trichlorofluoromethane	0.0431	U	0.0862	0.0259	mg/kg	1		07/24/21 20:23
Vinyl acetate	0.0860	U	0.172	0.0534	mg/kg	1		07/24/21 20:23
Vinyl chloride	0.000690	U	0.00138	0.000431	mg/kg	1		07/24/21 20:23
Xylenes (total)	0.0645	U	0.129	0.0393	mg/kg	1		07/24/21 20:23
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		07/24/21 20:23
4-Bromofluorobenzene (surr)	104		55-151		%	1		07/24/21 20:23
Toluene-d8 (surr)	98.9		85-116		%	1		07/24/21 20:23

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **SED-09**

Client Sample ID: **SED-09**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339013
Lab Project ID: 1214339

Collection Date: 07/14/21 18:15
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):85.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/24/21 20:23
Container ID: 1214339013-A

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 07/14/21 18:15
Prep Initial Wt./Vol.: 41.91 g
Prep Extract Vol: 30.9764 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339014
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.09	J	2.53	0.759	mg/kg	1		07/28/21 17:21
Surrogates								
4-Bromofluorobenzene (surr)	74.6		50-150		%	1		07/28/21 17:21

Batch Information

Analytical Batch: VFC15737
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 07/28/21 17:21
Container ID: 1214339014-A

Prep Batch: VXX37520
Prep Method: SW5035A
Prep Date/Time: 07/08/21 19:05
Prep Initial Wt./Vol.: 49.405 g
Prep Extract Vol: 25 mL

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339014
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0101 U		0.0202	0.00627	mg/kg	1		07/20/21 14:12
1,1,1-Trichloroethane	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,1,2,2-Tetrachloroethane	0.00101 U		0.00202	0.000627	mg/kg	1		07/20/21 14:12
1,1,2-Trichloroethane	0.000405 U		0.000810	0.000253	mg/kg	1		07/20/21 14:12
1,1-Dichloroethane	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,1-Dichloroethene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,1-Dichloropropene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,2,3-Trichlorobenzene	0.0253 U		0.0506	0.0152	mg/kg	1		07/20/21 14:12
1,2,3-Trichloropropane	0.00101 U		0.00202	0.000627	mg/kg	1		07/20/21 14:12
1,2,4-Trichlorobenzene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,2,4-Trimethylbenzene	0.0253 U		0.0506	0.0152	mg/kg	1		07/20/21 14:12
1,2-Dibromo-3-chloropropane	0.0505 U		0.101	0.0314	mg/kg	1		07/20/21 14:12
1,2-Dibromoethane	0.000505 U		0.00101	0.000405	mg/kg	1		07/20/21 14:12
1,2-Dichlorobenzene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,2-Dichloroethane	0.00101 U		0.00202	0.000708	mg/kg	1		07/20/21 14:12
1,2-Dichloropropane	0.00505 U		0.0101	0.00314	mg/kg	1		07/20/21 14:12
1,3,5-Trimethylbenzene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,3-Dichlorobenzene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
1,3-Dichloropropane	0.00505 U		0.0101	0.00314	mg/kg	1		07/20/21 14:12
1,4-Dichlorobenzene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
2,2-Dichloropropane	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
2-Butanone (MEK)	0.127 U		0.253	0.0789	mg/kg	1		07/20/21 14:12
2-Chlorotoluene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
2-Hexanone	0.0505 U		0.101	0.0314	mg/kg	1		07/20/21 14:12
4-Chlorotoluene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
4-Isopropyltoluene	0.0505 U		0.101	0.0253	mg/kg	1		07/20/21 14:12
4-Methyl-2-pentanone (MIBK)	0.127 U		0.253	0.0789	mg/kg	1		07/20/21 14:12
Acetone	0.127 U		0.253	0.0789	mg/kg	1		07/20/21 14:12
Benzene	0.00635 U		0.0127	0.00395	mg/kg	1		07/20/21 14:12
Bromobenzene	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
Bromochloromethane	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
Bromodichloromethane	0.00101 U		0.00202	0.000627	mg/kg	1		07/20/21 14:12
Bromoform	0.0127 U		0.0253	0.00789	mg/kg	1		07/20/21 14:12
Bromomethane	0.0101 U		0.0202	0.00627	mg/kg	1		07/20/21 14:12
Carbon disulfide	0.0505 U		0.101	0.0314	mg/kg	1		07/20/21 14:12
Carbon tetrachloride	0.00635 U		0.0127	0.00395	mg/kg	1		07/20/21 14:12

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339014
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chlorobenzene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
Chloroethane	0.101	U	0.202	0.0627	mg/kg	1		07/20/21 14:12
Chloroform	0.00202	U	0.00405	0.00101	mg/kg	1		07/20/21 14:12
Chloromethane	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
cis-1,2-Dichloroethene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
cis-1,3-Dichloropropene	0.00635	U	0.0127	0.00395	mg/kg	1		07/20/21 14:12
Dibromochloromethane	0.00253	U	0.00506	0.00152	mg/kg	1		07/20/21 14:12
Dibromomethane	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
Dichlorodifluoromethane	0.0253	U	0.0506	0.0152	mg/kg	1		07/20/21 14:12
Ethylbenzene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
Freon-113	0.0505	U	0.101	0.0314	mg/kg	1		07/20/21 14:12
Hexachlorobutadiene	0.0101	U	0.0202	0.00627	mg/kg	1		07/20/21 14:12
Isopropylbenzene (Cumene)	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
Methylene chloride	0.0505	U	0.101	0.0314	mg/kg	1		07/20/21 14:12
Methyl-t-butyl ether	0.0505	U	0.101	0.0314	mg/kg	1		07/20/21 14:12
Naphthalene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
n-Butylbenzene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
n-Propylbenzene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
o-Xylene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
P & M -Xylene	0.0253	U	0.0506	0.0152	mg/kg	1		07/20/21 14:12
sec-Butylbenzene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
Styrene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
tert-Butylbenzene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
Tetrachloroethene	0.00635	U	0.0127	0.00395	mg/kg	1		07/20/21 14:12
Toluene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
trans-1,2-Dichloroethene	0.0127	U	0.0253	0.00789	mg/kg	1		07/20/21 14:12
trans-1,3-Dichloropropene	0.00635	U	0.0127	0.00395	mg/kg	1		07/20/21 14:12
Trichloroethene	0.00253	U	0.00506	0.00152	mg/kg	1		07/20/21 14:12
Trichlorofluoromethane	0.0253	U	0.0506	0.0152	mg/kg	1		07/20/21 14:12
Vinyl acetate	0.0505	U	0.101	0.0314	mg/kg	1		07/20/21 14:12
Vinyl chloride	0.000405	U	0.000810	0.000253	mg/kg	1		07/20/21 14:12
Xylenes (total)	0.0380	U	0.0759	0.0231	mg/kg	1		07/20/21 14:12
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.4		71-136		%	1		07/20/21 14:12
4-Bromofluorobenzene (surr)	103		55-151		%	1		07/20/21 14:12
Toluene-d8 (surr)	95		85-116		%	1		07/20/21 14:12

Print Date: 08/06/2021 4:51:57PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 DLG PFAS**
Lab Sample ID: 1214339014
Lab Project ID: 1214339

Collection Date: 07/08/21 19:05
Received Date: 07/16/21 16:24
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed

Batch Information

Analytical Batch: VMS20942
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/20/21 14:12
Container ID: 1214339014-A

Prep Batch: VXX37457
Prep Method: SW5035A
Prep Date/Time: 07/08/21 19:05
Prep Initial Wt./Vol.: 49.405 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1822607 [SPT/11326]
Blank Lab ID: 1624214

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001, 1214339002, 1214339003, 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT11326
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM
Analytical Date/Time: 7/19/2021 5:34:00PM

Duplicate Sample Summary

Original Sample ID: 1214316002
Duplicate Sample ID: 1624215
QC for Samples:

Analysis Date: 07/19/2021 17:34
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	71.0	73.2	%	3.00	(< 15)

Batch Information

Analytical Batch: SPT11326
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM

Print Date: 08/06/2021 4:52:04PM

Duplicate Sample Summary

Original Sample ID: 1214316018
Duplicate Sample ID: 1624216

Analysis Date: 07/19/2021 17:34
Matrix: Soil/Solid (dry weight)

QC for Samples:

1214339001, 1214339002, 1214339003, 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	70.6	68.7	%	2.80	(< 15)

Batch Information

Analytical Batch: SPT11326
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM

Print Date: 08/06/2021 4:52:04PM

Duplicate Sample Summary

Original Sample ID: 1214346001
Duplicate Sample ID: 1624217

Analysis Date: 07/19/2021 17:34
Matrix: Soil/Solid (dry weight)

QC for Samples:

1214339001, 1214339002, 1214339003, 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	96.7	96.7	%	0.01	(< 15)

Batch Information

Analytical Batch: SPT11326
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM

Print Date: 08/06/2021 4:52:04PM

Method Blank

Blank ID: MB for HBN 1822628 [VXX/37454]
Blank Lab ID: 1624305

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1822628 [VXX/37454]
Blank Lab ID: 1624305

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00200U	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	101	55-151		%
Toluene-d8 (surr)	94.7	85-116		%

Method Blank

Blank ID: MB for HBN 1822628 [VXX/37454]
Blank Lab ID: 1624305

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20941
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/19/2021 9:18:00AM

Prep Batch: VXX37454
Prep Method: SW5035A
Prep Date/Time: 7/19/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37454]
Blank Spike Lab ID: 1624306
Date Analyzed: 07/19/2021 09:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.748	100	(78-125)
1,1,1-Trichloroethane	0.750	0.715	95	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.799	107	(70-124)
1,1,2-Trichloroethane	0.750	0.739	99	(78-121)
1,1-Dichloroethane	0.750	0.684	91	(76-125)
1,1-Dichloroethene	0.750	0.682	91	(70-131)
1,1-Dichloropropene	0.750	0.670	89	(76-125)
1,2,3-Trichlorobenzene	0.750	0.658	88	(66-130)
1,2,3-Trichloropropane	0.750	0.778	104	(73-125)
1,2,4-Trichlorobenzene	0.750	0.685	91	(67-129)
1,2,4-Trimethylbenzene	0.750	0.735	98	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.762	102	(61-132)
1,2-Dibromoethane	0.750	0.761	101	(78-122)
1,2-Dichlorobenzene	0.750	0.723	96	(78-121)
1,2-Dichloroethane	0.750	0.696	93	(73-128)
1,2-Dichloropropane	0.750	0.715	95	(76-123)
1,3,5-Trimethylbenzene	0.750	0.724	97	(73-124)
1,3-Dichlorobenzene	0.750	0.722	96	(77-121)
1,3-Dichloropropane	0.750	0.712	95	(77-121)
1,4-Dichlorobenzene	0.750	0.723	96	(75-120)
2,2-Dichloropropane	0.750	0.764	102	(67-133)
2-Butanone (MEK)	2.25	2.39	106	(51-148)
2-Chlorotoluene	0.750	0.729	97	(75-122)
2-Hexanone	2.25	2.32	103	(53-145)
4-Chlorotoluene	0.750	0.725	97	(72-124)
4-Isopropyltoluene	0.750	0.737	98	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.30	102	(65-135)
Acetone	2.25	1.95	87	(36-164)
Benzene	0.750	0.674	90	(77-121)
Bromobenzene	0.750	0.765	102	(78-121)
Bromochloromethane	0.750	0.720	96	(78-125)
Bromodichloromethane	0.750	0.829	110	(75-127)
Bromoform	0.750	0.751	100	(67-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37454]
Blank Spike Lab ID: 1624306
Date Analyzed: 07/19/2021 09:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
Bromomethane	0.750	0.658	88	(53-143)
Carbon disulfide	1.13	1.14	102	(63-132)
Carbon tetrachloride	0.750	0.743	99	(70-135)
Chlorobenzene	0.750	0.663	88	(79-120)
Chloroethane	0.750	0.688	92	(59-139)
Chloroform	0.750	0.691	92	(78-123)
Chloromethane	0.750	0.649	87	(50-136)
cis-1,2-Dichloroethene	0.750	0.696	93	(77-123)
cis-1,3-Dichloropropene	0.750	0.834	111	(74-126)
Dibromochloromethane	0.750	0.735	98	(74-126)
Dibromomethane	0.750	0.754	101	(78-125)
Dichlorodifluoromethane	0.750	0.754	100	(29-149)
Ethylbenzene	0.750	0.640	85	(76-122)
Freon-113	1.13	1.00	89	(66-136)
Hexachlorobutadiene	0.750	0.752	100	(61-135)
Isopropylbenzene (Cumene)	0.750	0.650	87	(68-134)
Methylene chloride	0.750	0.702	94	(70-128)
Methyl-t-butyl ether	1.13	1.10	97	(73-125)
Naphthalene	0.750	0.695	93	(62-129)
n-Butylbenzene	0.750	0.742	99	(70-128)
n-Propylbenzene	0.750	0.735	98	(73-125)
o-Xylene	0.750	0.663	88	(77-123)
P & M -Xylene	1.50	1.27	85	(77-124)
sec-Butylbenzene	0.750	0.715	95	(73-126)
Styrene	0.750	0.688	92	(76-124)
tert-Butylbenzene	0.750	0.733	98	(73-125)
Tetrachloroethene	0.750	0.658	88	(73-128)
Toluene	0.750	0.651	87	(77-121)
trans-1,2-Dichloroethene	0.750	0.668	89	(74-125)
trans-1,3-Dichloropropene	0.750	0.753	100	(71-130)
Trichloroethene	0.750	0.698	93	(77-123)
Trichlorofluoromethane	0.750	1.04	139	(62-140)
Vinyl acetate	0.750	0.825	110	(50-151)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37454]
Blank Spike Lab ID: 1624306
Date Analyzed: 07/19/2021 09:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
Vinyl chloride	0.750	0.684	91	(56-135)
Xylenes (total)	2.25	1.93	86	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		100	(71-136)
4-Bromofluorobenzene (surr)	0.750		98	(55-151)
Toluene-d8 (surr)	0.750		95	(85-116)

Batch Information

Analytical Batch: **VMS20941**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX37454**
Prep Method: **SW5035A**
Prep Date/Time: **07/19/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1624307
MS Sample ID: 1624308 MS
MSD Sample ID: 1624309 MSD

Analysis Date: 07/19/2021 12:59
Analysis Date: 07/19/2021 11:42
Analysis Date: 07/19/2021 11:57
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339001

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00795U	0.595	0.608	102	0.595	0.603	101	78-125	0.79	(< 20)
1,1,1-Trichloroethane	0.00990U	0.595	0.579	97	0.595	0.573	96	73-130	1.10	(< 20)
1,1,2,2-Tetrachloroethane	0.000795U	0.595	0.641	108	0.595	0.663	111	70-124	3.30	(< 20)
1,1,2-Trichloroethane	0.000318U	0.595	0.589	99	0.595	0.592	99	78-121	0.54	(< 20)
1,1-Dichloroethane	0.00990U	0.595	0.557	94	0.595	0.549	92	76-125	1.40	(< 20)
1,1-Dichloroethene	0.00990U	0.595	0.556	93	0.595	0.541	91	70-131	2.70	(< 20)
1,1-Dichloropropene	0.00990U	0.595	0.543	91	0.595	0.536	90	76-125	1.40	(< 20)
1,2,3-Trichlorobenzene	0.0199U	0.595	0.603	101	0.595	0.671	113	66-130	10.80	(< 20)
1,2,3-Trichloropropane	0.000795U	0.595	0.632	106	0.595	0.649	109	73-125	2.60	(< 20)
1,2,4-Trichlorobenzene	0.00990U	0.595	0.611	103	0.595	0.635	107	67-129	3.90	(< 20)
1,2,4-Trimethylbenzene	0.0199U	0.595	0.605	102	0.595	0.594	100	75-123	1.80	(< 20)
1,2-Dibromo-3-chloropropane	0.0396U	0.595	0.637	107	0.595	0.639	107	61-132	0.44	(< 20)
1,2-Dibromoethane	0.000396U	0.595	0.610	103	0.595	0.617	104	78-122	1.20	(< 20)
1,2-Dichlorobenzene	0.00990U	0.595	0.575	97	0.595	0.591	99	78-121	2.80	(< 20)
1,2-Dichloroethane	0.000795U	0.595	0.553	93	0.595	0.553	93	73-128	0.04	(< 20)
1,2-Dichloropropane	0.00396U	0.595	0.573	96	0.595	0.574	97	76-123	0.17	(< 20)
1,3,5-Trimethylbenzene	0.00990U	0.595	0.598	100	0.595	0.599	101	73-124	0.20	(< 20)
1,3-Dichlorobenzene	0.00990U	0.595	0.582	98	0.595	0.573	96	77-121	1.50	(< 20)
1,3-Dichloropropane	0.00396U	0.595	0.571	96	0.595	0.572	96	77-121	0.24	(< 20)
1,4-Dichlorobenzene	0.00990U	0.595	0.588	99	0.595	0.590	99	75-120	0.40	(< 20)
2,2-Dichloropropane	0.00990U	0.595	0.622	105	0.595	0.614	103	67-133	1.40	(< 20)
2-Butanone (MEK)	0.0990U	1.79	1.89	106	1.79	1.91	107	51-148	0.75	(< 20)
2-Chlorotoluene	0.00990U	0.595	0.596	100	0.595	0.591	99	75-122	0.77	(< 20)
2-Hexanone	0.0396U	1.79	1.85	104	1.79	1.87	105	53-145	0.84	(< 20)
4-Chlorotoluene	0.00990U	0.595	0.595	100	0.595	0.605	102	72-124	1.80	(< 20)
4-Isopropyltoluene	0.0396U	0.595	0.601	101	0.595	0.590	99	73-127	1.90	(< 20)
4-Methyl-2-pentanone (MIBK)	0.0990U	1.79	1.82	102	1.79	1.86	104	65-135	2.30	(< 20)
Acetone	0.0990U	1.79	1.58	88	1.79	1.57	88	36-164	0.68	(< 20)
Benzene	0.00496U	0.595	0.546	92	0.595	0.545	92	77-121	0.18	(< 20)
Bromobenzene	0.00990U	0.595	0.612	103	0.595	0.618	104	78-121	1.10	(< 20)
Bromochloromethane	0.00990U	0.595	0.573	96	0.595	0.585	98	78-125	2.10	(< 20)
Bromodichloromethane	0.000795U	0.595	0.663	111	0.595	0.661	111	75-127	0.27	(< 20)
Bromoform	0.00990U	0.595	0.603	101	0.595	0.612	103	67-132	1.50	(< 20)
Bromomethane	0.00795U	0.595	0.497	84	0.595	0.479	80	53-143	3.90	(< 20)
Carbon disulfide	0.0396U	0.893	0.931	104	0.893	0.910	102	63-132	2.20	(< 20)
Carbon tetrachloride	0.00496U	0.595	0.603	101	0.595	0.601	101	70-135	0.30	(< 20)
Chlorobenzene	0.00990U	0.595	0.535	90	0.595	0.533	90	79-120	0.41	(< 20)

Print Date: 08/06/2021 4:52:15PM

Matrix Spike Summary

Original Sample ID: 1624307
MS Sample ID: 1624308 MS
MSD Sample ID: 1624309 MSD

Analysis Date: 07/19/2021 12:59
Analysis Date: 07/19/2021 11:42
Analysis Date: 07/19/2021 11:57
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339001

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.0795U	0.595	0.524	88	0.595	0.504	85	59-139	3.80	(< 20)
Chloroform	0.000992J	0.595	0.557	93	0.595	0.556	93	78-123	0.21	(< 20)
Chloromethane	0.00990U	0.595	0.454	76	0.595	0.438	74	50-136	3.60	(< 20)
cis-1,2-Dichloroethene	0.00990U	0.595	0.553	93	0.595	0.558	94	77-123	0.79	(< 20)
cis-1,3-Dichloropropene	0.00496U	0.595	0.668	112	0.595	0.667	112	74-126	0.15	(< 20)
Dibromochloromethane	0.00198U	0.595	0.592	100	0.595	0.587	99	74-126	0.81	(< 20)
Dibromomethane	0.00990U	0.595	0.598	100	0.595	0.606	102	78-125	1.30	(< 20)
Dichlorodifluoromethane	0.0199U	0.595	0.383	64	0.595	0.368	62	29-149	3.80	(< 20)
Ethylbenzene	0.00990U	0.595	0.520	87	0.595	0.518	87	76-122	0.31	(< 20)
Freon-113	0.0396U	0.893	0.812	91	0.893	0.786	88	66-136	3.30	(< 20)
Hexachlorobutadiene	0.00795U	0.595	0.901	152 *	0.595	0.932	157 *	61-135	3.30	(< 20)
Isopropylbenzene (Cumene)	0.00990U	0.595	0.529	89	0.595	0.518	87	68-134	2.20	(< 20)
Methylene chloride	0.0396U	0.595	0.551	93	0.595	0.546	92	70-128	1.00	(< 20)
Methyl-t-butyl ether	0.0396U	0.893	0.863	97	0.893	0.862	97	73-125	0.11	(< 20)
Naphthalene	0.00990U	0.595	0.592	100	0.595	0.642	108	62-129	8.20	(< 20)
n-Butylbenzene	0.00990U	0.595	0.631	106	0.595	0.625	105	70-128	0.88	(< 20)
n-Propylbenzene	0.00990U	0.595	0.595	100	0.595	0.600	101	73-125	0.80	(< 20)
o-Xylene	0.00990U	0.595	0.529	89	0.595	0.529	89	77-123	0.11	(< 20)
P & M -Xylene	0.0199U	1.19	1.03	86	1.19	1.01	85	77-124	1.80	(< 20)
sec-Butylbenzene	0.00990U	0.595	0.605	102	0.595	0.589	99	73-126	2.60	(< 20)
Styrene	0.00990U	0.595	0.553	93	0.595	0.555	93	76-124	0.39	(< 20)
tert-Butylbenzene	0.00990U	0.595	0.595	100	0.595	0.602	101	73-125	1.00	(< 20)
Tetrachloroethene	0.00496U	0.595	0.536	90	0.595	0.510	86	73-128	5.00	(< 20)
Toluene	0.00990U	0.595	0.539	91	0.595	0.531	89	77-121	1.40	(< 20)
trans-1,2-Dichloroethene	0.00990U	0.595	0.600	101	0.595	0.554	93	74-125	7.90	(< 20)
trans-1,3-Dichloropropene	0.00496U	0.595	0.607	102	0.595	0.607	102	71-130	0.03	(< 20)
Trichloroethene	0.0210	0.595	0.586	95	0.595	0.581	94	77-123	0.92	(< 20)
Trichlorofluoromethane	0.0199U	0.595	0.767	129	0.595	0.835	140	62-140	8.50	(< 20)
Vinyl acetate	0.0396U	0.595	0.659	111	0.595	0.662	111	50-151	0.48	(< 20)
Vinyl chloride	0.000318U	0.595	0.516	87	0.595	0.488	82	56-135	5.50	(< 20)
Xylenes (total)	0.0297U	1.79	1.56	87	1.79	1.54	86	78-124	1.20	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.595	0.595	100	0.595	0.600	101	71-136	0.73	
4-Bromofluorobenzene (surr)		0.992	0.943	95	0.992	0.948	96	55-151	0.55	
Toluene-d8 (surr)		0.595	0.572	96	0.595	0.566	95	85-116	1.00	

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Matrix Spike Summary

Original Sample ID: 1624307
MS Sample ID: 1624308 MS
MSD Sample ID: 1624309 MSD

QC for Samples: 1214339001

Analysis Date:
Analysis Date: 07/19/2021 11:42
Analysis Date: 07/19/2021 11:57
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS20941
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/19/2021 11:42:00AM

Prep Batch: VXX37454
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/19/2021 6:00:00AM
Prep Initial Wt./Vol.: 63.02g
Prep Extract Vol: 25.00mL

Print Date: 08/06/2021 4:52:15PM

Method Blank

Blank ID: MB for HBN 1822660 [VXX/37457]
Blank Lab ID: 1624481

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339002, 1214339014

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1822660 [VXX/37457]
Blank Lab ID: 1624481

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339002, 1214339014

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00200U	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	103	55-151		%
Toluene-d8 (surr)	94.4	85-116		%

Method Blank

Blank ID: MB for HBN 1822660 [VXX/37457]
Blank Lab ID: 1624481

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339002, 1214339014

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20942
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/20/2021 10:17:00AM

Prep Batch: VXX37457
Prep Method: SW5035A
Prep Date/Time: 7/20/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37457]
Blank Spike Lab ID: 1624482
Date Analyzed: 07/20/2021 10:32

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339002, 1214339014

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.760	101	(78-125)
1,1,1-Trichloroethane	0.750	0.744	99	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.832	111	(70-124)
1,1,2-Trichloroethane	0.750	0.749	100	(78-121)
1,1-Dichloroethane	0.750	0.712	95	(76-125)
1,1-Dichloroethene	0.750	0.714	95	(70-131)
1,1-Dichloropropene	0.750	0.700	93	(76-125)
1,2,3-Trichlorobenzene	0.750	0.657	88	(66-130)
1,2,3-Trichloropropane	0.750	0.823	110	(73-125)
1,2,4-Trichlorobenzene	0.750	0.682	91	(67-129)
1,2,4-Trimethylbenzene	0.750	0.763	102	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.767	102	(61-132)
1,2-Dibromoethane	0.750	0.778	104	(78-122)
1,2-Dichlorobenzene	0.750	0.739	99	(78-121)
1,2-Dichloroethane	0.750	0.716	95	(73-128)
1,2-Dichloropropane	0.750	0.734	98	(76-123)
1,3,5-Trimethylbenzene	0.750	0.757	101	(73-124)
1,3-Dichlorobenzene	0.750	0.749	100	(77-121)
1,3-Dichloropropane	0.750	0.725	97	(77-121)
1,4-Dichlorobenzene	0.750	0.744	99	(75-120)
2,2-Dichloropropane	0.750	0.792	106	(67-133)
2-Butanone (MEK)	2.25	2.43	108	(51-148)
2-Chlorotoluene	0.750	0.765	102	(75-122)
2-Hexanone	2.25	2.36	105	(53-145)
4-Chlorotoluene	0.750	0.765	102	(72-124)
4-Isopropyltoluene	0.750	0.762	102	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.31	103	(65-135)
Acetone	2.25	2.01	89	(36-164)
Benzene	0.750	0.699	93	(77-121)
Bromobenzene	0.750	0.798	106	(78-121)
Bromochloromethane	0.750	0.732	98	(78-125)
Bromodichloromethane	0.750	0.835	111	(75-127)
Bromoform	0.750	0.747	100	(67-132)

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37457]
Blank Spike Lab ID: 1624482
Date Analyzed: 07/20/2021 10:32

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339002, 1214339014

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
Bromomethane	0.750	0.690	92	(53-143)
Carbon disulfide	1.13	1.17	104	(63-132)
Carbon tetrachloride	0.750	0.773	103	(70-135)
Chlorobenzene	0.750	0.673	90	(79-120)
Chloroethane	0.750	0.699	93	(59-139)
Chloroform	0.750	0.715	95	(78-123)
Chloromethane	0.750	0.647	86	(50-136)
cis-1,2-Dichloroethene	0.750	0.723	96	(77-123)
cis-1,3-Dichloropropene	0.750	0.841	112	(74-126)
Dibromochloromethane	0.750	0.734	98	(74-126)
Dibromomethane	0.750	0.766	102	(78-125)
Dichlorodifluoromethane	0.750	0.741	99	(29-149)
Ethylbenzene	0.750	0.658	88	(76-122)
Freon-113	1.13	1.06	94	(66-136)
Hexachlorobutadiene	0.750	0.745	99	(61-135)
Isopropylbenzene (Cumene)	0.750	0.663	88	(68-134)
Methylene chloride	0.750	0.738	98	(70-128)
Methyl-t-butyl ether	1.13	1.10	98	(73-125)
Naphthalene	0.750	0.681	91	(62-129)
n-Butylbenzene	0.750	0.763	102	(70-128)
n-Propylbenzene	0.750	0.760	101	(73-125)
o-Xylene	0.750	0.673	90	(77-123)
P & M -Xylene	1.50	1.30	87	(77-124)
sec-Butylbenzene	0.750	0.750	100	(73-126)
Styrene	0.750	0.699	93	(76-124)
tert-Butylbenzene	0.750	0.743	99	(73-125)
Tetrachloroethene	0.750	0.690	92	(73-128)
Toluene	0.750	0.677	90	(77-121)
trans-1,2-Dichloroethene	0.750	0.692	92	(74-125)
trans-1,3-Dichloropropene	0.750	0.757	101	(71-130)
Trichloroethene	0.750	0.720	96	(77-123)
Trichlorofluoromethane	0.750	0.900	120	(62-140)
Vinyl acetate	0.750	0.837	112	(50-151)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37457]
Blank Spike Lab ID: 1624482
Date Analyzed: 07/20/2021 10:32

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339002, 1214339014

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Vinyl chloride	0.750	0.731	98	(56-135)
Xylenes (total)	2.25	1.97	88	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		101	(71-136)
4-Bromofluorobenzene (surr)	0.750		101	(55-151)
Toluene-d8 (surr)	0.750		96	(85-116)

Batch Information

Analytical Batch: **VMS20942**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX37457**
Prep Method: **SW5035A**
Prep Date/Time: **07/20/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2021 4:52:22PM

Matrix Spike Summary

Original Sample ID: 1624483
MS Sample ID: 1624484 MS
MSD Sample ID: 1624485 MSD

Analysis Date: 07/20/2021 14:28
Analysis Date: 07/20/2021 12:09
Analysis Date: 07/20/2021 12:24
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339002, 1214339014

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00535U	0.403	0.407	101	0.403	0.405	101	78-125	0.30	(< 20)
1,1,1-Trichloroethane	0.00670U	0.403	0.397	99	0.403	0.392	97	73-130	1.40	(< 20)
1,1,2,2-Tetrachloroethane	0.000535U	0.403	0.525	130 *	0.403	0.541	134 *	70-124	2.90	(< 20)
1,1,2-Trichloroethane	0.000215U	0.403	0.412	102	0.403	0.416	103	78-121	1.00	(< 20)
1,1-Dichloroethane	0.00670U	0.403	0.376	93	0.403	0.370	92	76-125	1.60	(< 20)
1,1-Dichloroethene	0.00670U	0.403	0.369	92	0.403	0.359	89	70-131	2.60	(< 20)
1,1-Dichloropropene	0.00670U	0.403	0.372	93	0.403	0.367	91	76-125	1.50	(< 20)
1,2,3-Trichlorobenzene	0.0134U	0.403	0.402	100	0.403	0.432	107	66-130	7.10	(< 20)
1,2,3-Trichloropropane	0.000535U	0.403	0.448	111	0.403	0.462	115	73-125	3.10	(< 20)
1,2,4-Trichlorobenzene	0.00670U	0.403	0.390	97	0.403	0.392	98	67-129	0.69	(< 20)
1,2,4-Trimethylbenzene	0.00899J	0.403	0.406	99	0.403	0.407	99	75-123	0.17	(< 20)
1,2-Dibromo-3-chloropropane	0.0268U	0.403	0.391	97	0.403	0.394	98	61-132	0.65	(< 20)
1,2-Dibromoethane	0.000269U	0.403	0.423	105	0.403	0.429	107	78-122	1.40	(< 20)
1,2-Dichlorobenzene	0.00670U	0.403	0.378	94	0.403	0.383	95	78-121	1.40	(< 20)
1,2-Dichloroethane	0.000535U	0.403	0.384	95	0.403	0.382	95	73-128	0.46	(< 20)
1,2-Dichloropropane	0.00268U	0.403	0.389	97	0.403	0.389	97	76-123	0.14	(< 20)
1,3,5-Trimethylbenzene	0.00819J	0.403	0.408	99	0.403	0.410	100	73-124	0.46	(< 20)
1,3-Dichlorobenzene	0.00670U	0.403	0.386	96	0.403	0.385	96	77-121	0.28	(< 20)
1,3-Dichloropropane	0.00268U	0.403	0.394	98	0.403	0.397	99	77-121	0.85	(< 20)
1,4-Dichlorobenzene	0.00670U	0.403	0.384	95	0.403	0.386	96	75-120	0.56	(< 20)
2,2-Dichloropropane	0.00670U	0.403	0.421	105	0.403	0.416	103	67-133	1.20	(< 20)
2-Butanone (MEK)	0.0670U	1.21	1.32	109	1.21	1.35	111	51-148	2.10	(< 20)
2-Chlorotoluene	0.00670U	0.403	0.393	98	0.403	0.391	97	75-122	0.34	(< 20)
2-Hexanone	0.0268U	1.21	1.29	107	1.21	1.32	109	53-145	2.00	(< 20)
4-Chlorotoluene	0.00670U	0.403	0.392	97	0.403	0.397	99	72-124	1.40	(< 20)
4-Isopropyltoluene	0.0268U	0.403	0.416	103	0.403	0.414	103	73-127	0.29	(< 20)
4-Methyl-2-pentanone (MIBK)	0.0670U	1.21	1.27	105	1.21	1.29	107	65-135	1.00	(< 20)
Acetone	0.0670U	1.21	1.12	93	1.21	1.12	92	36-164	0.29	(< 20)
Benzene	0.00335U	0.403	0.372	93	0.403	0.364	90	77-121	2.40	(< 20)
Bromobenzene	0.00670U	0.403	0.405	100	0.403	0.412	102	78-121	1.90	(< 20)
Bromochloromethane	0.00670U	0.403	0.394	98	0.403	0.393	98	78-125	0.34	(< 20)
Bromodichloromethane	0.000535U	0.403	0.451	112	0.403	0.446	111	75-127	1.30	(< 20)
Bromoform	0.00670U	0.403	0.397	99	0.403	0.404	100	67-132	1.60	(< 20)
Bromomethane	0.00535U	0.403	0.367	91	0.403	0.353	88	53-143	3.70	(< 20)
Carbon disulfide	0.0268U	0.604	0.610	101	0.604	0.593	98	63-132	2.80	(< 20)
Carbon tetrachloride	0.00335U	0.403	0.413	103	0.403	0.407	101	70-135	1.40	(< 20)
Chlorobenzene	0.00670U	0.403	0.359	89	0.403	0.359	89	79-120	0.04	(< 20)

Print Date: 08/06/2021 4:52:24PM

Matrix Spike Summary

Original Sample ID: 1624483
MS Sample ID: 1624484 MS
MSD Sample ID: 1624485 MSD

Analysis Date: 07/20/2021 14:28
Analysis Date: 07/20/2021 12:09
Analysis Date: 07/20/2021 12:24
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339002, 1214339014

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.0535U	0.403	0.377	94	0.403	0.362	90	59-139	4.10	(< 20)
Chloroform	0.000537J	0.403	0.382	95	0.403	0.377	93	78-123	1.30	(< 20)
Chloromethane	0.00670U	0.403	0.340	84	0.403	0.334	83	50-136	1.60	(< 20)
cis-1,2-Dichloroethene	0.00670U	0.403	0.383	95	0.403	0.373	93	77-123	2.80	(< 20)
cis-1,3-Dichloropropene	0.00335U	0.403	0.451	112	0.403	0.446	111	74-126	1.10	(< 20)
Dibromochloromethane	0.00134U	0.403	0.401	100	0.403	0.402	100	74-126	0.13	(< 20)
Dibromomethane	0.00670U	0.403	0.416	103	0.403	0.415	103	78-125	0.36	(< 20)
Dichlorodifluoromethane	0.0134U	0.403	0.331	82	0.403	0.334	83	29-149	0.65	(< 20)
Ethylbenzene	0.0996	0.403	0.460	90	0.403	0.457	89	76-122	0.70	(< 20)
Freon-113	0.0268U	0.604	0.545	90	0.604	0.529	88	66-136	3.00	(< 20)
Hexachlorobutadiene	0.00535U	0.403	0.714	177 *	0.403	0.723	180 *	61-135	1.30	(< 20)
Isopropylbenzene (Cumene)	0.00564J	0.403	0.368	90	0.403	0.359	88	68-134	2.30	(< 20)
Methylene chloride	0.0268U	0.403	0.381	95	0.403	0.374	93	70-128	1.90	(< 20)
Methyl-t-butyl ether	0.0268U	0.604	0.588	97	0.604	0.590	98	73-125	0.36	(< 20)
Naphthalene	0.0161	0.403	0.386	92	0.403	0.403	96	62-129	4.20	(< 20)
n-Butylbenzene	0.00670U	0.403	0.451	112	0.403	0.462	115	70-128	2.50	(< 20)
n-Propylbenzene	0.00670U	0.403	0.403	100	0.403	0.396	98	73-125	2.00	(< 20)
o-Xylene	0.478	0.403	0.883	101	0.403	0.893	103	77-123	1.10	(< 20)
P & M -Xylene	0.608	0.805	1.33	90	0.805	1.33	89	77-124	0.38	(< 20)
sec-Butylbenzene	0.00670U	0.403	0.409	102	0.403	0.404	100	73-126	1.20	(< 20)
Styrene	0.00670U	0.403	0.384	95	0.403	0.385	96	76-124	0.45	(< 20)
tert-Butylbenzene	0.00670U	0.403	0.396	98	0.403	0.402	100	73-125	1.50	(< 20)
Tetrachloroethene	0.00335U	0.403	0.365	91	0.403	0.359	89	73-128	1.70	(< 20)
Toluene	0.00670U	0.403	0.365	91	0.403	0.362	90	77-121	0.70	(< 20)
trans-1,2-Dichloroethene	0.00670U	0.403	0.404	100	0.403	0.360	89	74-125	11.50	(< 20)
trans-1,3-Dichloropropene	0.00335U	0.403	0.415	103	0.403	0.417	104	71-130	0.55	(< 20)
Trichloroethene	0.00134U	0.403	0.385	96	0.403	0.379	94	77-123	1.70	(< 20)
Trichlorofluoromethane	0.0134U	0.403	0.644	160 *	0.403	0.564	140	62-140	13.20	(< 20)
Vinyl acetate	0.0268U	0.403	0.456	113	0.403	0.462	115	50-151	1.30	(< 20)
Vinyl chloride	0.000215U	0.403	0.416	103	0.403	0.371	92	56-135	11.40	(< 20)
Xylenes (total)	1.09	1.21	2.22	94	1.21	2.22	94	78-124	0.22	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.403	0.414	103	0.403	0.412	102	71-136	0.52	
4-Bromofluorobenzene (surr)		0.671	0.671	100	0.671	0.666	99	55-151	0.72	
Toluene-d8 (surr)		0.403	0.383	95	0.403	0.387	96	85-116	0.91	

Print Date: 08/06/2021 4:52:24PM

Matrix Spike Summary

Original Sample ID: 1624483
MS Sample ID: 1624484 MS
MSD Sample ID: 1624485 MSD

QC for Samples: 1214339002, 1214339014

Analysis Date:
Analysis Date: 07/20/2021 12:09
Analysis Date: 07/20/2021 12:24
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS20942
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/20/2021 12:09:00PM

Prep Batch: VXX37457
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/20/2021 6:00:00AM
Prep Initial Wt./Vol.: 93.13g
Prep Extract Vol: 25.00mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1822832 [VXX/37470]
Blank Lab ID: 1625004

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339003, 1214339004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1822832 [VXX/37470]
Blank Lab ID: 1625004

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339003, 1214339004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00200U	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	110	71-136		%
4-Bromofluorobenzene (surr)	101	55-151		%
Toluene-d8 (surr)	98.2	85-116		%

Method Blank

Blank ID: MB for HBN 1822832 [VXX/37470]
Blank Lab ID: 1625004

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339003, 1214339004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20953
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/21/2021 5:25:00PM

Prep Batch: VXX37470
Prep Method: SW5035A
Prep Date/Time: 7/21/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37470]
Blank Spike Lab ID: 1625005
Date Analyzed: 07/21/2021 17:42

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003, 1214339004

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.797	106	(78-125)
1,1,1-Trichloroethane	0.750	0.713	95	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.811	108	(70-124)
1,1,2-Trichloroethane	0.750	0.835	111	(78-121)
1,1-Dichloroethane	0.750	0.700	93	(76-125)
1,1-Dichloroethene	0.750	0.699	93	(70-131)
1,1-Dichloropropene	0.750	0.749	100	(76-125)
1,2,3-Trichlorobenzene	0.750	0.787	105	(66-130)
1,2,3-Trichloropropane	0.750	0.780	104	(73-125)
1,2,4-Trichlorobenzene	0.750	0.804	107	(67-129)
1,2,4-Trimethylbenzene	0.750	0.806	108	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.775	103	(61-132)
1,2-Dibromoethane	0.750	0.839	112	(78-122)
1,2-Dichlorobenzene	0.750	0.791	105	(78-121)
1,2-Dichloroethane	0.750	0.679	91	(73-128)
1,2-Dichloropropane	0.750	0.753	100	(76-123)
1,3,5-Trimethylbenzene	0.750	0.825	110	(73-124)
1,3-Dichlorobenzene	0.750	0.790	105	(77-121)
1,3-Dichloropropane	0.750	0.812	108	(77-121)
1,4-Dichlorobenzene	0.750	0.790	105	(75-120)
2,2-Dichloropropane	0.750	0.720	96	(67-133)
2-Butanone (MEK)	2.25	2.11	94	(51-148)
2-Chlorotoluene	0.750	0.792	106	(75-122)
2-Hexanone	2.25	2.39	106	(53-145)
4-Chlorotoluene	0.750	0.794	106	(72-124)
4-Isopropyltoluene	0.750	0.811	108	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.22	99	(65-135)
Acetone	2.25	2.12	94	(36-164)
Benzene	0.750	0.754	101	(77-121)
Bromobenzene	0.750	0.809	108	(78-121)
Bromochloromethane	0.750	0.693	92	(78-125)
Bromodichloromethane	0.750	0.733	98	(75-127)
Bromoform	0.750	0.799	106	(67-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37470]
Blank Spike Lab ID: 1625005
Date Analyzed: 07/21/2021 17:42

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003, 1214339004

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
Bromomethane	0.750	0.744	99	(53-143)
Carbon disulfide	1.13	1.03	92	(63-132)
Carbon tetrachloride	0.750	0.720	96	(70-135)
Chlorobenzene	0.750	0.753	100	(79-120)
Chloroethane	0.750	0.742	99	(59-139)
Chloroform	0.750	0.719	96	(78-123)
Chloromethane	0.750	0.718	96	(50-136)
cis-1,2-Dichloroethene	0.750	0.703	94	(77-123)
cis-1,3-Dichloropropene	0.750	0.793	106	(74-126)
Dibromochloromethane	0.750	0.835	111	(74-126)
Dibromomethane	0.750	0.720	96	(78-125)
Dichlorodifluoromethane	0.750	0.702	94	(29-149)
Ethylbenzene	0.750	0.732	98	(76-122)
Freon-113	1.13	1.04	93	(66-136)
Hexachlorobutadiene	0.750	0.792	106	(61-135)
Isopropylbenzene (Cumene)	0.750	0.774	103	(68-134)
Methylene chloride	0.750	0.734	98	(70-128)
Methyl-t-butyl ether	1.13	1.04	92	(73-125)
Naphthalene	0.750	0.786	105	(62-129)
n-Butylbenzene	0.750	0.825	110	(70-128)
n-Propylbenzene	0.750	0.802	107	(73-125)
o-Xylene	0.750	0.757	101	(77-123)
P & M -Xylene	1.50	1.46	98	(77-124)
sec-Butylbenzene	0.750	0.797	106	(73-126)
Styrene	0.750	0.773	103	(76-124)
tert-Butylbenzene	0.750	0.806	107	(73-125)
Tetrachloroethene	0.750	0.790	105	(73-128)
Toluene	0.750	0.747	100	(77-121)
trans-1,2-Dichloroethene	0.750	0.714	95	(74-125)
trans-1,3-Dichloropropene	0.750	0.764	102	(71-130)
Trichloroethene	0.750	0.772	103	(77-123)
Trichlorofluoromethane	0.750	0.912	122	(62-140)
Vinyl acetate	0.750	0.770	103	(50-151)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37470]
Blank Spike Lab ID: 1625005
Date Analyzed: 07/21/2021 17:42

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003, 1214339004

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Vinyl chloride	0.750	0.704	94	(56-135)
Xylenes (total)	2.25	2.22	99	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		93	(71-136)
4-Bromofluorobenzene (surr)	0.750		96	(55-151)
Toluene-d8 (surr)	0.750		100	(85-116)

Batch Information

Analytical Batch: **VMS20953**
Analytical Method: **SW8260D**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **S.S**

Prep Batch: **VXX37470**
Prep Method: **SW5035A**
Prep Date/Time: **07/21/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2021 4:52:30PM

Matrix Spike Summary

Original Sample ID: 1625006
MS Sample ID: 1625007 MS
MSD Sample ID: 1625008 MSD

Analysis Date: 07/21/2021 21:06
Analysis Date: 07/21/2021 19:11
Analysis Date: 07/21/2021 19:27
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339003, 1214339004

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00665U	0.498	0.516	103	0.498	0.520	104	78-125	0.87	(< 20)
1,1,1-Trichloroethane	0.00830U	0.498	0.448	90	0.498	0.442	89	73-130	1.50	(< 20)
1,1,2,2-Tetrachloroethane	0.000665U	0.498	0.557	112	0.498	0.559	112	70-124	0.30	(< 20)
1,1,2-Trichloroethane	0.000266U	0.498	0.547	110	0.498	0.556	112	78-121	1.70	(< 20)
1,1-Dichloroethane	0.00830U	0.498	0.436	88	0.498	0.428	86	76-125	1.90	(< 20)
1,1-Dichloroethene	0.00830U	0.498	0.390	78	0.498	0.385	77	70-131	1.50	(< 20)
1,1-Dichloropropene	0.00830U	0.498	0.448	90	0.498	0.442	89	76-125	1.30	(< 20)
1,2,3-Trichlorobenzene	0.0166U	0.498	0.529	106	0.498	0.564	113	66-130	6.40	(< 20)
1,2,3-Trichloropropane	0.000665U	0.498	0.479	96	0.498	0.540	108	73-125	12.00	(< 20)
1,2,4-Trichlorobenzene	0.00830U	0.498	0.535	107	0.498	0.556	112	67-129	3.80	(< 20)
1,2,4-Trimethylbenzene	0.0166U	0.498	0.533	107	0.498	0.526	106	75-123	1.30	(< 20)
1,2-Dibromo-3-chloropropane	0.0333U	0.498	0.525	105	0.498	0.535	107	61-132	1.90	(< 20)
1,2-Dibromoethane	0.000333U	0.498	0.543	109	0.498	0.550	110	78-122	1.40	(< 20)
1,2-Dichlorobenzene	0.00830U	0.498	0.526	106	0.498	0.533	107	78-121	1.40	(< 20)
1,2-Dichloroethane	0.000665U	0.498	0.441	89	0.498	0.442	89	73-128	0.11	(< 20)
1,2-Dichloropropane	0.00332U	0.498	0.490	98	0.498	0.488	98	76-123	0.51	(< 20)
1,3,5-Trimethylbenzene	0.00830U	0.498	0.510	102	0.498	0.537	108	73-124	5.10	(< 20)
1,3-Dichlorobenzene	0.00830U	0.498	0.530	106	0.498	0.525	105	77-121	0.88	(< 20)
1,3-Dichloropropane	0.00332U	0.498	0.528	106	0.498	0.535	107	77-121	1.40	(< 20)
1,4-Dichlorobenzene	0.00830U	0.498	0.531	106	0.498	0.526	106	75-120	0.79	(< 20)
2,2-Dichloropropane	0.00830U	0.498	0.438	88	0.498	0.432	87	67-133	1.50	(< 20)
2-Butanone (MEK)	0.0830U	1.50	1.37	92	1.50	1.38	93	51-148	0.76	(< 20)
2-Chlorotoluene	0.00830U	0.498	0.527	106	0.498	0.518	104	75-122	1.80	(< 20)
2-Hexanone	0.0333U	1.50	1.60	107	1.50	1.64	110	53-145	2.50	(< 20)
4-Chlorotoluene	0.00830U	0.498	0.523	105	0.498	0.522	105	72-124	0.19	(< 20)
4-Isopropyltoluene	0.0333U	0.498	0.531	107	0.498	0.525	105	73-127	1.20	(< 20)
4-Methyl-2-pentanone (MIBK)	0.0830U	1.50	1.49	100	1.50	1.53	102	65-135	2.30	(< 20)
Acetone	0.0830U	1.50	1.37	91	1.50	1.36	91	36-164	0.62	(< 20)
Benzene	0.00415U	0.498	0.465	93	0.498	0.461	92	77-121	0.90	(< 20)
Bromobenzene	0.00830U	0.498	0.536	107	0.498	0.533	107	78-121	0.44	(< 20)
Bromochloromethane	0.00830U	0.498	0.443	89	0.498	0.441	89	78-125	0.38	(< 20)
Bromodichloromethane	0.000665U	0.498	0.490	98	0.498	0.488	98	75-127	0.34	(< 20)
Bromoform	0.00830U	0.498	0.534	107	0.498	0.546	110	67-132	2.30	(< 20)
Bromomethane	0.00665U	0.498	0.449	90	0.498	0.446	89	53-143	0.82	(< 20)
Carbon disulfide	0.0333U	0.748	0.554	74	0.748	0.546	73	63-132	1.50	(< 20)
Carbon tetrachloride	0.00415U	0.498	0.444	89	0.498	0.441	88	70-135	0.83	(< 20)
Chlorobenzene	0.00830U	0.498	0.490	98	0.498	0.491	99	79-120	0.20	(< 20)

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Matrix Spike Summary

Original Sample ID: 1625006
MS Sample ID: 1625007 MS
MSD Sample ID: 1625008 MSD

Analysis Date: 07/21/2021 21:06
Analysis Date: 07/21/2021 19:11
Analysis Date: 07/21/2021 19:27
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339003, 1214339004

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.0665U	0.498	0.460	92	0.498	0.452	91	59-139	1.90	(< 20)
Chloroform	0.00133U	0.498	0.466	94	0.498	0.462	93	78-123	0.93	(< 20)
Chloromethane	0.00830U	0.498	0.367	74	0.498	0.359	72	50-136	2.10	(< 20)
cis-1,2-Dichloroethene	0.00830U	0.498	0.424	85	0.498	0.443	89	77-123	4.30	(< 20)
cis-1,3-Dichloropropene	0.00415U	0.498	0.516	104	0.498	0.516	103	74-126	0.06	(< 20)
Dibromochloromethane	0.00166U	0.498	0.561	112	0.498	0.568	114	74-126	1.40	(< 20)
Dibromomethane	0.00830U	0.498	0.463	93	0.498	0.464	93	78-125	0.07	(< 20)
Dichlorodifluoromethane	0.0166U	0.498	0.253	51	0.498	0.247	50	29-149	2.10	(< 20)
Ethylbenzene	0.00830U	0.498	0.473	95	0.498	0.470	94	76-122	0.60	(< 20)
Freon-113	0.0333U	0.748	0.588	79	0.748	0.578	77	66-136	1.60	(< 20)
Hexachlorobutadiene	0.00665U	0.498	0.510	102	0.498	0.525	105	61-135	2.90	(< 20)
Isopropylbenzene (Cumene)	0.00830U	0.498	0.493	99	0.498	0.490	98	68-134	0.54	(< 20)
Methylene chloride	0.0333U	0.498	0.433	87	0.498	0.433	87	70-128	0.00	(< 20)
Methyl-t-butyl ether	0.0333U	0.748	0.663	89	0.748	0.676	90	73-125	1.80	(< 20)
Naphthalene	0.00830U	0.498	0.535	107	0.498	0.574	115	62-129	7.10	(< 20)
n-Butylbenzene	0.00830U	0.498	0.536	108	0.498	0.524	105	70-128	2.30	(< 20)
n-Propylbenzene	0.00830U	0.498	0.529	106	0.498	0.516	104	73-125	2.30	(< 20)
o-Xylene	0.00830U	0.498	0.491	99	0.498	0.491	99	77-123	0.07	(< 20)
P & M -Xylene	0.0166U	0.997	0.941	94	0.997	0.936	94	77-124	0.50	(< 20)
sec-Butylbenzene	0.00830U	0.498	0.517	104	0.498	0.505	101	73-126	2.20	(< 20)
Styrene	0.00830U	0.498	0.504	101	0.498	0.504	101	76-124	0.07	(< 20)
tert-Butylbenzene	0.00830U	0.498	0.525	105	0.498	0.516	104	73-125	1.70	(< 20)
Tetrachloroethene	0.00415U	0.498	0.498	100	0.498	0.494	99	73-128	0.77	(< 20)
Toluene	0.00830U	0.498	0.479	96	0.498	0.477	96	77-121	0.38	(< 20)
trans-1,2-Dichloroethene	0.00830U	0.498	0.429	86	0.498	0.423	85	74-125	1.50	(< 20)
trans-1,3-Dichloropropene	0.00415U	0.498	0.504	101	0.498	0.515	103	71-130	2.20	(< 20)
Trichloroethene	0.00166U	0.498	0.488	98	0.498	0.484	97	77-123	0.89	(< 20)
Trichlorofluoromethane	0.0166U	0.498	0.669	134	0.498	0.672	135	62-140	0.50	(< 20)
Vinyl acetate	0.0333U	0.498	0.500	100	0.498	0.507	102	50-151	1.50	(< 20)
Vinyl chloride	0.000266U	0.498	0.391	78	0.498	0.384	77	56-135	1.80	(< 20)
Xylenes (total)	0.0249U	1.50	1.43	96	1.50	1.43	95	78-124	0.35	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.498	0.466	94	0.498	0.468	94	71-136	0.50	
4-Bromofluorobenzene (surr)		0.831	0.511	62	0.831	0.501	60	55-151	1.90	
Toluene-d8 (surr)		0.498	0.495	99	0.498	0.498	100	85-116	0.67	

Matrix Spike Summary

Original Sample ID: 1625006
MS Sample ID: 1625007 MS
MSD Sample ID: 1625008 MSD

Analysis Date:
Analysis Date: 07/21/2021 19:11
Analysis Date: 07/21/2021 19:27
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339003, 1214339004

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS20953
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/21/2021 7:11:00PM

Prep Batch: VXX37470
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/21/2021 6:00:00AM
Prep Initial Wt./Vol.: 75.23g
Prep Extract Vol: 25.00mL

Print Date: 08/06/2021 4:52:32PM

Method Blank

Blank ID: MB for HBN 1822904 [VXX/37482]
Blank Lab ID: 1625343

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001, 1214339002, 1214339003, 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.12J	2.50	0.750	mg/kg
Surrogates				
4-Bromofluorobenzene (surr)	97.5	50-150		%

Batch Information

Analytical Batch: VFC15727
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: MDT
Analytical Date/Time: 7/24/2021 1:24:00AM

Prep Batch: VXX37482
Prep Method: SW5035A
Prep Date/Time: 7/23/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37482]
Blank Spike Lab ID: 1625344
Date Analyzed: 07/24/2021 00:48

Spike Duplicate ID: LCSD for HBN 1214339 [VXX37482]
Spike Duplicate Lab ID: 1625345
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001, 1214339002, 1214339003, 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009

Results by **AK101**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	13.0	104	12.5	12.7	102	(60-120)	2.60	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25		102	1.25		101	(50-150)	1.60	

Batch Information

Analytical Batch: **VFC15727**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37482**
Prep Method: **SW5035A**
Prep Date/Time: **07/23/2021 06:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1822913 [VXX/37485]
Blank Lab ID: 1625397

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339005, 1214339006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1822913 [VXX/37485]
Blank Lab ID: 1625397

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339005, 1214339006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00200U	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	109	71-136		%
4-Bromofluorobenzene (surr)	99.8	55-151		%
Toluene-d8 (surr)	98.4	85-116		%

Method Blank

Blank ID: MB for HBN 1822913 [VXX/37485]
Blank Lab ID: 1625397

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339005, 1214339006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20962
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/23/2021 10:41:00AM

Prep Batch: VXX37485
Prep Method: SW5035A
Prep Date/Time: 7/23/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37485]
Blank Spike Lab ID: 1625398
Date Analyzed: 07/23/2021 10:57

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339005, 1214339006

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.783	104	(78-125)
1,1,1-Trichloroethane	0.750	0.710	95	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.814	108	(70-124)
1,1,2-Trichloroethane	0.750	0.827	110	(78-121)
1,1-Dichloroethane	0.750	0.692	92	(76-125)
1,1-Dichloroethene	0.750	0.681	91	(70-131)
1,1-Dichloropropene	0.750	0.739	99	(76-125)
1,2,3-Trichlorobenzene	0.750	0.794	106	(66-130)
1,2,3-Trichloropropane	0.750	0.725	97	(73-125)
1,2,4-Trichlorobenzene	0.750	0.806	107	(67-129)
1,2,4-Trimethylbenzene	0.750	0.790	105	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.788	105	(61-132)
1,2-Dibromoethane	0.750	0.832	111	(78-122)
1,2-Dichlorobenzene	0.750	0.779	104	(78-121)
1,2-Dichloroethane	0.750	0.671	90	(73-128)
1,2-Dichloropropane	0.750	0.746	100	(76-123)
1,3,5-Trimethylbenzene	0.750	0.774	103	(73-124)
1,3-Dichlorobenzene	0.750	0.774	103	(77-121)
1,3-Dichloropropane	0.750	0.809	108	(77-121)
1,4-Dichlorobenzene	0.750	0.776	103	(75-120)
2,2-Dichloropropane	0.750	0.739	99	(67-133)
2-Butanone (MEK)	2.25	2.17	96	(51-148)
2-Chlorotoluene	0.750	0.782	104	(75-122)
2-Hexanone	2.25	2.47	110	(53-145)
4-Chlorotoluene	0.750	0.773	103	(72-124)
4-Isopropyltoluene	0.750	0.801	107	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.30	102	(65-135)
Acetone	2.25	2.16	96	(36-164)
Benzene	0.750	0.737	98	(77-121)
Bromobenzene	0.750	0.793	106	(78-121)
Bromochloromethane	0.750	0.678	90	(78-125)
Bromodichloromethane	0.750	0.724	97	(75-127)
Bromoform	0.750	0.791	105	(67-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37485]
Blank Spike Lab ID: 1625398
Date Analyzed: 07/23/2021 10:57

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339005, 1214339006

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Bromomethane	0.750	0.668	89	(53-143)
Carbon disulfide	1.13	0.993	88	(63-132)
Carbon tetrachloride	0.750	0.717	96	(70-135)
Chlorobenzene	0.750	0.742	99	(79-120)
Chloroethane	0.750	0.711	95	(59-139)
Chloroform	0.750	0.708	94	(78-123)
Chloromethane	0.750	0.666	89	(50-136)
cis-1,2-Dichloroethene	0.750	0.672	90	(77-123)
cis-1,3-Dichloropropene	0.750	0.794	106	(74-126)
Dibromochloromethane	0.750	0.827	110	(74-126)
Dibromomethane	0.750	0.712	95	(78-125)
Dichlorodifluoromethane	0.750	0.602	80	(29-149)
Ethylbenzene	0.750	0.727	97	(76-122)
Freon-113	1.13	1.01	90	(66-136)
Hexachlorobutadiene	0.750	0.799	107	(61-135)
Isopropylbenzene (Cumene)	0.750	0.761	102	(68-134)
Methylene chloride	0.750	0.721	96	(70-128)
Methyl-t-butyl ether	1.13	1.06	94	(73-125)
Naphthalene	0.750	0.802	107	(62-129)
n-Butylbenzene	0.750	0.808	108	(70-128)
n-Propylbenzene	0.750	0.789	105	(73-125)
o-Xylene	0.750	0.747	100	(77-123)
P & M -Xylene	1.50	1.44	96	(77-124)
sec-Butylbenzene	0.750	0.791	106	(73-126)
Styrene	0.750	0.765	102	(76-124)
tert-Butylbenzene	0.750	0.793	106	(73-125)
Tetrachloroethene	0.750	0.778	104	(73-128)
Toluene	0.750	0.736	98	(77-121)
trans-1,2-Dichloroethene	0.750	0.695	93	(74-125)
trans-1,3-Dichloropropene	0.750	0.771	103	(71-130)
Trichloroethene	0.750	0.759	101	(77-123)
Trichlorofluoromethane	0.750	0.760	101	(62-140)
Vinyl acetate	0.750	0.781	104	(50-151)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37485]
Blank Spike Lab ID: 1625398
Date Analyzed: 07/23/2021 10:57

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339005, 1214339006

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Vinyl chloride	0.750	0.667	89	(56-135)
Xylenes (total)	2.25	2.19	97	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		94	(71-136)
4-Bromofluorobenzene (surr)	0.750		96	(55-151)
Toluene-d8 (surr)	0.750		99	(85-116)

Batch Information

Analytical Batch: **VMS20962**
Analytical Method: **SW8260D**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **S.S**

Prep Batch: **VXX37485**
Prep Method: **SW5035A**
Prep Date/Time: **07/23/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2021 4:52:45PM

Matrix Spike Summary

Original Sample ID: 1625399
MS Sample ID: 1625400 MS
MSD Sample ID: 1625401 MSD

Analysis Date: 07/23/2021 15:21
Analysis Date: 07/23/2021 12:36
Analysis Date: 07/23/2021 12:52
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339005, 1214339006

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00875U	0.657	0.690	105	0.657	0.687	105	78-125	0.54	(< 20)
1,1,1-Trichloroethane	0.0110U	0.657	0.642	98	0.657	0.627	95	73-130	2.40	(< 20)
1,1,2,2-Tetrachloroethane	0.000875U	0.657	0.750	114	0.657	0.759	116	70-124	1.10	(< 20)
1,1,2-Trichloroethane	0.000351U	0.657	0.754	115	0.657	0.747	114	78-121	1.10	(< 20)
1,1-Dichloroethane	0.0110U	0.657	0.616	94	0.657	0.603	92	76-125	2.00	(< 20)
1,1-Dichloroethene	0.0110U	0.657	0.605	92	0.657	0.587	89	70-131	3.00	(< 20)
1,1-Dichloropropene	0.0110U	0.657	0.648	99	0.657	0.633	96	76-125	2.50	(< 20)
1,2,3-Trichlorobenzene	0.0219U	0.657	0.710	108	0.657	0.760	116	66-130	6.80	(< 20)
1,2,3-Trichloropropane	0.000875U	0.657	0.721	110	0.657	0.706	107	73-125	2.10	(< 20)
1,2,4-Trichlorobenzene	0.0110U	0.657	0.706	107	0.657	0.748	114	67-129	5.80	(< 20)
1,2,4-Trimethylbenzene	0.0219U	0.657	0.712	108	0.657	0.712	108	75-123	0.03	(< 20)
1,2-Dibromo-3-chloropropane	0.0438U	0.657	0.710	108	0.657	0.721	110	61-132	1.50	(< 20)
1,2-Dibromoethane	0.000438U	0.657	0.752	114	0.657	0.748	114	78-122	0.47	(< 20)
1,2-Dichlorobenzene	0.0110U	0.657	0.705	107	0.657	0.708	108	78-121	0.43	(< 20)
1,2-Dichloroethane	0.000875U	0.657	0.611	93	0.657	0.600	91	73-128	1.90	(< 20)
1,2-Dichloropropane	0.00438U	0.657	0.672	102	0.657	0.660	100	76-123	1.80	(< 20)
1,3,5-Trimethylbenzene	0.0110U	0.657	0.716	109	0.657	0.713	109	73-124	0.40	(< 20)
1,3-Dichlorobenzene	0.0110U	0.657	0.700	107	0.657	0.703	107	77-121	0.37	(< 20)
1,3-Dichloropropane	0.00438U	0.657	0.727	111	0.657	0.718	109	77-121	1.20	(< 20)
1,4-Dichlorobenzene	0.0110U	0.657	0.707	108	0.657	0.708	108	75-120	0.15	(< 20)
2,2-Dichloropropane	0.0110U	0.657	0.649	99	0.657	0.633	96	67-133	2.40	(< 20)
2-Butanone (MEK)	0.110U	1.97	1.94	98	1.97	1.92	97	51-148	0.92	(< 20)
2-Chlorotoluene	0.0110U	0.657	0.699	106	0.657	0.704	107	75-122	0.72	(< 20)
2-Hexanone	0.0438U	1.97	2.24	114	1.97	2.25	114	53-145	0.20	(< 20)
4-Chlorotoluene	0.0110U	0.657	0.704	107	0.657	0.707	108	72-124	0.40	(< 20)
4-Isopropyltoluene	0.0438U	0.657	0.719	109	0.657	0.708	108	73-127	1.40	(< 20)
4-Methyl-2-pentanone (MIBK)	0.110U	1.97	2.07	105	1.97	2.08	105	65-135	0.36	(< 20)
Acetone	0.110U	1.97	1.94	98	1.97	1.90	96	36-164	2.10	(< 20)
Benzene	0.00550U	0.657	0.647	99	0.657	0.638	97	77-121	1.40	(< 20)
Bromobenzene	0.0110U	0.657	0.715	109	0.657	0.716	109	78-121	0.06	(< 20)
Bromochloromethane	0.0110U	0.657	0.614	94	0.657	0.607	92	78-125	1.20	(< 20)
Bromodichloromethane	0.000875U	0.657	0.667	102	0.657	0.653	99	75-127	2.10	(< 20)
Bromoform	0.0110U	0.657	0.732	111	0.657	0.732	111	67-132	0.03	(< 20)
Bromomethane	0.00875U	0.657	0.668	102	0.657	0.671	102	53-143	0.36	(< 20)
Carbon disulfide	0.0438U	0.986	0.884	90	0.986	0.860	87	63-132	2.80	(< 20)
Carbon tetrachloride	0.00550U	0.657	0.643	98	0.657	0.625	95	70-135	2.80	(< 20)
Chlorobenzene	0.0110U	0.657	0.667	102	0.657	0.662	101	79-120	0.73	(< 20)

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Matrix Spike Summary

Original Sample ID: 1625399
MS Sample ID: 1625400 MS
MSD Sample ID: 1625401 MSD

Analysis Date: 07/23/2021 15:21
Analysis Date: 07/23/2021 12:36
Analysis Date: 07/23/2021 12:52
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339005, 1214339006

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.0875U	0.657	0.694	106	0.657	0.670	102	59-139	3.60	(< 20)
Chloroform	0.00175U	0.657	0.642	98	0.657	0.628	96	78-123	2.20	(< 20)
Chloromethane	0.0110U	0.657	0.633	96	0.657	0.620	94	50-136	2.00	(< 20)
cis-1,2-Dichloroethene	0.0110U	0.657	0.637	97	0.657	0.613	93	77-123	3.90	(< 20)
cis-1,3-Dichloropropene	0.00550U	0.657	0.710	108	0.657	0.701	107	74-126	1.30	(< 20)
Dibromochloromethane	0.00219U	0.657	0.764	116	0.657	0.762	116	74-126	0.20	(< 20)
Dibromomethane	0.0110U	0.657	0.642	98	0.657	0.634	96	78-125	1.30	(< 20)
Dichlorodifluoromethane	0.0219U	0.657	0.604	92	0.657	0.585	89	29-149	3.10	(< 20)
Ethylbenzene	0.0110U	0.657	0.644	98	0.657	0.634	97	76-122	1.50	(< 20)
Freon-113	0.0438U	0.986	0.912	93	0.986	0.881	89	66-136	3.40	(< 20)
Hexachlorobutadiene	0.00875U	0.657	0.751	114	0.657	0.783	119	61-135	4.30	(< 20)
Isopropylbenzene (Cumene)	0.0110U	0.657	0.674	103	0.657	0.664	101	68-134	1.40	(< 20)
Methylene chloride	0.0438U	0.657	0.621	95	0.657	0.601	92	70-128	3.30	(< 20)
Methyl-t-butyl ether	0.0438U	0.986	0.918	93	0.986	0.933	95	73-125	1.60	(< 20)
Naphthalene	0.0110U	0.657	0.720	110	0.657	0.762	116	62-129	5.80	(< 20)
n-Butylbenzene	0.0110U	0.657	0.720	110	0.657	0.725	110	70-128	0.67	(< 20)
n-Propylbenzene	0.0110U	0.657	0.713	109	0.657	0.710	108	73-125	0.46	(< 20)
o-Xylene	0.0110U	0.657	0.658	100	0.657	0.653	99	77-123	0.67	(< 20)
P & M -Xylene	0.0219U	1.31	1.27	96	1.31	1.26	96	77-124	0.75	(< 20)
sec-Butylbenzene	0.0110U	0.657	0.699	106	0.657	0.701	107	73-126	0.19	(< 20)
Styrene	0.0110U	0.657	0.678	103	0.657	0.677	103	76-124	0.26	(< 20)
tert-Butylbenzene	0.0110U	0.657	0.710	108	0.657	0.705	107	73-125	0.65	(< 20)
Tetrachloroethene	0.00550U	0.657	0.699	106	0.657	0.677	103	73-128	3.20	(< 20)
Toluene	0.0110U	0.657	0.657	100	0.657	0.647	98	77-121	1.60	(< 20)
trans-1,2-Dichloroethene	0.0110U	0.657	0.618	94	0.657	0.614	94	74-125	0.60	(< 20)
trans-1,3-Dichloropropene	0.00550U	0.657	0.698	106	0.657	0.696	106	71-130	0.19	(< 20)
Trichloroethene	0.00219U	0.657	0.682	104	0.657	0.667	102	77-123	2.20	(< 20)
Trichlorofluoromethane	0.0219U	0.657	0.947	144 *	0.657	0.915	139	62-140	3.40	(< 20)
Vinyl acetate	0.0438U	0.657	0.708	108	0.657	0.707	108	50-151	0.25	(< 20)
Vinyl chloride	0.000351U	0.657	0.654	100	0.657	0.635	97	56-135	3.00	(< 20)
Xylenes (total)	0.0328U	1.97	1.92	98	1.97	1.91	97	78-124	0.72	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.657	0.627	96	0.657	0.621	95	71-136	1.10	
4-Bromofluorobenzene (surr)		1.10	0.834	76	1.10	0.838	77	55-151	0.50	
Toluene-d8 (surr)		0.657	0.648	99	0.657	0.652	99	85-116	0.54	

Matrix Spike Summary

Original Sample ID: 1625399
MS Sample ID: 1625400 MS
MSD Sample ID: 1625401 MSD

QC for Samples: 1214339005, 1214339006

Analysis Date:
Analysis Date: 07/23/2021 12:36
Analysis Date: 07/23/2021 12:52
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS20962
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/23/2021 12:36:00PM

Prep Batch: VXX37485
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/23/2021 6:00:00AM
Prep Initial Wt./Vol.: 57.08g
Prep Extract Vol: 25.00mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1822991 [VXX/37497]
Blank Lab ID: 1625654

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1822991 [VXX/37497]
Blank Lab ID: 1625654

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00200U	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	110	71-136		%
4-Bromofluorobenzene (surr)	104	55-151		%
Toluene-d8 (surr)	99.2	85-116		%

Method Blank

Blank ID: MB for HBN 1822991 [VXX/37497]
Blank Lab ID: 1625654

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/24/2021 3:09:00PM

Prep Batch: VXX37497
Prep Method: SW5035A
Prep Date/Time: 7/24/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37497]
Blank Spike Lab ID: 1625655
Date Analyzed: 07/24/2021 15:25

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.781	104	(78-125)
1,1,1-Trichloroethane	0.750	0.695	93	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.847	113	(70-124)
1,1,2-Trichloroethane	0.750	0.828	110	(78-121)
1,1-Dichloroethane	0.750	0.688	92	(76-125)
1,1-Dichloroethene	0.750	0.669	89	(70-131)
1,1-Dichloropropene	0.750	0.716	96	(76-125)
1,2,3-Trichlorobenzene	0.750	0.826	110	(66-130)
1,2,3-Trichloropropane	0.750	0.761	101	(73-125)
1,2,4-Trichlorobenzene	0.750	0.840	112	(67-129)
1,2,4-Trimethylbenzene	0.750	0.823	110	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.808	108	(61-132)
1,2-Dibromoethane	0.750	0.828	110	(78-122)
1,2-Dichlorobenzene	0.750	0.811	108	(78-121)
1,2-Dichloroethane	0.750	0.678	90	(73-128)
1,2-Dichloropropane	0.750	0.749	100	(76-123)
1,3,5-Trimethylbenzene	0.750	0.801	107	(73-124)
1,3-Dichlorobenzene	0.750	0.810	108	(77-121)
1,3-Dichloropropane	0.750	0.810	108	(77-121)
1,4-Dichlorobenzene	0.750	0.806	107	(75-120)
2,2-Dichloropropane	0.750	0.719	96	(67-133)
2-Butanone (MEK)	2.25	2.09	93	(51-148)
2-Chlorotoluene	0.750	0.811	108	(75-122)
2-Hexanone	2.25	2.39	106	(53-145)
4-Chlorotoluene	0.750	0.815	109	(72-124)
4-Isopropyltoluene	0.750	0.831	111	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.24	100	(65-135)
Acetone	2.25	2.12	94	(36-164)
Benzene	0.750	0.732	98	(77-121)
Bromobenzene	0.750	0.829	111	(78-121)
Bromochloromethane	0.750	0.702	94	(78-125)
Bromodichloromethane	0.750	0.731	98	(75-127)
Bromoform	0.750	0.789	105	(67-132)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37497]
Blank Spike Lab ID: 1625655
Date Analyzed: 07/24/2021 15:25

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
Bromomethane	0.750	0.681	91	(53-143)
Carbon disulfide	1.13	0.990	88	(63-132)
Carbon tetrachloride	0.750	0.694	93	(70-135)
Chlorobenzene	0.750	0.735	98	(79-120)
Chloroethane	0.750	0.750	100	(59-139)
Chloroform	0.750	0.711	95	(78-123)
Chloromethane	0.750	0.692	92	(50-136)
cis-1,2-Dichloroethene	0.750	0.667	89	(77-123)
cis-1,3-Dichloropropene	0.750	0.792	106	(74-126)
Dibromochloromethane	0.750	0.827	110	(74-126)
Dibromomethane	0.750	0.721	96	(78-125)
Dichlorodifluoromethane	0.750	0.663	88	(29-149)
Ethylbenzene	0.750	0.714	95	(76-122)
Freon-113	1.13	0.966	86	(66-136)
Hexachlorobutadiene	0.750	0.830	111	(61-135)
Isopropylbenzene (Cumene)	0.750	0.746	100	(68-134)
Methylene chloride	0.750	0.727	97	(70-128)
Methyl-t-butyl ether	1.13	1.03	92	(73-125)
Naphthalene	0.750	0.822	110	(62-129)
n-Butylbenzene	0.750	0.842	112	(70-128)
n-Propylbenzene	0.750	0.815	109	(73-125)
o-Xylene	0.750	0.742	99	(77-123)
P & M -Xylene	1.50	1.44	96	(77-124)
sec-Butylbenzene	0.750	0.814	109	(73-126)
Styrene	0.750	0.761	102	(76-124)
tert-Butylbenzene	0.750	0.813	108	(73-125)
Tetrachloroethene	0.750	0.750	100	(73-128)
Toluene	0.750	0.726	97	(77-121)
trans-1,2-Dichloroethene	0.750	0.698	93	(74-125)
trans-1,3-Dichloropropene	0.750	0.764	102	(71-130)
Trichloroethene	0.750	0.748	100	(77-123)
Trichlorofluoromethane	0.750	0.963	128	(62-140)
Vinyl acetate	0.750	0.776	103	(50-151)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37497]
Blank Spike Lab ID: 1625655
Date Analyzed: 07/24/2021 15:25

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Vinyl chloride	0.750	0.686	91	(56-135)
Xylenes (total)	2.25	2.18	97	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		94	(71-136)
4-Bromofluorobenzene (surr)	0.750		100	(55-151)
Toluene-d8 (surr)	0.750		99	(85-116)

Batch Information

Analytical Batch: **VMS20966**
Analytical Method: **SW8260D**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **S.S**

Prep Batch: **VXX37497**
Prep Method: **SW5035A**
Prep Date/Time: **07/24/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2021 4:52:55PM

Matrix Spike Summary

Original Sample ID: 1625656
MS Sample ID: 1625657 MS
MSD Sample ID: 1625658 MSD

Analysis Date: 07/24/2021 18:44
Analysis Date: 07/24/2021 16:48
Analysis Date: 07/24/2021 17:05
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00900U	0.676	0.698	103	0.676	0.704	104	78-125	0.84	(< 20)
1,1,1-Trichloroethane	0.0113U	0.676	0.642	95	0.676	0.620	92	73-130	3.50	(< 20)
1,1,2,2-Tetrachloroethane	0.000900U	0.676	0.765	113	0.676	0.791	117	70-124	3.30	(< 20)
1,1,2-Trichloroethane	0.000360U	0.676	0.752	111	0.676	0.766	113	78-121	1.90	(< 20)
1,1-Dichloroethane	0.0113U	0.676	0.624	92	0.676	0.608	90	76-125	2.60	(< 20)
1,1-Dichloroethene	0.0113U	0.676	0.610	90	0.676	0.582	86	70-131	4.70	(< 20)
1,1-Dichloropropene	0.0113U	0.676	0.648	96	0.676	0.619	92	76-125	4.70	(< 20)
1,2,3-Trichlorobenzene	0.0226U	0.676	0.750	111	0.676	0.825	122	66-130	9.40	(< 20)
1,2,3-Trichloropropane	0.000900U	0.676	0.672	100	0.676	0.725	107	73-125	7.50	(< 20)
1,2,4-Trichlorobenzene	0.0113U	0.676	0.742	110	0.676	0.787	116	67-129	5.90	(< 20)
1,2,4-Trimethylbenzene	0.0226U	0.676	0.724	107	0.676	0.724	107	75-123	0.00	(< 20)
1,2-Dibromo-3-chloropropane	0.0451U	0.676	0.715	106	0.676	0.770	114	61-132	7.40	(< 20)
1,2-Dibromoethane	0.000451U	0.676	0.751	111	0.676	0.767	114	78-122	2.10	(< 20)
1,2-Dichlorobenzene	0.0113U	0.676	0.714	106	0.676	0.731	108	78-121	2.20	(< 20)
1,2-Dichloroethane	0.000900U	0.676	0.615	91	0.676	0.619	92	73-128	0.55	(< 20)
1,2-Dichloropropane	0.00451U	0.676	0.681	101	0.676	0.673	100	76-123	1.10	(< 20)
1,3,5-Trimethylbenzene	0.0113U	0.676	0.699	103	0.676	0.718	106	73-124	2.60	(< 20)
1,3-Dichlorobenzene	0.0113U	0.676	0.717	106	0.676	0.720	107	77-121	0.44	(< 20)
1,3-Dichloropropane	0.00451U	0.676	0.725	107	0.676	0.741	110	77-121	2.10	(< 20)
1,4-Dichlorobenzene	0.0113U	0.676	0.721	107	0.676	0.720	107	75-120	0.09	(< 20)
2,2-Dichloropropane	0.0113U	0.676	0.659	98	0.676	0.621	92	67-133	5.90	(< 20)
2-Butanone (MEK)	0.113U	2.03	1.88	93	2.03	1.99	98	51-148	5.60	(< 20)
2-Chlorotoluene	0.0113U	0.676	0.719	106	0.676	0.712	105	75-122	0.98	(< 20)
2-Hexanone	0.0451U	2.03	2.19	108	2.03	2.32	114	53-145	5.70	(< 20)
4-Chlorotoluene	0.0113U	0.676	0.717	106	0.676	0.720	107	72-124	0.38	(< 20)
4-Isopropyltoluene	0.0451U	0.676	0.722	107	0.676	0.705	104	73-127	2.30	(< 20)
4-Methyl-2-pentanone (MIBK)	0.113U	2.03	2.05	101	2.03	2.17	107	65-135	6.10	(< 20)
Acetone	0.113U	2.03	1.88	93	2.03	1.98	98	36-164	5.20	(< 20)
Benzene	0.00565U	0.676	0.653	97	0.676	0.640	95	77-121	2.00	(< 20)
Bromobenzene	0.0113U	0.676	0.733	108	0.676	0.729	108	78-121	0.49	(< 20)
Bromochloromethane	0.0113U	0.676	0.626	93	0.676	0.621	92	78-125	0.83	(< 20)
Bromodichloromethane	0.000900U	0.676	0.676	100	0.676	0.673	100	75-127	0.47	(< 20)
Bromoform	0.0113U	0.676	0.728	108	0.676	0.746	110	67-132	2.50	(< 20)
Bromomethane	0.00900U	0.676	0.677	100	0.676	0.649	96	53-143	4.40	(< 20)
Carbon disulfide	0.0451U	1.01	0.892	88	1.01	0.858	85	63-132	3.90	(< 20)
Carbon tetrachloride	0.00565U	0.676	0.646	96	0.676	0.613	91	70-135	5.20	(< 20)
Chlorobenzene	0.0113U	0.676	0.670	99	0.676	0.669	99	79-120	0.24	(< 20)

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Matrix Spike Summary

Original Sample ID: 1625656
MS Sample ID: 1625657 MS
MSD Sample ID: 1625658 MSD

Analysis Date: 07/24/2021 18:44
Analysis Date: 07/24/2021 16:48
Analysis Date: 07/24/2021 17:05
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

		Matrix Spike (mg/kg)				Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.0900U	0.676	0.740	110		0.676	0.681	101	59-139	8.30	(< 20)
Chloroform	0.00181U	0.676	0.652	96		0.676	0.639	95	78-123	2.00	(< 20)
Chloromethane	0.0113U	0.676	0.637	94		0.676	0.632	93	50-136	0.85	(< 20)
cis-1,2-Dichloroethene	0.0113U	0.676	0.590	87		0.676	0.626	93	77-123	6.00	(< 20)
cis-1,3-Dichloropropene	0.00565U	0.676	0.714	106		0.676	0.718	106	74-126	0.57	(< 20)
Dibromochloromethane	0.00226U	0.676	0.771	114		0.676	0.780	115	74-126	1.10	(< 20)
Dibromomethane	0.0113U	0.676	0.644	95		0.676	0.652	96	78-125	1.20	(< 20)
Dichlorodifluoromethane	0.0226U	0.676	0.596	88		0.676	0.565	84	29-149	5.40	(< 20)
Ethylbenzene	0.0113U	0.676	0.649	96		0.676	0.638	94	76-122	1.60	(< 20)
Freon-113	0.0451U	1.01	0.908	90		1.01	0.864	85	66-136	4.90	(< 20)
Hexachlorobutadiene	0.00900U	0.676	0.720	107		0.676	0.755	112	61-135	4.80	(< 20)
Isopropylbenzene (Cumene)	0.0113U	0.676	0.673	100		0.676	0.660	98	68-134	2.00	(< 20)
Methylene chloride	0.0451U	0.676	0.633	94		0.676	0.623	92	70-128	1.50	(< 20)
Methyl-t-butyl ether	0.0451U	1.01	0.934	92		1.01	0.969	96	73-125	3.70	(< 20)
Naphthalene	0.0113U	0.676	0.737	109		0.676	0.824	122	62-129	11.20	(< 20)
n-Butylbenzene	0.0113U	0.676	0.728	108		0.676	0.720	106	70-128	1.10	(< 20)
n-Propylbenzene	0.0113U	0.676	0.726	107		0.676	0.715	106	73-125	1.60	(< 20)
o-Xylene	0.0113U	0.676	0.660	98		0.676	0.657	97	77-123	0.41	(< 20)
P & M -Xylene	0.0226U	1.35	1.28	95		1.35	1.26	93	77-124	1.60	(< 20)
sec-Butylbenzene	0.0113U	0.676	0.710	105		0.676	0.697	103	73-126	1.90	(< 20)
Styrene	0.0113U	0.676	0.680	101		0.676	0.682	101	76-124	0.40	(< 20)
tert-Butylbenzene	0.0113U	0.676	0.719	106		0.676	0.711	105	73-125	1.10	(< 20)
Tetrachloroethene	0.00565U	0.676	0.687	102		0.676	0.667	99	73-128	2.90	(< 20)
Toluene	0.0113U	0.676	0.656	97		0.676	0.653	97	77-121	0.59	(< 20)
trans-1,2-Dichloroethene	0.0113U	0.676	0.631	93		0.676	0.608	90	74-125	3.70	(< 20)
trans-1,3-Dichloropropene	0.00565U	0.676	0.696	103		0.676	0.714	106	71-130	2.60	(< 20)
Trichloroethene	0.00226U	0.676	0.686	102		0.676	0.668	99	77-123	2.70	(< 20)
Trichlorofluoromethane	0.0226U	0.676	1.18	175	*	0.676	0.894	132	62-140	28.00	* (< 20)
Vinyl acetate	0.0451U	0.676	0.705	104		0.676	0.725	107	50-151	2.80	(< 20)
Vinyl chloride	0.000360U	0.676	0.670	99		0.676	0.633	94	56-135	5.70	(< 20)
Xylenes (total)	0.0338U	2.03	1.94	96		2.03	1.92	95	78-124	1.20	(< 20)
Surrogates											
1,2-Dichloroethane-D4 (surr)		0.676	0.641	95		0.676	0.645	96	71-136	0.74	
4-Bromofluorobenzene (surr)		1.13	0.849	75		1.13	0.855	76	55-151	0.63	
Toluene-d8 (surr)		0.676	0.673	100		0.676	0.674	100	85-116	0.17	

Print Date: 08/06/2021 4:52:57PM

Matrix Spike Summary

Original Sample ID: 1625656
MS Sample ID: 1625657 MS
MSD Sample ID: 1625658 MSD

Analysis Date:
Analysis Date: 07/24/2021 16:48
Analysis Date: 07/24/2021 17:05
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012, 1214339013

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS20966
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/24/2021 4:48:00PM

Prep Batch: VXX37497
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/24/2021 6:00:00AM
Prep Initial Wt./Vol.: 55.47g
Prep Extract Vol: 25.00mL

Print Date: 08/06/2021 4:52:57PM

Method Blank

Blank ID: MB for HBN 1823173 [VXX/37520]
Blank Lab ID: 1626444

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339010, 1214339011, 1214339012, 1214339013, 1214339014

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.32J	2.50	0.750	mg/kg
Surrogates				
4-Bromofluorobenzene (surr)	85.3	50-150		%

Batch Information

Analytical Batch: VFC15737
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: MDT
Analytical Date/Time: 7/28/2021 3:52:00PM

Prep Batch: VXX37520
Prep Method: SW5035A
Prep Date/Time: 7/28/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [VXX37520]
Blank Spike Lab ID: 1626445
Date Analyzed: 07/28/2021 15:17

Spike Duplicate ID: LCSD for HBN 1214339 [VXX37520]
Spike Duplicate Lab ID: 1626446
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339010, 1214339011, 1214339012, 1214339013, 1214339014

Results by **AK101**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	12.6	101	12.5	12.5	100	(60-120)	0.59	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25		84	1.25		91	(50-150)	7.80	

Batch Information

Analytical Batch: **VFC15737**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37520**
Prep Method: **SW5035A**
Prep Date/Time: **07/28/2021 06:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1822538 [XXX/45180]
Blank Lab ID: 1623932

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001, 1214339002

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0125U	0.0250	0.00625	mg/kg
2-Methylnaphthalene	0.0125U	0.0250	0.00625	mg/kg
Acenaphthene	0.0125U	0.0250	0.00625	mg/kg
Acenaphthylene	0.0125U	0.0250	0.00625	mg/kg
Anthracene	0.0125U	0.0250	0.00625	mg/kg
Benzo(a)Anthracene	0.0125U	0.0250	0.00625	mg/kg
Benzo[a]pyrene	0.0125U	0.0250	0.00625	mg/kg
Benzo[b]Fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Benzo[g,h,i]perylene	0.0125U	0.0250	0.00625	mg/kg
Benzo[k]fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Chrysene	0.0125U	0.0250	0.00625	mg/kg
Dibenzo[a,h]anthracene	0.0125U	0.0250	0.00625	mg/kg
Fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Fluorene	0.0125U	0.0250	0.00625	mg/kg
Indeno[1,2,3-c,d] pyrene	0.0125U	0.0250	0.00625	mg/kg
Naphthalene	0.0100U	0.0200	0.00500	mg/kg
Phenanthrene	0.0125U	0.0250	0.00625	mg/kg
Pyrene	0.0125U	0.0250	0.00625	mg/kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	94	58-103		%
Fluoranthene-d10 (surr)	95	54-113		%

Batch Information

Analytical Batch: XMS12756
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: LAW
Analytical Date/Time: 7/20/2021 1:12:00AM

Prep Batch: XXX45180
Prep Method: SW3550C
Prep Date/Time: 7/19/2021 6:40:05AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45180]
Blank Spike Lab ID: 1623933
Date Analyzed: 07/20/2021 01:33

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001, 1214339002

Results by **8270D SIM (PAH)**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	0.111	0.0957	86	(43-111)
2-Methylnaphthalene	0.111	0.0969	87	(39-114)
Acenaphthene	0.111	0.102	92	(44-111)
Acenaphthylene	0.111	0.0997	90	(39-116)
Anthracene	0.111	0.105	94	(50-114)
Benzo(a)Anthracene	0.111	0.105	94	(54-122)
Benzo[a]pyrene	0.111	0.105	95	(50-125)
Benzo[b]Fluoranthene	0.111	0.107	96	(53-128)
Benzo[g,h,i]perylene	0.111	0.108	97	(49-127)
Benzo[k]fluoranthene	0.111	0.107	97	(56-123)
Chrysene	0.111	0.103	93	(57-118)
Dibenzo[a,h]anthracene	0.111	0.109	98	(50-129)
Fluoranthene	0.111	0.105	95	(55-119)
Fluorene	0.111	0.105	95	(47-114)
Indeno[1,2,3-c,d] pyrene	0.111	0.109	98	(49-130)
Naphthalene	0.111	0.0996	90	(38-111)
Phenanthrene	0.111	0.104	94	(49-113)
Pyrene	0.111	0.107	96	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	0.111		91	(58-103)
Fluoranthene-d10 (surr)	0.111		92	(54-113)

Batch Information

Analytical Batch: **XMS12756**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **LAW**

Prep Batch: **XXX45180**
Prep Method: **SW3550C**
Prep Date/Time: **07/19/2021 06:40**
Spike Init Wt./Vol.: 0.111 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2021 4:53:10PM

Matrix Spike Summary

Original Sample ID: 1214208005
MS Sample ID: 1623934 MS
MSD Sample ID: 1623935 MSD

Analysis Date: 07/20/2021 1:53
Analysis Date: 07/20/2021 2:13
Analysis Date: 07/20/2021 2:34
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001, 1214339002

Results by **8270D SIM (PAH)**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0139U	0.123	0.107	87	0.124	0.113	91	43-111	5.90	(< 20)
2-Methylnaphthalene	0.0139U	0.123	0.111	90	0.124	0.112	91	39-114	1.70	(< 20)
Acenaphthene	0.0139U	0.123	0.110	90	0.124	0.115	93	44-111	4.50	(< 20)
Acenaphthylene	0.0139U	0.123	0.111	90	0.124	0.115	93	39-116	3.40	(< 20)
Anthracene	0.0139U	0.123	0.111	90	0.124	0.118	94	50-114	5.80	(< 20)
Benzo(a)Anthracene	0.0139U	0.123	0.101	82	0.124	0.104	84	54-122	2.70	(< 20)
Benzo[a]pyrene	0.0139U	0.123	0.0988	80	0.124	0.0987	79	50-125	0.17	(< 20)
Benzo[b]Fluoranthene	0.0139U	0.123	0.103	84	0.124	0.102	82	53-128	0.79	(< 20)
Benzo[g,h,i]perylene	0.0139U	0.123	0.0861	70	0.124	0.0848	68	49-127	1.60	(< 20)
Benzo[k]fluoranthene	0.0139U	0.123	0.0996	81	0.124	0.103	83	56-123	3.30	(< 20)
Chrysene	0.0139U	0.123	0.105	85	0.124	0.108	87	57-118	2.70	(< 20)
Dibenzo[a,h]anthracene	0.0139U	0.123	0.0847	69	0.124	0.0839	68	50-129	0.92	(< 20)
Fluoranthene	0.0139U	0.123	0.110	89	0.124	0.110	88	55-119	0.17	(< 20)
Fluorene	0.0139U	0.123	0.118	96	0.124	0.122	98	47-114	2.90	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0139U	0.123	0.0852	69	0.124	0.0834	67	49-130	2.20	(< 20)
Naphthalene	0.0111U	0.123	0.114	92	0.124	0.118	95	38-111	3.30	(< 20)
Phenanthrene	0.0139U	0.123	0.112	91	0.124	0.118	94	49-113	4.60	(< 20)
Pyrene	0.0139U	0.123	0.112	91	0.124	0.111	89	55-117	0.67	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		0.123	0.106	86	0.124	0.115	93	58-103	8.50	
Fluoranthene-d10 (surr)		0.123	0.106	86	0.124	0.109	87	54-113	2.40	

Batch Information

Analytical Batch: XMS12756
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: LAW
Analytical Date/Time: 7/20/2021 2:13:00AM

Prep Batch: XXX45180
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 7/19/2021 6:40:05AM
Prep Initial Wt./Vol.: 22.71g
Prep Extract Vol: 5.00mL

Print Date: 08/06/2021 4:53:13PM

Method Blank

Blank ID: MB for HBN 1822542 [XXX/45183]
Blank Lab ID: 1623949

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001, 1214339002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/kg
Surrogates				
5a Androstane (surr)	101	60-120		%

Batch Information

Analytical Batch: XFC16004
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: IVM
Analytical Date/Time: 7/19/2021 4:41:00PM

Prep Batch: XXX45183
Prep Method: SW3550C
Prep Date/Time: 7/19/2021 8:51:44AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45183]
Blank Spike Lab ID: 1623950
Date Analyzed: 07/19/2021 16:51

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45183]
Spike Duplicate Lab ID: 1623951
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001, 1214339002

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	667	733	110	667	726	109	(75-125)	0.98	(< 20)
Surrogates									
5a Androstane (surr)	16.7		106	16.7		104	(60-120)	1.80	

Batch Information

Analytical Batch: **XFC16004**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45183**
Prep Method: **SW3550C**
Prep Date/Time: **07/19/2021 08:51**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:19PM

Method Blank

Blank ID: MB for HBN 1822542 [XXX/45183]
Blank Lab ID: 1623949

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339001, 1214339002

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	50.0U	100	43.0	mg/kg
Surrogates				
n-Triacontane-d62 (surr)	101	60-120		%

Batch Information

Analytical Batch: XFC16004
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: IVM
Analytical Date/Time: 7/19/2021 4:41:00PM

Prep Batch: XXX45183
Prep Method: SW3550C
Prep Date/Time: 7/19/2021 8:51:44AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45183]
Blank Spike Lab ID: 1623950
Date Analyzed: 07/19/2021 16:51

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45183]
Spike Duplicate Lab ID: 1623951
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339001, 1214339002

Results by **AK103**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	667	667	100	667	662	99	(60-120)	0.73	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7		97	16.7		93	(60-120)	3.80	

Batch Information

Analytical Batch: **XFC16004**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45183**
Prep Method: **SW3550C**
Prep Date/Time: **07/19/2021 08:51**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:26PM

Method Blank

Blank ID: MB for HBN 1822558 [XXX/45186]
Blank Lab ID: 1624012

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339003

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/kg
Surrogates				
5a Androstane (surr)	107	60-120		%

Batch Information

Analytical Batch: XFC16007
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 7/19/2021 5:21:00PM

Prep Batch: XXX45186
Prep Method: SW3550C
Prep Date/Time: 7/19/2021 1:14:23PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45186]
Blank Spike Lab ID: 1624013
Date Analyzed: 07/19/2021 17:31

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45186]
Spike Duplicate Lab ID: 1624014
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	667	726	109	667	776	116	(75-125)	6.80	(< 20)
Surrogates									
5a Androstane (surr)	16.7		111	16.7		119	(60-120)	6.60	

Batch Information

Analytical Batch: **XFC16007**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45186**
Prep Method: **SW3550C**
Prep Date/Time: **07/19/2021 13:14**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:33PM

Method Blank

Blank ID: MB for HBN 1822558 [XXX/45186]
Blank Lab ID: 1624012

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339003

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	50.0U	100	43.0	mg/kg
Surrogates				
n-Triacontane-d62 (surr)	105	60-120		%

Batch Information

Analytical Batch: XFC16007
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 7/19/2021 5:21:00PM

Prep Batch: XXX45186
Prep Method: SW3550C
Prep Date/Time: 7/19/2021 1:14:23PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45186]
Blank Spike Lab ID: 1624013
Date Analyzed: 07/19/2021 17:31

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45186]
Spike Duplicate Lab ID: 1624014
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003

Results by **AK103**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	667	670	101	667	718	108	(60-120)	6.80	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7		108	16.7		114	(60-120)	5.80	

Batch Information

Analytical Batch: **XFC16007**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45186**
Prep Method: **SW3550C**
Prep Date/Time: **07/19/2021 13:14**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1822606 [XXX/45195]
Blank Lab ID: 1624211

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	17.0J	20.0	6.20	mg/kg
Surrogates				
5a Androstane (surr)	94.7	60-120		%

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: IVM
Analytical Date/Time: 7/20/2021 3:27:00PM

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 7/20/2021 7:38:35AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45195]
Blank Spike Lab ID: 1624212
Date Analyzed: 07/20/2021 15:37

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45195]
Spike Duplicate Lab ID: 1624213
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	667	688	103	667	617	93	(75-125)	10.90	(< 20)
Surrogates									
5a Androstane (surr)	16.7		102	16.7		92	(60-120)	10.10	

Batch Information

Analytical Batch: **XFC16008**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45195**
Prep Method: **SW3550C**
Prep Date/Time: **07/20/2021 07:38**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:50PM

Method Blank

Blank ID: MB for HBN 1822606 [XXX/45195]
Blank Lab ID: 1624211

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	50.0U	100	43.0	mg/kg
Surrogates				
n-Triacontane-d62 (surr)	94	60-120		%

Batch Information

Analytical Batch: XFC16008
Analytical Method: AK103
Instrument: Agilent 7890B F
Analyst: IVM
Analytical Date/Time: 7/20/2021 3:27:00PM

Prep Batch: XXX45195
Prep Method: SW3550C
Prep Date/Time: 7/20/2021 7:38:35AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45195]
Blank Spike Lab ID: 1624212
Date Analyzed: 07/20/2021 15:37

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45195]
Spike Duplicate Lab ID: 1624213
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012

Results by **AK103**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	667	674	101	667	613	92	(60-120)	9.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7		94	16.7		87	(60-120)	8.70	

Batch Information

Analytical Batch: **XFC16008**
Analytical Method: **AK103**
Instrument: **Agilent 7890B F**
Analyst: **IVM**

Prep Batch: **XXX45195**
Prep Method: **SW3550C**
Prep Date/Time: **07/20/2021 07:38**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:57PM

Method Blank

Blank ID: MB for HBN 1822609 [XXX/45196]
Blank Lab ID: 1624226

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339003, 1214339004, 1214339005

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0125U	0.0250	0.00625	mg/kg
2-Methylnaphthalene	0.0125U	0.0250	0.00625	mg/kg
Acenaphthene	0.0125U	0.0250	0.00625	mg/kg
Acenaphthylene	0.0125U	0.0250	0.00625	mg/kg
Anthracene	0.0125U	0.0250	0.00625	mg/kg
Benzo(a)Anthracene	0.0125U	0.0250	0.00625	mg/kg
Benzo[a]pyrene	0.0125U	0.0250	0.00625	mg/kg
Benzo[b]Fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Benzo[g,h,i]perylene	0.0125U	0.0250	0.00625	mg/kg
Benzo[k]fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Chrysene	0.0125U	0.0250	0.00625	mg/kg
Dibenzo[a,h]anthracene	0.0125U	0.0250	0.00625	mg/kg
Fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Fluorene	0.0125U	0.0250	0.00625	mg/kg
Indeno[1,2,3-c,d] pyrene	0.0125U	0.0250	0.00625	mg/kg
Naphthalene	0.0100U	0.0200	0.00500	mg/kg
Phenanthrene	0.0125U	0.0250	0.00625	mg/kg
Pyrene	0.0125U	0.0250	0.00625	mg/kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	99.4	58-103		%
Fluoranthene-d10 (surr)	98.1	54-113		%

Batch Information

Analytical Batch: XMS12777
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: CDM
Analytical Date/Time: 7/26/2021 5:26:00PM

Prep Batch: XXX45196
Prep Method: SW3550C
Prep Date/Time: 7/20/2021 9:56:50AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45196]
Blank Spike Lab ID: 1624227
Date Analyzed: 07/26/2021 17:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003, 1214339004, 1214339005

Results by **8270D SIM (PAH)**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)		CL
1-Methylnaphthalene	0.111	0.121	108		(43-111)
2-Methylnaphthalene	0.111	0.121	109		(39-114)
Acenaphthene	0.111	0.128	115	*	(44-111)
Acenaphthylene	0.111	0.125	112		(39-116)
Anthracene	0.111	0.126	113		(50-114)
Benzo(a)Anthracene	0.111	0.128	115		(54-122)
Benzo[a]pyrene	0.111	0.130	117		(50-125)
Benzo[b]Fluoranthene	0.111	0.136	123		(53-128)
Benzo[g,h,i]perylene	0.111	0.130	117		(49-127)
Benzo[k]fluoranthene	0.111	0.129	116		(56-123)
Chrysene	0.111	0.129	116		(57-118)
Dibenzo[a,h]anthracene	0.111	0.128	115		(50-129)
Fluoranthene	0.111	0.128	115		(55-119)
Fluorene	0.111	0.126	113		(47-114)
Indeno[1,2,3-c,d] pyrene	0.111	0.130	117		(49-130)
Naphthalene	0.111	0.123	110		(38-111)
Phenanthrene	0.111	0.125	113		(49-113)
Pyrene	0.111	0.129	116		(55-117)
Surrogates					
2-Methylnaphthalene-d10 (surr)	0.111		116	*	(58-103)
Fluoranthene-d10 (surr)	0.111		114	*	(54-113)

Batch Information

Analytical Batch: **XMS12777**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **CDM**

Prep Batch: **XXX45196**
Prep Method: **SW3550C**
Prep Date/Time: **07/20/2021 09:56**
Spike Init Wt./Vol.: 0.111 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2021 4:54:05PM

Matrix Spike Summary

Original Sample ID: 1214314004
MS Sample ID: 1624228 MS
MSD Sample ID: 1624229 MSD

Analysis Date: 07/26/2021 19:29
Analysis Date: 07/26/2021 19:49
Analysis Date: 07/26/2021 20:10
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339003, 1214339004, 1214339005

Results by **8270D SIM (PAH)**

		Matrix Spike (mg/kg)				Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.00984J	0.116	0.132	105		0.114	0.125	100	43-111	6.00	(< 20)
2-Methylnaphthalene	0.00914J	0.116	0.132	106		0.114	0.124	101	39-114	6.00	(< 20)
Acenaphthene	0.0130U	0.116	0.126	108		0.114	0.111	97	44-111	12.10	(< 20)
Acenaphthylene	0.0130U	0.116	0.125	107		0.114	0.109	96	39-116	13.00	(< 20)
Anthracene	0.0130U	0.116	0.121	104		0.114	0.107	94	50-114	11.70	(< 20)
Benzo(a)Anthracene	0.0130U	0.116	0.128	111		0.114	0.112	98	54-122	13.40	(< 20)
Benzo[a]pyrene	0.0130U	0.116	0.131	113		0.114	0.113	99	50-125	14.80	(< 20)
Benzo[b]Fluoranthene	0.0130U	0.116	0.128	111		0.114	0.115	101	53-128	11.00	(< 20)
Benzo[g,h,i]perylene	0.0130U	0.116	0.129	112		0.114	0.112	99	49-127	13.90	(< 20)
Benzo[k]fluoranthene	0.0130U	0.116	0.136	117		0.114	0.113	100	56-123	17.90	(< 20)
Chrysene	0.0130U	0.116	0.130	112		0.114	0.110	97	57-118	16.10	(< 20)
Dibenzo[a,h]anthracene	0.0130U	0.116	0.128	110		0.114	0.110	97	50-129	14.60	(< 20)
Fluoranthene	0.0130U	0.116	0.126	108		0.114	0.110	96	55-119	13.80	(< 20)
Fluorene	0.0130U	0.116	0.133	115	*	0.114	0.116	102	47-114	13.00	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0130U	0.116	0.129	111		0.114	0.111	98	49-130	14.80	(< 20)
Naphthalene	0.0104U	0.116	0.124	107		0.114	0.113	99	38-111	9.10	(< 20)
Phenanthrene	0.0147J	0.116	0.139	106		0.114	0.125	96	49-113	10.40	(< 20)
Pyrene	0.0130U	0.116	0.127	110		0.114	0.112	98	55-117	12.40	(< 20)
Surrogates											
2-Methylnaphthalene-d10 (surr)		0.116	0.125	108	*	0.114	0.109	95	58-103	13.90	
Fluoranthene-d10 (surr)		0.116	0.125	108		0.114	0.109	96	54-113	13.80	

Batch Information

Analytical Batch: XMS12777
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: CDM
Analytical Date/Time: 7/26/2021 7:49:00PM

Prep Batch: XXX45196
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 7/20/2021 9:56:50AM
Prep Initial Wt./Vol.: 22.61g
Prep Extract Vol: 5.00mL

Print Date: 08/06/2021 4:54:07PM

Method Blank

Blank ID: MB for HBN 1822754 [XXX/45205]
Blank Lab ID: 1624620

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339013

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	7.11J	20.0	6.20	mg/kg
Surrogates				
5a Androstane (surr)	100	60-120		%

Batch Information

Analytical Batch: XFC16012
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 7/21/2021 5:08:00PM

Prep Batch: XXX45205
Prep Method: SW3550C
Prep Date/Time: 7/21/2021 1:44:55PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45205]
Blank Spike Lab ID: 1624621
Date Analyzed: 07/21/2021 17:18

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45205]
Spike Duplicate Lab ID: 1624622
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339013

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	667	770	116	667	759	114	(75-125)	1.50	(< 20)
Surrogates									
5a Androstane (surr)	16.7		117	16.7		114	(60-120)	2.60	

Batch Information

Analytical Batch: **XFC16012**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45205**
Prep Method: **SW3550C**
Prep Date/Time: **07/21/2021 13:44**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

Print Date: 08/06/2021 4:54:12PM

Method Blank

Blank ID: MB for HBN 1822754 [XXX/45205]
Blank Lab ID: 1624620

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214339013

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	50.0U	100	43.0	mg/kg
Surrogates				
n-Triacontane-d62 (surr)	101	60-120		%

Batch Information

Analytical Batch: XFC16012
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 7/21/2021 5:08:00PM

Prep Batch: XXX45205
Prep Method: SW3550C
Prep Date/Time: 7/21/2021 1:44:55PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214339 [XXX45205]
Blank Spike Lab ID: 1624621
Date Analyzed: 07/21/2021 17:18

Spike Duplicate ID: LCSD for HBN 1214339 [XXX45205]
Spike Duplicate Lab ID: 1624622
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214339013

Results by **AK103**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	667	723	108	667	710	107	(60-120)	1.80	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7		112	16.7		107	(60-120)	4.50	

Batch Information

Analytical Batch: **XFC16012**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45205**
Prep Method: **SW3550C**
Prep Date/Time: **07/21/2021 13:44**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Dawkins, Jennifer A (Fairbanks)

From: Dawkins, Jennifer A (Fairbanks)
Sent: Monday, July 19, 2021 3:26 PM
To: Dawkins, Jennifer A (Fairbanks)
Subject: 1214339 Change Order

Change Order for 1214339:

Hi Jen,

Could we please reduce the number of samples submitted for PAHs under this work order (1214339)? Soil and sediment samples SS-Grid-A3, SS-Grid-A4, SB7-29.8-30.3, SED-02, and SED-102 are submitted for PAH analysis. Please cancel the others (SED-03, SED-04, SED-05, etc).

Thank you,
Marcy

Jennifer A-B Dawkins
Industries & Environment
Fairbanks Client Services
Project Manager - Alaska
SGS
3180 Peger Rd. Ste. 190
Fairbanks, AK 99709
907-474-8656
907-322-8444
jennifer.dawkins@sgs.com

1214339

#350732 ND

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Jen Dawkins

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	MSA Number: MSA-SGS-2016
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	GRO (AK101)	DRO (AK102)	RRO (AK103)	PAH (TAH, TAqH)	VOCs (8260D)			Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SS-Grid-A3		1905	7/8/21	X	X	X	X	X			2	soil
SS-Grid-A4		1910	7/8/21	X	X	X	X	X				↓
SB7-29.8-30.3		2305	7/12/21	X	X	X	X	X				
SED-02		1630	7/13/21	X	X	X	X	X				sediment
SED-102		1640	7/13/21	X	X	X	X	X				
SED-03		1838	7/13/21	X	X	X	X	X				
SED-04		0930	7/14/21	X	X	X	X	X				
SED-05		1105		X	X	X	X	X				
SED-104		0940		X	X	X	X	X				
SED-06		1200	↓	X	X	X	X	X			↓	↓

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	27
Name:	DLG PFAS	COC Seals/Intact? Y/N/NA	
Contact:	Marcy Nadeau	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	VTY, MDN, DHF	Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1800	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimov Date: 7/15/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 16:24
Printed Name: Date:	Printed Name: Date:	Printed Name: VTY Date: 7/14/21
Company:	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

1.2 DSS (TP)

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Jen Dawkins

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	MSA Number: MSA-SGS-2016
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	GRO (AK 101)	DRO (AK 102)	RRO (AK 103)	PAH (TAL, TAL-K)	VOCs (8260D)			Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SED-07		1400	7/14/21	X	X	X	X	X			2	sediment
SED-08		1645	7/14/21	X	X	X	X	X			↓	↓
SED-09		1815	7/14/21	X	[redacted]			X			↓	↓
Trip Blank											1	trip blank

Project Information	
Number:	102581-009
Name:	DLG PFAS
Contact:	Marcy Nader
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY

Sample Receipt	
Total No. of Containers:	27
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1800	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/15/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Notes:

Trip blank was present in cooler with samples at all times.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No.

027 DLG 7664 8246 | 027-7664 8246

Shipper's Name and Address	Shipper's Account Number	Not Negotiable
Shannon and Wilson Inc 2355 Hill Rd Fairbanks, AK 99712 USA Tel: 907-479-0600	27400200733 Customer's ID Number 10926	**Air Waybill** Issued By Alaska AIR CARGO P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM

Consignee's Name and Address	Consignee's Account Number	Also notify
SGS North America 200 W Potter Drive Anchorage, AK 99518 USA Tel: 907-562-2343	27400215947	Tel:

Issuing Carrier's Agent and City	Accounting Information 10926
Agent's IATA Code / Account No.	Shannon and Wilson Inc 2355 Hill Rd Fairbanks, AK 99712 USA SRN/102581 GoldStreak
Airport of Departure (Addr. of First Carrier) and Requested Routing: Dillingham	

To	By First Carrier	To / By	To / By	Currency		WT/VAL	Other	Declared Value For Carriage	Declared Value For Customs
ANC	Alaska Airlines			USD	PX	X	X	NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Anchorage	AS 2114/16		XXX

Handling Information

BIOLOGICAL SUBSTANCE, CAT B (UN3373) - DGD AND NOTOC NOT REQUIRED
BIOLOGICAL SUBSTANCE, CAT B (UN3373) - DGD AND NOTOC NOT REQUIRED

SCI

No of Pieces	Gross Weight	kg lb		Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
2	102.0	L	Q		102.0		AS AGREED	SAMPLES Dims: 24 x 13 x14 x 2 GSX RDS COL
2	102.0						AS AGREED	Volume: 5.056

Prepaid	Weight Charge	Collect
AS AGREED		
	Valuation Charge	
	Tax	
	Total Other Charges Due Agent	
	Total Other Charges Due Carrier	
Total Prepaid		Total Collect
AS AGREED		

Other Charges

XBC 10.00

Shipper certifies that the particulars on the face hereof are correct and that **insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.**

For: Shannon and Wilson Inc

Signature of Shipper or his Agent

[ ] THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

[✓] THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

16 Jul 2021 09:15	Dillingham	Alaska Airlines
Executed On (Date)	at (Place)	Signature of Issuing Carrier or its Agent

027-7664 8246

Alert Expeditors Inc. #413277

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 7/16/21

From S-W

To SCS

Collect ❐	Prepay ❐	Advance Charges ❐
Job # NLG	PO# AS 744546	

2 pc

Shipped Signature

Total Charge

Received By:

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214339001-A	Methanol field pres. 4 C	OK			
1214339001-B	No Preservative Required	OK			
1214339002-A	Methanol field pres. 4 C	OK			
1214339002-B	No Preservative Required	OK			
1214339003-A	Methanol field pres. 4 C	OK			
1214339003-B	No Preservative Required	OK			
1214339004-A	Methanol field pres. 4 C	OK			
1214339004-B	No Preservative Required	OK			
1214339005-A	Methanol field pres. 4 C	OK			
1214339005-B	No Preservative Required	OK			
1214339006-A	Methanol field pres. 4 C	OK			
1214339006-B	No Preservative Required	OK			
1214339007-A	Methanol field pres. 4 C	OK			
1214339007-B	No Preservative Required	OK			
1214339008-A	Methanol field pres. 4 C	OK			
1214339008-B	No Preservative Required	OK			
1214339009-A	Methanol field pres. 4 C	OK			
1214339009-B	No Preservative Required	OK			
1214339010-A	Methanol field pres. 4 C	OK			
1214339010-B	No Preservative Required	OK			
1214339011-A	Methanol field pres. 4 C	OK			
1214339011-B	No Preservative Required	OK			
1214339012-A	Methanol field pres. 4 C	OK			
1214339012-B	No Preservative Required	OK			
1214339013-A	Methanol field pres. 4 C	OK			
1214339013-B	No Preservative Required	OK			
1214339014-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 13, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1214339

Laboratory Report Date:

August 9, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

1214339

Laboratory Report Date:

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CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   All analyses were performed by the SGS North America, Inc. (SGS) laboratory in Anchorage, AK. SGS has been approved by the DEC CS program and certified by the DoD National Environmental Laboratory Accreditation Program (NELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   The samples were not transferred to a network laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   Some of the PAH analyses were changed in an email by the S&W PM. The email is included in the data package and the results are not affected.

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt forms note that the samples arrived in good condition and properly preserved.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

No discrepancies were identified by the laboratories.

e. Data quality or usability affected?

Comments:

Data quality/usability is not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

SS-Grid-A3 - 8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to the dark color of the extract.

SS-Grid-A4 - 8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to the dark color of the extract.

SED-02 - 8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to the dark color of the extract.

SED-102 - 8270D SIM - PAH surrogate recoveries for 2-methylnaphthalene-d10 and fluoranthene-d10 do not meet QC criteria. All associated analytes are not detected above the LOQ.

SED-06 (1214339010) PS - AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria, sample analyzed twice and results confirmed.

LCS for HBN 1822609 [XXX/45196 (1624227) LCS - 8270D SIM - PAH LCS surrogate recoveries for 2-methylnaphthalene-d10 and fluoranthene-d10 do not meet QC criteria. Associated method blank and samples meet surrogate criteria.

8270D SIM - PAH LCS recovery for acenaphthene does not meet QC criteria. Associated samples are reporting this analyte at less than the LOQ.

MB for HBN 1822606 [XXX/45195] (1624211) MB - AK102 - DRO is detected in the MB over 1/2 LOQ, but less than LOQ.

MB for HBN 1823173 [VXX/37520] (1626444) MB - AK101 - MB GRO recovery does not meet QC criteria, however it is below the LOQ.

1214339005(1625399MS) (1625400) MS - 8260D - MS recovery for Trichlorofluoromethane does not meet QC criteria. See LCS for accuracy requirements.

1214339007(1625656MS) (1625657) MS - 8260D - MS recovery for Trichlorofluoromethane does not meet QC criteria. See LCS for accuracy requirements.

1214339007(1625656MSD) (1625658) MSD - 8260D - MS//MSD RPD for Trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the PS.

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c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Corrective actions were documented in the Case Narrative.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative does not specify an effect on data quality/usability. See sections 5 and 6 for further assessment.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

Several analytes had reporting limits above the associated DEC regulatory limit. These non-detect results are bolded on the associated data table.

e. Data quality or usability affected?

We cannot determine if analytes with elevated reporting limits are present at concentrations above the DEC regulatory limit.

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6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☐ No☒ N/A☐ Comments:

The method blanks associated with preparatory batches VXX37482 and VXX37520 detected concentrations of GRO below the LOQ. Due to these method blank detections samples *SS-Grid-A3, SS-Grid-A4, SB7-29.8-30.3, SED-02, SED-102, SED-03, SED-04, SED-05, SED-104, SED-06, SED-07, SED-08, SED-09,* and *Trip Blank* GRO are affected. The detected GRO results for the affected samples were reported above the DL and less than the LOQ; therefore, the results are considered estimated with no direction of bias and have been flagged 'UB' at their respective LOQs in the analytical database.

The method blanks associated with preparatory batch XXX45195 and XXX45205 had reported concentrations of DRO below the LOQ. Due to these method blank detections samples *SED-02, SED-102, SED-03, SED-04, SED-05, SED-104,* and *SED-09* results are affected. Concentrations detected in samples *SED-02, Sed-102, SED-03, SED-04, SED-05,* and *SED-104* were reported greater than the LOQ and less than five-times their respective method blank concentrations; therefore, the results are considered estimated with no direction of bias and have been flagged 'UB' at their respective results. Concentrations detected in samples *SED-05* and *SED-09* were less than the LOQ; therefore, the results are considered estimated with no direction of bias and have been flagged 'UB' at their respective LOQs.

DRO concentrations detected in samples *SED-06, SED-07,* and *SED-08* were greater than ten times their respective method blank concentrations; therefore, the results are considered unaffected and do not require data qualifications.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Multiple samples were affected; see 6.ii.

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iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See 6.ii.

v. Data quality or usability affected?

Comments:

The data usability is not affected. See the applied qualifiers above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

LCS/LCSD pairs were reported for methods AK101, AK102, and AK103.
LCSs were reported for methods SW8260D and 8270D SIM (PAH).

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

Acenaphthene was recovered above laboratory limits in the LCS associated with preparatory batch XXX45196; however, the analyte was not detected in any of the project samples, so no qualifications are required.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptable limits; see 6.b.iii.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification of the results was not required; see section 6.b.v above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

MS/MSD sample pairs were reported for methods SW8260D and 8270D SIM (PAH).

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☒ N/A☐ Comments:

Percent recovery for hexachlorobutadiene was above the laboratory limits in the MS/MSD associated with parent sample 1624307.

Percent recovery for 1,1,2,2-tetrachloroethane, hexachlorobutadiene, and trichlorofluoromethane was above the laboratory limits in the MS/MSD associated with parent sample 1624483.

Percent recovery for trichlorofluoromethane was above the laboratory limits in the MS/MSD associated with parent samples 1625399 and 1625656.

Percent recovery for fluorine was above the laboratory limits in the MS/MSD associated with parent sample 1214314004.

The parent samples of the aforementioned MS/MSD recovery failures were not part of our sample set; therefore, data results and quality are unaffected, and no qualifiers are required. Additionally, these analytes were not detected in the original parent sample and no qualifications would be required if they were part of the sample set.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☒ N/A☐ Comments:

RPD for trichlorofluoromethane was above laboratory limits in the MS/MSD associated with parent sample 1625656. The parent sample associated with this exceedance was not part of our sample set; therefore, data results and quality are unaffected, and no qualifiers are required.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Samples are unaffected; see 6.c.iii and 6.c.iv.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

N/A; see above.

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vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The percent recovery for PAH surrogates 2methylnaphthalene-d10 and fluoranthene-d10 were above laboratory limits for project sample *SED-102*. None of the associated analytes are detected in the sample; therefore, data is considered unaffected, and does not require qualifications.

The percent recovery of the GRO surrogate was below recovery limits for sample *SED-06.* The analyte is considered non-detect due to a MB detection and therefore no further flagging is required.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No qualifications were required; see 6.e.ii.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

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ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

GRO were detected at concentrations less than the LOQ; however, this is considered to be due to a method blank detection. See 6.a.ii.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

Samples are unaffected; see above.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate samples *SED-02/SED-102* and *SED-04/SED-104*.

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iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 50% for all analytes except RRO in field duplicate pair *SED-04/SED-104.* RRO results for both samples are considered estimated with no direction of bias and have been flagged 'J' in the analytical database.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality/usability is affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☒ N/A☐ Comments:

Reusable equipment was not used in this sampling event; therefore, an equipment blank was not necessary.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank was not submitted with this work order.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment blank was not submitted with this work order.

iii. Data quality or usability affected?

Comments:

Data quality or usability is not affected.

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

   a. Defined and appropriate?

      Yes☐ No☐ N/A☒ Comments:

No additional data flags/qualifiers are required.

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707
(907)479-0600

Report Number: **1214673**

Client Project: **102581-009 Dillingham Airport**

Dear Marcy Nadel,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede 2021.08.19 16:48:53 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1214673**
Project Name/Site: **102581-009 Dillingham Airport**
Project Contact: **Marcy Nadel**

Refer to sample receipt form for information on sample condition.

Drum 55 (1214673004) PS

8270D - The LOQs are elevated due to sample dilution. The sample was analyzed at a dilution due to the dark color of the extract.

Drum 40 (1214673005) PS

8270D - The LOQs are elevated due to sample dilution. The sample was analyzed at a dilution due to the dark color of the extract.

LCS for HBN 1823178 [XXX/45263 (1626467) LCS

8270D - LCS recoveries for several analytes do not meet QC criteria. These analytes were not reported above the LOQ in the associated samples.

1214673005MS (1626471) MS

8270D - MS recovery for hexachlorocyclopentadiene does not meet QC criteria. See LCS for accuracy requirements.

1214673005MSD (1626470) MSD

8270D - MSD recovery for hexachlorocyclopentadiene does not meet QC criteria. See LCS for accuracy requirements.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SB13-35-37.5	1214673001	07/22/2021	07/28/2021	Soil/Solid (dry weight)
SB13-135-137.5	1214673002	07/22/2021	07/28/2021	Soil/Solid (dry weight)
SB11-22.5-25.4	1214673003	07/17/2021	07/28/2021	Soil/Solid (dry weight)
Drum 55	1214673004	07/26/2021	07/28/2021	Soil/Solid (dry weight)
Drum 40	1214673005	07/26/2021	07/28/2021	Soil/Solid (dry weight)
Trip Blank	1214673006	07/22/2021	07/28/2021	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SW6020B TCLP	Metals by ICP-MS
SM21 2540G	Percent Solids SM2540G
SW8270D	SW846 8270 Semi-Volatiles by GC/MS (S)
SW8260D	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **SB13-35-37.5**
Lab Sample ID: 1214673001
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	8.09J	mg/kg
Gasoline Range Organics	0.736J	mg/kg

Client Sample ID: **SB13-135-137.5**
Lab Sample ID: 1214673002
Semivolatile Organic Fuels
Volatile Fuels

Parameter	Result	Units
Diesel Range Organics	8.29J	mg/kg
Gasoline Range Organics	1.01J	mg/kg

Client Sample ID: **SB11-22.5-25.4**
Lab Sample ID: 1214673003
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	7.69J	mg/kg

Client Sample ID: **Drum 55**
Lab Sample ID: 1214673004
TCLP Constituents Metals

Parameter	Result	Units
Barium	0.278	mg/L
Chromium	0.314	mg/L

Client Sample ID: **Drum 40**
Lab Sample ID: 1214673005
TCLP Constituents Metals

Parameter	Result	Units
Barium	0.239	mg/L

Client Sample ID: **Trip Blank**
Lab Sample ID: 1214673006
Volatile Fuels

Parameter	Result	Units
Gasoline Range Organics	1.29J	mg/kg

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Results of **SB13-35-37.5**

Client Sample ID: **SB13-35-37.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673001
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
2-Methylnaphthalene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Acenaphthene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Acenaphthylene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Anthracene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Benzo(a)Anthracene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Benzo[a]pyrene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Benzo[b]Fluoranthene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Benzo[g,h,i]perylene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Benzo[k]fluoranthene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Chrysene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Dibenzo[a,h]anthracene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Fluoranthene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Fluorene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Indeno[1,2,3-c,d] pyrene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Naphthalene	0.0115	U	0.0229	0.00573	mg/kg	1		08/10/21 16:21
Phenanthrene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Pyrene	0.0144	U	0.0287	0.00716	mg/kg	1		08/10/21 16:21
Surrogates								
2-Methylnaphthalene-d10 (surr)	78.9		58-103		%	1		08/10/21 16:21
Fluoranthene-d10 (surr)	77.2		54-113		%	1		08/10/21 16:21

Batch Information

Analytical Batch: XMS12818
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 08/10/21 16:21
Container ID: 1214673001-A

Prep Batch: XXX45298
Prep Method: SW3550C
Prep Date/Time: 08/03/21 07:32
Prep Initial Wt./Vol.: 22.831 g
Prep Extract Vol: 5 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB13-35-37.5**

Client Sample ID: **SB13-35-37.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673001
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.09	J	23.1	7.17	mg/kg	1		08/03/21 05:48
Surrogates								
5a Androstane (surr)	92.7		50-150		%	1		08/03/21 05:48

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 08/03/21 05:48
Container ID: 1214673001-A

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 07/30/21 09:41
Prep Initial Wt./Vol.: 30.163 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	58.0	U	116	49.7	mg/kg	1		08/03/21 05:48
Surrogates								
n-Triacontane-d62 (surr)	91.1		50-150		%	1		08/03/21 05:48

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 08/03/21 05:48
Container ID: 1214673001-A

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 07/30/21 09:41
Prep Initial Wt./Vol.: 30.163 g
Prep Extract Vol: 5 mL

Results of **SB13-35-37.5**

Client Sample ID: **SB13-35-37.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673001
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.736	J	2.06	0.617	mg/kg	1		08/05/21 20:08
Surrogates								
4-Bromofluorobenzene (surr)	90.8		50-150		%	1		08/05/21 20:08

Batch Information

Analytical Batch: VFC15752
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/05/21 20:08
Container ID: 1214673001-B

Prep Batch: VXX37592
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:20
Prep Initial Wt./Vol.: 116.979 g
Prep Extract Vol: 41.386 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB13-35-37.5**

Client Sample ID: **SB13-35-37.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673001
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.00825	U	0.0165	0.00510	mg/kg	1		08/04/21 05:09
1,1,1-Trichloroethane	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,1,2,2-Tetrachloroethane	0.000825	U	0.00165	0.000510	mg/kg	1		08/04/21 05:09
1,1,2-Trichloroethane	0.000329	U	0.000658	0.000206	mg/kg	1		08/04/21 05:09
1,1-Dichloroethane	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,1-Dichloroethene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,1-Dichloropropene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,2,3-Trichlorobenzene	0.0206	U	0.0411	0.0123	mg/kg	1		08/04/21 05:09
1,2,3-Trichloropropane	0.000825	U	0.00165	0.000510	mg/kg	1		08/04/21 05:09
1,2,4-Trichlorobenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,2,4-Trimethylbenzene	0.0206	U	0.0411	0.0123	mg/kg	1		08/04/21 05:09
1,2-Dibromo-3-chloropropane	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
1,2-Dibromoethane	0.000411	U	0.000823	0.000329	mg/kg	1		08/04/21 05:09
1,2-Dichlorobenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,2-Dichloroethane	0.000825	U	0.00165	0.000576	mg/kg	1		08/04/21 05:09
1,2-Dichloropropane	0.00412	U	0.00823	0.00255	mg/kg	1		08/04/21 05:09
1,3,5-Trimethylbenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,3-Dichlorobenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
1,3-Dichloropropane	0.00412	U	0.00823	0.00255	mg/kg	1		08/04/21 05:09
1,4-Dichlorobenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
2,2-Dichloropropane	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
2-Butanone (MEK)	0.103	U	0.206	0.0642	mg/kg	1		08/04/21 05:09
2-Chlorotoluene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
2-Hexanone	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
4-Chlorotoluene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
4-Isopropyltoluene	0.0411	U	0.0823	0.0206	mg/kg	1		08/04/21 05:09
4-Methyl-2-pentanone (MIBK)	0.103	U	0.206	0.0642	mg/kg	1		08/04/21 05:09
Acetone	0.103	U	0.206	0.0642	mg/kg	1		08/04/21 05:09
Benzene	0.00515	U	0.0103	0.00321	mg/kg	1		08/04/21 05:09
Bromobenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Bromochloromethane	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Bromodichloromethane	0.000825	U	0.00165	0.000510	mg/kg	1		08/04/21 05:09
Bromoform	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Bromomethane	0.00825	U	0.0165	0.00510	mg/kg	1		08/04/21 05:09
Carbon disulfide	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
Carbon tetrachloride	0.00515	U	0.0103	0.00321	mg/kg	1		08/04/21 05:09
Chlorobenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09

Results of **SB13-35-37.5**

Client Sample ID: **SB13-35-37.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673001
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.0825	U	0.165	0.0510	mg/kg	1		08/04/21 05:09
Chloroform	0.00165	U	0.00329	0.000823	mg/kg	1		08/04/21 05:09
Chloromethane	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
cis-1,2-Dichloroethene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
cis-1,3-Dichloropropene	0.00515	U	0.0103	0.00321	mg/kg	1		08/04/21 05:09
Dibromochloromethane	0.00206	U	0.00411	0.00123	mg/kg	1		08/04/21 05:09
Dibromomethane	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Dichlorodifluoromethane	0.0206	U	0.0411	0.0123	mg/kg	1		08/04/21 05:09
Ethylbenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Freon-113	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
Hexachlorobutadiene	0.00825	U	0.0165	0.00510	mg/kg	1		08/04/21 05:09
Isopropylbenzene (Cumene)	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Methylene chloride	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
Methyl-t-butyl ether	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
Naphthalene	0.0103	U	0.0206	0.00642	mg/kg	1		08/05/21 14:28
n-Butylbenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
n-Propylbenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
o-Xylene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
P & M -Xylene	0.0206	U	0.0411	0.0123	mg/kg	1		08/04/21 05:09
sec-Butylbenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Styrene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
tert-Butylbenzene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
Tetrachloroethene	0.00515	U	0.0103	0.00321	mg/kg	1		08/04/21 05:09
Toluene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
trans-1,2-Dichloroethene	0.0103	U	0.0206	0.00642	mg/kg	1		08/04/21 05:09
trans-1,3-Dichloropropene	0.00515	U	0.0103	0.00321	mg/kg	1		08/04/21 05:09
Trichloroethene	0.00206	U	0.00411	0.00123	mg/kg	1		08/04/21 05:09
Trichlorofluoromethane	0.0206	U	0.0411	0.0123	mg/kg	1		08/04/21 05:09
Vinyl acetate	0.0411	U	0.0823	0.0255	mg/kg	1		08/04/21 05:09
Vinyl chloride	0.000329	U	0.000658	0.000206	mg/kg	1		08/04/21 05:09
Xylenes (total)	0.0309	U	0.0617	0.0188	mg/kg	1		08/04/21 05:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	95.5		71-136		%	1		08/04/21 05:09
4-Bromofluorobenzene (surr)	97		55-151		%	1		08/04/21 05:09
Toluene-d8 (surr)	104		85-116		%	1		08/04/21 05:09

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB13-35-37.5**

Client Sample ID: **SB13-35-37.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673001
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21016
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 08/04/21 05:09
Container ID: 1214673001-B

Prep Batch: VXX37579
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:20
Prep Initial Wt./Vol.: 116.979 g
Prep Extract Vol: 41.386 mL

Analytical Batch: VMS21025
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 08/05/21 14:28
Container ID: 1214673001-B

Prep Batch: VXX37595
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:20
Prep Initial Wt./Vol.: 116.979 g
Prep Extract Vol: 41.386 mL

Results of **SB13-135-137.5**

Client Sample ID: **SB13-135-137.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673002
Lab Project ID: 1214673

Collection Date: 07/22/21 11:10
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
2-Methylnaphthalene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Acenaphthene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Acenaphthylene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Anthracene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Benzo(a)Anthracene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Benzo[a]pyrene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Benzo[b]Fluoranthene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Benzo[g,h,i]perylene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Benzo[k]fluoranthene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Chrysene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Dibenzo[a,h]anthracene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Fluoranthene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Fluorene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Indeno[1,2,3-c,d] pyrene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Naphthalene	0.0114	U	0.0227	0.00567	mg/kg	1		08/10/21 16:41
Phenanthrene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Pyrene	0.0142	U	0.0284	0.00709	mg/kg	1		08/10/21 16:41
Surrogates								
2-Methylnaphthalene-d10 (surr)	81.6		58-103		%	1		08/10/21 16:41
Fluoranthene-d10 (surr)	78.6		54-113		%	1		08/10/21 16:41

Batch Information

Analytical Batch: XMS12818
Analytical Method: 8270D SIM (PAH)
Analyst: LAW
Analytical Date/Time: 08/10/21 16:41
Container ID: 1214673002-A

Prep Batch: XXX45298
Prep Method: SW3550C
Prep Date/Time: 08/03/21 07:32
Prep Initial Wt./Vol.: 22.841 g
Prep Extract Vol: 5 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB13-135-137.5**

Client Sample ID: **SB13-135-137.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673002
Lab Project ID: 1214673

Collection Date: 07/22/21 11:10
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.29	J	22.8	7.06	mg/kg	1		08/03/21 06:18
Surrogates								
5a Androstane (surr)	93.2		50-150		%	1		08/03/21 06:18

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 08/03/21 06:18
Container ID: 1214673002-A

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 07/30/21 09:41
Prep Initial Wt./Vol.: 30.344 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	57.0	U	114	49.0	mg/kg	1		08/03/21 06:18
Surrogates								
n-Triacontane-d62 (surr)	90.7		50-150		%	1		08/03/21 06:18

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 08/03/21 06:18
Container ID: 1214673002-A

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 07/30/21 09:41
Prep Initial Wt./Vol.: 30.344 g
Prep Extract Vol: 5 mL

Results of **SB13-135-137.5**

Client Sample ID: **SB13-135-137.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673002
Lab Project ID: 1214673

Collection Date: 07/22/21 11:10
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.01	J	2.56	0.768	mg/kg	1		08/05/21 22:32
Surrogates								
4-Bromofluorobenzene (surr)	84.3		50-150		%	1		08/05/21 22:32

Batch Information

Analytical Batch: VFC15752
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/05/21 22:32
Container ID: 1214673002-B

Prep Batch: VXX37592
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:10
Prep Initial Wt./Vol.: 79.853 g
Prep Extract Vol: 35.5045 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB13-135-137.5**

Client Sample ID: **SB13-135-137.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673002
Lab Project ID: 1214673

Collection Date: 07/22/21 11:10
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0103	U	0.0205	0.00635	mg/kg	1		08/04/21 05:25
1,1,1-Trichloroethane	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,1,2,2-Tetrachloroethane	0.00102	U	0.00205	0.000635	mg/kg	1		08/04/21 05:25
1,1,2-Trichloroethane	0.000409	U	0.000819	0.000256	mg/kg	1		08/04/21 05:25
1,1-Dichloroethane	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,1-Dichloroethene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,1-Dichloropropene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,2,3-Trichlorobenzene	0.0256	U	0.0512	0.0154	mg/kg	1		08/04/21 05:25
1,2,3-Trichloropropane	0.00102	U	0.00205	0.000635	mg/kg	1		08/04/21 05:25
1,2,4-Trichlorobenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,2,4-Trimethylbenzene	0.0256	U	0.0512	0.0154	mg/kg	1		08/04/21 05:25
1,2-Dibromo-3-chloropropane	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
1,2-Dibromoethane	0.000510	U	0.00102	0.000410	mg/kg	1		08/04/21 05:25
1,2-Dichlorobenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,2-Dichloroethane	0.00102	U	0.00205	0.000717	mg/kg	1		08/04/21 05:25
1,2-Dichloropropane	0.00510	U	0.0102	0.00317	mg/kg	1		08/04/21 05:25
1,3,5-Trimethylbenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,3-Dichlorobenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
1,3-Dichloropropane	0.00510	U	0.0102	0.00317	mg/kg	1		08/04/21 05:25
1,4-Dichlorobenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
2,2-Dichloropropane	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
2-Butanone (MEK)	0.128	U	0.256	0.0799	mg/kg	1		08/04/21 05:25
2-Chlorotoluene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
2-Hexanone	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
4-Chlorotoluene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
4-Isopropyltoluene	0.0510	U	0.102	0.0256	mg/kg	1		08/04/21 05:25
4-Methyl-2-pentanone (MIBK)	0.128	U	0.256	0.0799	mg/kg	1		08/04/21 05:25
Acetone	0.128	U	0.256	0.0799	mg/kg	1		08/04/21 05:25
Benzene	0.00640	U	0.0128	0.00399	mg/kg	1		08/04/21 05:25
Bromobenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Bromochloromethane	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Bromodichloromethane	0.00102	U	0.00205	0.000635	mg/kg	1		08/04/21 05:25
Bromoform	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Bromomethane	0.0103	U	0.0205	0.00635	mg/kg	1		08/04/21 05:25
Carbon disulfide	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
Carbon tetrachloride	0.00640	U	0.0128	0.00399	mg/kg	1		08/04/21 05:25
Chlorobenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25

Results of **SB13-135-137.5**

Client Sample ID: **SB13-135-137.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673002
Lab Project ID: 1214673

Collection Date: 07/22/21 11:10
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.103	U	0.205	0.0635	mg/kg	1		08/04/21 05:25
Chloroform	0.00205	U	0.00410	0.00102	mg/kg	1		08/04/21 05:25
Chloromethane	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
cis-1,2-Dichloroethene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
cis-1,3-Dichloropropene	0.00640	U	0.0128	0.00399	mg/kg	1		08/04/21 05:25
Dibromochloromethane	0.00256	U	0.00512	0.00154	mg/kg	1		08/04/21 05:25
Dibromomethane	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Dichlorodifluoromethane	0.0256	U	0.0512	0.0154	mg/kg	1		08/04/21 05:25
Ethylbenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Freon-113	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
Hexachlorobutadiene	0.0103	U	0.0205	0.00635	mg/kg	1		08/04/21 05:25
Isopropylbenzene (Cumene)	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Methylene chloride	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
Methyl-t-butyl ether	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
Naphthalene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
n-Butylbenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
n-Propylbenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
o-Xylene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
P & M -Xylene	0.0256	U	0.0512	0.0154	mg/kg	1		08/04/21 05:25
sec-Butylbenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Styrene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
tert-Butylbenzene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
Tetrachloroethene	0.00640	U	0.0128	0.00399	mg/kg	1		08/04/21 05:25
Toluene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
trans-1,2-Dichloroethene	0.0128	U	0.0256	0.00799	mg/kg	1		08/04/21 05:25
trans-1,3-Dichloropropene	0.00640	U	0.0128	0.00399	mg/kg	1		08/04/21 05:25
Trichloroethene	0.00256	U	0.00512	0.00154	mg/kg	1		08/04/21 05:25
Trichlorofluoromethane	0.0256	U	0.0512	0.0154	mg/kg	1		08/04/21 05:25
Vinyl acetate	0.0510	U	0.102	0.0317	mg/kg	1		08/04/21 05:25
Vinyl chloride	0.000409	U	0.000819	0.000256	mg/kg	1		08/04/21 05:25
Xylenes (total)	0.0384	U	0.0768	0.0233	mg/kg	1		08/04/21 05:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	90.1		71-136		%	1		08/04/21 05:25
4-Bromofluorobenzene (surr)	101		55-151		%	1		08/04/21 05:25
Toluene-d8 (surr)	104		85-116		%	1		08/04/21 05:25

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB13-135-137.5**

Client Sample ID: **SB13-135-137.5**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673002
Lab Project ID: 1214673

Collection Date: 07/22/21 11:10
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21016
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 08/04/21 05:25
Container ID: 1214673002-B

Prep Batch: VXX37579
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:10
Prep Initial Wt./Vol.: 79.853 g
Prep Extract Vol: 35.5045 mL

Results of **SB11-22.5-25.4**

Client Sample ID: **SB11-22.5-25.4**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673003
Lab Project ID: 1214673

Collection Date: 07/17/21 13:36
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	7.69	J	23.8	7.37	mg/kg	1		08/03/21 06:28
Surrogates								
5a Androstane (surr)	95.8		50-150		%	1		08/03/21 06:28

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK102
Analyst: A.A
Analytical Date/Time: 08/03/21 06:28
Container ID: 1214673003-A

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 07/30/21 09:41
Prep Initial Wt./Vol.: 30.297 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	59.5	U	119	51.1	mg/kg	1		08/03/21 06:28
Surrogates								
n-Triacontane-d62 (surr)	93.9		50-150		%	1		08/03/21 06:28

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK103
Analyst: A.A
Analytical Date/Time: 08/03/21 06:28
Container ID: 1214673003-A

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 07/30/21 09:41
Prep Initial Wt./Vol.: 30.297 g
Prep Extract Vol: 5 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB11-22.5-25.4**

Client Sample ID: **SB11-22.5-25.4**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673003
Lab Project ID: 1214673

Collection Date: 07/17/21 13:36
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.48	U	2.95	0.885	mg/kg	1		08/05/21 22:50
Surrogates								
4-Bromofluorobenzene (surr)	77.2		50-150		%	1		08/05/21 22:50

Batch Information

Analytical Batch: VFC15752
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/05/21 22:50
Container ID: 1214673003-B

Prep Batch: VXX37592
Prep Method: SW5035A
Prep Date/Time: 07/17/21 13:36
Prep Initial Wt./Vol.: 77.269 g
Prep Extract Vol: 37.9418 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB11-22.5-25.4**

Client Sample ID: **SB11-22.5-25.4**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673003
Lab Project ID: 1214673

Collection Date: 07/17/21 13:36
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0118	U	0.0236	0.00731	mg/kg	1		07/30/21 20:52
1,1,1-Trichloroethane	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,1,2,2-Tetrachloroethane	0.00118	U	0.00236	0.000731	mg/kg	1		07/30/21 20:52
1,1,2-Trichloroethane	0.000472	U	0.000944	0.000295	mg/kg	1		07/30/21 20:52
1,1-Dichloroethane	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,1-Dichloroethene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,1-Dichloropropene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,2,3-Trichlorobenzene	0.0295	U	0.0590	0.0177	mg/kg	1		07/30/21 20:52
1,2,3-Trichloropropane	0.00118	U	0.00236	0.000731	mg/kg	1		07/30/21 20:52
1,2,4-Trichlorobenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,2,4-Trimethylbenzene	0.0295	U	0.0590	0.0177	mg/kg	1		07/30/21 20:52
1,2-Dibromo-3-chloropropane	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
1,2-Dibromoethane	0.000590	U	0.00118	0.000472	mg/kg	1		07/30/21 20:52
1,2-Dichlorobenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,2-Dichloroethane	0.00118	U	0.00236	0.000826	mg/kg	1		07/30/21 20:52
1,2-Dichloropropane	0.00590	U	0.0118	0.00366	mg/kg	1		07/30/21 20:52
1,3,5-Trimethylbenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,3-Dichlorobenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
1,3-Dichloropropane	0.00590	U	0.0118	0.00366	mg/kg	1		07/30/21 20:52
1,4-Dichlorobenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
2,2-Dichloropropane	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
2-Butanone (MEK)	0.147	U	0.295	0.0920	mg/kg	1		07/30/21 20:52
2-Chlorotoluene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
2-Hexanone	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
4-Chlorotoluene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
4-Isopropyltoluene	0.0590	U	0.118	0.0295	mg/kg	1		07/30/21 20:52
4-Methyl-2-pentanone (MIBK)	0.147	U	0.295	0.0920	mg/kg	1		07/30/21 20:52
Acetone	0.147	U	0.295	0.0920	mg/kg	1		07/30/21 20:52
Benzene	0.00735	U	0.0147	0.00460	mg/kg	1		07/30/21 20:52
Bromobenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Bromochloromethane	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Bromodichloromethane	0.00118	U	0.00236	0.000731	mg/kg	1		07/30/21 20:52
Bromoform	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Bromomethane	0.0118	U	0.0236	0.00731	mg/kg	1		07/30/21 20:52
Carbon disulfide	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
Carbon tetrachloride	0.00735	U	0.0147	0.00460	mg/kg	1		07/30/21 20:52
Chlorobenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB11-22.5-25.4**

Client Sample ID: **SB11-22.5-25.4**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673003
Lab Project ID: 1214673

Collection Date: 07/17/21 13:36
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.118	U	0.236	0.0731	mg/kg	1		07/30/21 20:52
Chloroform	0.00236	U	0.00472	0.00118	mg/kg	1		07/30/21 20:52
Chloromethane	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
cis-1,2-Dichloroethene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
cis-1,3-Dichloropropene	0.00735	U	0.0147	0.00460	mg/kg	1		07/30/21 20:52
Dibromochloromethane	0.00295	U	0.00590	0.00177	mg/kg	1		07/30/21 20:52
Dibromomethane	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Dichlorodifluoromethane	0.0295	U	0.0590	0.0177	mg/kg	1		07/30/21 20:52
Ethylbenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Freon-113	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
Hexachlorobutadiene	0.0118	U	0.0236	0.00731	mg/kg	1		07/30/21 20:52
Isopropylbenzene (Cumene)	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Methylene chloride	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
Methyl-t-butyl ether	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
Naphthalene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
n-Butylbenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
n-Propylbenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
o-Xylene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
P & M -Xylene	0.0295	U	0.0590	0.0177	mg/kg	1		07/30/21 20:52
sec-Butylbenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Styrene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
tert-Butylbenzene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
Tetrachloroethene	0.00735	U	0.0147	0.00460	mg/kg	1		07/30/21 20:52
Toluene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
trans-1,2-Dichloroethene	0.0148	U	0.0295	0.00920	mg/kg	1		07/30/21 20:52
trans-1,3-Dichloropropene	0.00735	U	0.0147	0.00460	mg/kg	1		07/30/21 20:52
Trichloroethene	0.00295	U	0.00590	0.00177	mg/kg	1		07/30/21 20:52
Trichlorofluoromethane	0.0295	U	0.0590	0.0177	mg/kg	1		07/30/21 20:52
Vinyl acetate	0.0590	U	0.118	0.0366	mg/kg	1		07/30/21 20:52
Vinyl chloride	0.000472	U	0.000944	0.000295	mg/kg	1		07/30/21 20:52
Xylenes (total)	0.0442	U	0.0885	0.0269	mg/kg	1		07/30/21 20:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	95.2		71-136		%	1		07/30/21 20:52
4-Bromofluorobenzene (surr)	91.8		55-151		%	1		07/30/21 20:52
Toluene-d8 (surr)	101		85-116		%	1		07/30/21 20:52

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **SB11-22.5-25.4**

Client Sample ID: **SB11-22.5-25.4**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673003
Lab Project ID: 1214673

Collection Date: 07/17/21 13:36
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):83.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS20993
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/30/21 20:52
Container ID: 1214673003-B

Prep Batch: VXX37543
Prep Method: SW5035A
Prep Date/Time: 07/17/21 13:36
Prep Initial Wt./Vol.: 77.269 g
Prep Extract Vol: 37.9418 mL

Results of **Drum 55**

Client Sample ID: **Drum 55**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673004
Lab Project ID: 1214673

Collection Date: 07/26/21 16:15
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.0
Location:

Results by **Semivolatile Organics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trichlorobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
1,2-Dichlorobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
1,3-Dichlorobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
1,4-Dichlorobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
1-Chloronaphthalene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
1-Methylnaphthalene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,4,5-Trichlorophenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,4,6-Trichlorophenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,4-Dichlorophenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,4-Dimethylphenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,4-Dinitrophenol	8.85 U		17.7	5.55	mg/kg	5		07/30/21 01:05
2,4-Dinitrotoluene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,6-Dichlorophenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2,6-Dinitrotoluene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2-Chloronaphthalene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2-Chlorophenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2-Methyl-4,6-dinitrophenol	5.90 U		11.8	3.66	mg/kg	5		07/30/21 01:05
2-Methylnaphthalene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2-Methylphenol (o-Cresol)	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2-Nitroaniline	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
2-Nitrophenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
3&4-Methylphenol (p&m-Cresol)	2.96 U		5.91	1.83	mg/kg	5		07/30/21 01:05
3,3-Dichlorobenzidine	1.48 U		2.95	0.886	mg/kg	5		07/30/21 01:05
3-Nitroaniline	1.48 U		2.95	0.886	mg/kg	5		07/30/21 01:05
4-Bromophenyl-phenylether	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
4-Chloro-3-methylphenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
4-Chloroaniline	2.96 U		5.91	1.83	mg/kg	5		07/30/21 01:05
4-Chlorophenyl-phenylether	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
4-Nitroaniline	8.85 U		17.7	5.55	mg/kg	5		07/30/21 01:05
4-Nitrophenol	5.90 U		11.8	3.66	mg/kg	5		07/30/21 01:05
Acenaphthene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Acenaphthylene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Aniline	5.90 U		11.8	3.66	mg/kg	5		07/30/21 01:05
Anthracene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Azobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Benzo(a)Anthracene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Benzo[a]pyrene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05

Results of **Drum 55**

Client Sample ID: **Drum 55**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673004
Lab Project ID: 1214673

Collection Date: 07/26/21 16:15
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.0
Location:

Results by **Semivolatile Organics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzo[b]Fluoranthene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Benzo[g,h,i]perylene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Benzo[k]fluoranthene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Benzoic acid	4.43 U		8.86	2.78	mg/kg	5		07/30/21 01:05
Benzyl alcohol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Bis(2chloro1methylethyl)Ether	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Bis(2-Chloroethoxy)methane	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Bis(2-Chloroethyl)ether	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
bis(2-Ethylhexyl)phthalate	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Butylbenzylphthalate	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Carbazole	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Chrysene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Dibenzo[a,h]anthracene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Dibenzofuran	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Diethylphthalate	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Dimethylphthalate	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Di-n-butylphthalate	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
di-n-Octylphthalate	1.48 U		2.95	0.886	mg/kg	5		07/30/21 01:05
Fluoranthene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Fluorene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Hexachlorobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Hexachlorobutadiene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Hexachlorocyclopentadiene	2.07 U		4.14	1.18	mg/kg	5		07/30/21 01:05
Hexachloroethane	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Indeno[1,2,3-c,d] pyrene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Isophorone	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Naphthalene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Nitrobenzene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
N-Nitrosodimethylamine	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
N-Nitroso-di-n-propylamine	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
N-Nitrosodiphenylamine	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Pentachlorophenol	5.90 U		11.8	3.66	mg/kg	5		07/30/21 01:05
Phenanthrene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Phenol	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Pyrene	0.740 U		1.48	0.461	mg/kg	5		07/30/21 01:05
Surrogates								
2,4,6-Tribromophenol (surr)	63.6		35-125		%	5		07/30/21 01:05

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **Drum 55**

Client Sample ID: **Drum 55**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673004
Lab Project ID: 1214673

Collection Date: 07/26/21 16:15
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.0
Location:

Results by **Semivolatile Organics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
2-Fluorobiphenyl (surr)	75		44-115		%	5		07/30/21 01:05
2-Fluorophenol (surr)	62.9		35-115		%	5		07/30/21 01:05
Nitrobenzene-d5 (surr)	65.1		37-122		%	5		07/30/21 01:05
Phenol-d6 (surr)	76.3		33-122		%	5		07/30/21 01:05
Terphenyl-d14 (surr)	110		54-127		%	5		07/30/21 01:05

Batch Information

Analytical Batch: XMS12786
Analytical Method: SW8270D
Analyst: NRB
Analytical Date/Time: 07/30/21 01:05
Container ID: 1214673004-A

Prep Batch: XXX45263
Prep Method: SW3550C
Prep Date/Time: 07/29/21 11:30
Prep Initial Wt./Vol.: 22.672 g
Prep Extract Vol: 1 mL

Results of **Drum 55**

Client Sample ID: **Drum 55**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673004
Lab Project ID: 1214673

Collection Date: 07/26/21 16:15
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.0
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	0.150	U	0.300	0.125	mg/L	25	(<5)	08/11/21 13:28
Barium	0.278		0.150	0.0470	mg/L	25	(<100)	08/11/21 13:28
Cadmium	0.0500	U	0.100	0.0300	mg/L	25	(<1)	08/11/21 13:28
Chromium	0.314		0.200	0.0650	mg/L	25	(<5)	08/11/21 13:28
Lead	0.0250	U	0.0500	0.0155	mg/L	25	(<5)	08/11/21 13:28
Mercury	0.0125	U	0.0250	0.00900	mg/L	25	(<0.2)	08/11/21 13:28
Selenium	0.500	U	1.00	0.310	mg/L	25	(<1)	08/11/21 13:28
Silver	0.0500	U	0.100	0.0310	mg/L	25	(<5)	08/11/21 13:28

Batch Information

Analytical Batch: MMS11238
Analytical Method: SW6020B TCLP
Analyst: ACF
Analytical Date/Time: 08/11/21 13:28
Container ID: 1214673004-A

Prep Batch: MXT6134
Prep Method: SW3010A
Prep Date/Time: 08/09/21 10:11
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **Drum 40**

Client Sample ID: **Drum 40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673005
Lab Project ID: 1214673

Collection Date: 07/26/21 20:40
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **Semivolatile Organics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trichlorobenzene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
1,2-Dichlorobenzene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
1,3-Dichlorobenzene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
1,4-Dichlorobenzene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
1-Chloronaphthalene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
1-Methylnaphthalene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,4,5-Trichlorophenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,4,6-Trichlorophenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,4-Dichlorophenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,4-Dimethylphenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,4-Dinitrophenol	8.90	U	17.8	5.58	mg/kg	5		07/29/21 21:44
2,4-Dinitrotoluene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,6-Dichlorophenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2,6-Dinitrotoluene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2-Chloronaphthalene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2-Chlorophenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2-Methyl-4,6-dinitrophenol	5.95	U	11.9	3.68	mg/kg	5		07/29/21 21:44
2-Methylnaphthalene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2-Methylphenol (o-Cresol)	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2-Nitroaniline	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
2-Nitrophenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
3&4-Methylphenol (p&m-Cresol)	2.96	U	5.93	1.84	mg/kg	5		07/29/21 21:44
3,3-Dichlorobenzidine	1.49	U	2.97	0.890	mg/kg	5		07/29/21 21:44
3-Nitroaniline	1.49	U	2.97	0.890	mg/kg	5		07/29/21 21:44
4-Bromophenyl-phenylether	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
4-Chloro-3-methylphenol	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
4-Chloroaniline	2.96	U	5.93	1.84	mg/kg	5		07/29/21 21:44
4-Chlorophenyl-phenylether	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
4-Nitroaniline	8.90	U	17.8	5.58	mg/kg	5		07/29/21 21:44
4-Nitrophenol	5.95	U	11.9	3.68	mg/kg	5		07/29/21 21:44
Acenaphthene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
Acenaphthylene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
Aniline	5.95	U	11.9	3.68	mg/kg	5		07/29/21 21:44
Anthracene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
Azobenzene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
Benzo(a)Anthracene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44
Benzo[a]pyrene	0.740	U	1.48	0.463	mg/kg	5		07/29/21 21:44

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **Drum 40**

Client Sample ID: **Drum 40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673005
Lab Project ID: 1214673

Collection Date: 07/26/21 20:40
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **Semivolatile Organics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzo[b]Fluoranthene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Benzo[g,h,i]perylene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Benzo[k]fluoranthene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Benzoic acid	4.45 U		8.90	2.79	mg/kg	5		07/29/21 21:44
Benzyl alcohol	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Bis(2chloro1methylethyl)Ether	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Bis(2-Chloroethoxy)methane	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Bis(2-Chloroethyl)ether	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
bis(2-Ethylhexyl)phthalate	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Butylbenzylphthalate	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Carbazole	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Chrysene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Dibenzo[a,h]anthracene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Dibenzofuran	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Diethylphthalate	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Dimethylphthalate	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Di-n-butylphthalate	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
di-n-Octylphthalate	1.49 U		2.97	0.890	mg/kg	5		07/29/21 21:44
Fluoranthene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Fluorene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Hexachlorobenzene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Hexachlorobutadiene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Hexachlorocyclopentadiene	2.08 U		4.15	1.19	mg/kg	5		07/29/21 21:44
Hexachloroethane	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Indeno[1,2,3-c,d] pyrene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Isophorone	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Naphthalene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Nitrobenzene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
N-Nitrosodimethylamine	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
N-Nitroso-di-n-propylamine	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
N-Nitrosodiphenylamine	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Pentachlorophenol	5.95 U		11.9	3.68	mg/kg	5		07/29/21 21:44
Phenanthrene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Phenol	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Pyrene	0.740 U		1.48	0.463	mg/kg	5		07/29/21 21:44
Surrogates								
2,4,6-Tribromophenol (surr)	90		35-125		%	5		07/29/21 21:44

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **Drum 40**

Client Sample ID: **Drum 40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673005
Lab Project ID: 1214673

Collection Date: 07/26/21 20:40
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **Semivolatile Organics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
2-Fluorobiphenyl (surr)	78.8		44-115		%	5		07/29/21 21:44
2-Fluorophenol (surr)	68		35-115		%	5		07/29/21 21:44
Nitrobenzene-d5 (surr)	69.1		37-122		%	5		07/29/21 21:44
Phenol-d6 (surr)	81		33-122		%	5		07/29/21 21:44
Terphenyl-d14 (surr)	105		54-127		%	5		07/29/21 21:44

Batch Information

Analytical Batch: XMS12786
Analytical Method: SW8270D
Analyst: NRB
Analytical Date/Time: 07/29/21 21:44
Container ID: 1214673005-A

Prep Batch: XXX45263
Prep Method: SW3550C
Prep Date/Time: 07/29/21 11:30
Prep Initial Wt./Vol.: 22.536 g
Prep Extract Vol: 1 mL

Results of **Drum 40**

Client Sample ID: **Drum 40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673005
Lab Project ID: 1214673

Collection Date: 07/26/21 20:40
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):84.2
Location:

Results by **TCLP Constituents Metals**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	0.150	U	0.300	0.125	mg/L	25	(<5)	08/11/21 13:32
Barium	0.239		0.150	0.0470	mg/L	25	(<100)	08/11/21 13:32
Cadmium	0.0500	U	0.100	0.0300	mg/L	25	(<1)	08/11/21 13:32
Chromium	0.100	U	0.200	0.0650	mg/L	25	(<5)	08/11/21 13:32
Lead	0.0250	U	0.0500	0.0155	mg/L	25	(<5)	08/11/21 13:32
Mercury	0.0125	U	0.0250	0.00900	mg/L	25	(<0.2)	08/11/21 13:32
Selenium	0.500	U	1.00	0.310	mg/L	25	(<1)	08/11/21 13:32
Silver	0.0500	U	0.100	0.0310	mg/L	25	(<5)	08/11/21 13:32

Batch Information

Analytical Batch: MMS11238
Analytical Method: SW6020B TCLP
Analyst: ACF
Analytical Date/Time: 08/11/21 13:32
Container ID: 1214673005-A

Prep Batch: MXT6134
Prep Method: SW3010A
Prep Date/Time: 08/09/21 10:11
Prep Initial Wt./Vol.: 2.5 mL
Prep Extract Vol: 25 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673006
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.29	J	2.52	0.756	mg/kg	1		08/05/21 17:42
Surrogates								
4-Bromofluorobenzene (surr)	84.7		50-150		%	1		08/05/21 17:42

Batch Information

Analytical Batch: VFC15752
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/05/21 17:42
Container ID: 1214673006-A

Prep Batch: VXX37592
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:20
Prep Initial Wt./Vol.: 49.592 g
Prep Extract Vol: 25 mL

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673006
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0101	U	0.0202	0.00625	mg/kg	1		08/04/21 01:02
1,1,1-Trichloroethane	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,1,2,2-Tetrachloroethane	0.00101	U	0.00202	0.000625	mg/kg	1		08/04/21 01:02
1,1,2-Trichloroethane	0.000404	U	0.000807	0.000252	mg/kg	1		08/04/21 01:02
1,1-Dichloroethane	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,1-Dichloroethene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,1-Dichloropropene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,2,3-Trichlorobenzene	0.0252	U	0.0504	0.0151	mg/kg	1		08/04/21 01:02
1,2,3-Trichloropropane	0.00101	U	0.00202	0.000625	mg/kg	1		08/04/21 01:02
1,2,4-Trichlorobenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,2,4-Trimethylbenzene	0.0252	U	0.0504	0.0151	mg/kg	1		08/04/21 01:02
1,2-Dibromo-3-chloropropane	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
1,2-Dibromoethane	0.000505	U	0.00101	0.000403	mg/kg	1		08/04/21 01:02
1,2-Dichlorobenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,2-Dichloroethane	0.00101	U	0.00202	0.000706	mg/kg	1		08/04/21 01:02
1,2-Dichloropropane	0.00505	U	0.0101	0.00313	mg/kg	1		08/04/21 01:02
1,3,5-Trimethylbenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,3-Dichlorobenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
1,3-Dichloropropane	0.00505	U	0.0101	0.00313	mg/kg	1		08/04/21 01:02
1,4-Dichlorobenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
2,2-Dichloropropane	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
2-Butanone (MEK)	0.126	U	0.252	0.0786	mg/kg	1		08/04/21 01:02
2-Chlorotoluene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
2-Hexanone	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
4-Chlorotoluene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
4-Isopropyltoluene	0.0505	U	0.101	0.0252	mg/kg	1		08/04/21 01:02
4-Methyl-2-pentanone (MIBK)	0.126	U	0.252	0.0786	mg/kg	1		08/04/21 01:02
Acetone	0.126	U	0.252	0.0786	mg/kg	1		08/04/21 01:02
Benzene	0.00630	U	0.0126	0.00393	mg/kg	1		08/04/21 01:02
Bromobenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Bromochloromethane	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Bromodichloromethane	0.00101	U	0.00202	0.000625	mg/kg	1		08/04/21 01:02
Bromoform	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Bromomethane	0.0101	U	0.0202	0.00625	mg/kg	1		08/04/21 01:02
Carbon disulfide	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
Carbon tetrachloride	0.00630	U	0.0126	0.00393	mg/kg	1		08/04/21 01:02
Chlorobenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673006
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.101	U	0.202	0.0625	mg/kg	1		08/04/21 01:02
Chloroform	0.00202	U	0.00403	0.00101	mg/kg	1		08/04/21 01:02
Chloromethane	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
cis-1,2-Dichloroethene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
cis-1,3-Dichloropropene	0.00630	U	0.0126	0.00393	mg/kg	1		08/04/21 01:02
Dibromochloromethane	0.00252	U	0.00504	0.00151	mg/kg	1		08/04/21 01:02
Dibromomethane	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Dichlorodifluoromethane	0.0252	U	0.0504	0.0151	mg/kg	1		08/04/21 01:02
Ethylbenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Freon-113	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
Hexachlorobutadiene	0.0101	U	0.0202	0.00625	mg/kg	1		08/04/21 01:02
Isopropylbenzene (Cumene)	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Methylene chloride	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
Methyl-t-butyl ether	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
Naphthalene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
n-Butylbenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
n-Propylbenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
o-Xylene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
P & M -Xylene	0.0252	U	0.0504	0.0151	mg/kg	1		08/04/21 01:02
sec-Butylbenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Styrene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
tert-Butylbenzene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
Tetrachloroethene	0.00630	U	0.0126	0.00393	mg/kg	1		08/04/21 01:02
Toluene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
trans-1,2-Dichloroethene	0.0126	U	0.0252	0.00786	mg/kg	1		08/04/21 01:02
trans-1,3-Dichloropropene	0.00630	U	0.0126	0.00393	mg/kg	1		08/04/21 01:02
Trichloroethene	0.00252	U	0.00504	0.00151	mg/kg	1		08/04/21 01:02
Trichlorofluoromethane	0.0252	U	0.0504	0.0151	mg/kg	1		08/04/21 01:02
Vinyl acetate	0.0505	U	0.101	0.0313	mg/kg	1		08/04/21 01:02
Vinyl chloride	0.000404	U	0.000807	0.000252	mg/kg	1		08/04/21 01:02
Xylenes (total)	0.0378	U	0.0756	0.0230	mg/kg	1		08/04/21 01:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	90.7		71-136		%	1		08/04/21 01:02
4-Bromofluorobenzene (surr)	95.2		55-151		%	1		08/04/21 01:02
Toluene-d8 (surr)	100		85-116		%	1		08/04/21 01:02

Print Date: 08/19/2021 4:15:14PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214673006
Lab Project ID: 1214673

Collection Date: 07/22/21 11:20
Received Date: 07/28/21 16:32
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21016
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 08/04/21 01:02
Container ID: 1214673006-A

Prep Batch: VXX37579
Prep Method: SW5035A
Prep Date/Time: 07/22/21 11:20
Prep Initial Wt./Vol.: 49.592 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1823762 [MXT/6134]
Blank Lab ID: 1628767

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214673004, 1214673005

Results by **SW6020B TCLP**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.0150U	0.0300	0.0125	mg/L
Barium	0.00750U	0.0150	0.00470	mg/L
Cadmium	0.00500U	0.0100	0.00300	mg/L
Chromium	0.0100U	0.0200	0.00650	mg/L
Lead	0.00250U	0.00500	0.00155	mg/L
Mercury	0.00125U	0.00250	0.000900	mg/L
Selenium	0.0500U	0.100	0.0310	mg/L
Silver	0.00500U	0.0100	0.00310	mg/L

Batch Information

Analytical Batch: MMS11237
Analytical Method: SW6020B TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: DMM
Analytical Date/Time: 8/11/2021 5:39:22AM

Prep Batch: MXT6134
Prep Method: SW3010A
Prep Date/Time: 8/9/2021 10:11:03AM
Prep Initial Wt./Vol.: 25 mL
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [MXT6134]
Blank Spike Lab ID: 1628768
Date Analyzed: 08/11/2021 05:43

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214673004, 1214673005

Results by **SW6020B TCLP**

Blank Spike (mg/L)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	1	1.02	102	(84-116)
Barium	1	0.931	93	(86-114)
Cadmium	0.1	0.0993	99	(87-115)
Chromium	0.4	0.352	88	(85-116)
Lead	1	1.05	105	(88-115)
Mercury	0.01	0.00996	100	(70-124)
Selenium	1	1.02	102	(80-120)
Silver	0.1	0.102	102	(85-116)

Batch Information

Analytical Batch: **MMS11237**
Analytical Method: **SW6020B TCLP**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **DMM**

Prep Batch: **MXT6134**
Prep Method: **SW3010A**
Prep Date/Time: **08/09/2021 10:11**
Spike Init Wt./Vol.: 1 mg/L Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1628769
MS Sample ID: 1628771 MS
MSD Sample ID: 1628772 MSD

Analysis Date: 08/11/2021 5:47
Analysis Date: 08/11/2021 5:52
Analysis Date: 08/11/2021 5:56
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673004, 1214673005

Results by **SW6020B TCLP**

		Matrix Spike (mg/L)				Spike Duplicate (mg/L)						
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)		RPD CL
Arsenic	0.150U	10.0	9.7	97		10.0	7.65	77	*	84-116	23.70	*	(< 20)
Barium	0.663	10.0	9.14	85	*	10.0	7.24	66	*	86-114	23.20	*	(< 20)
Cadmium	0.0421J	1.00	.963	92		1.00	0.776	73	*	87-115	21.50	*	(< 20)
Chromium	0.100U	4.00	3.36	84	*	4.00	2.71	68	*	85-116	21.50	*	(< 20)
Lead	1.30	10.0	10.9	96		10.0	8.60	73	*	88-115	23.60	*	(< 20)
Mercury	0.0125U	0.100	.0903	90		0.100	0.0695	70	*	70-124	26.00	*	(< 20)
Selenium	0.500U	10.0	9.35	94		10.0	7.82	78	*	80-120	17.90		(< 20)
Silver	0.0500U	1.00	.913	91		1.00	0.749	75	*	85-116	19.70		(< 20)

Batch Information

Analytical Batch: MMS11237
Analytical Method: SW6020B TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: DMM
Analytical Date/Time: 8/11/2021 5:52:03AM

Prep Batch: MXT6134
Prep Method: Waters Digest for Metals by ICP-MS(TCLP)
Prep Date/Time: 8/9/2021 10:11:03AM
Prep Initial Wt./Vol.: 2.50mL
Prep Extract Vol: 25.00mL

Print Date: 08/19/2021 4:15:22PM

Original Sample ID: 1628769
MS Sample ID: 1628770 BNT
MSD Sample ID:

Analysis Date: 08/11/2021 5:47
Analysis Date: 08/11/2021 6:00
Analysis Date:
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673004, 1214673005

Results by **SW6020B TCLP**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	0.150U	6.25	6.72	108				75-125		
Barium	0.663	125	117	93				75-125		
Chromium	0.100U	62.5	57.8	93				75-125		
Lead	1.30	62.5	64.2	101				75-125		
Mercury	0.0125U	1.25	1.2	96				75-125		

Batch Information

Analytical Batch: MMS11237
Analytical Method: SW6020B TCLP
Instrument: Perkin Elmer Nexlon P5
Analyst: DMM
Analytical Date/Time: 8/11/2021 6:00:00AM

Prep Batch: MXT6134
Prep Method: Waters Digest for Metals by ICP-MS(TCLP)
Prep Date/Time: 8/9/2021 10:11:03AM
Prep Initial Wt./Vol.: 2.50mL
Prep Extract Vol: 25.00mL

Print Date: 08/19/2021 4:15:22PM

Method Blank

Blank ID: MB for HBN 1823230 [SPT/11336]
Blank Lab ID: 1626709

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673003, 1214673004, 1214673005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT11336
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM
Analytical Date/Time: 7/29/2021 5:30:00PM

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Duplicate Sample Summary

Original Sample ID: 1214640002
Duplicate Sample ID: 1626711
QC for Samples:

Analysis Date: 07/29/2021 17:30
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	88.5	88.0	%	0.57	(< 15)

Batch Information

Analytical Batch: SPT11336
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM

Print Date: 08/19/2021 4:15:25PM

Duplicate Sample Summary

Original Sample ID: 1214640011
Duplicate Sample ID: 1626712
Analysis Date: 07/29/2021 17:30
Matrix: Soil/Solid (dry weight)

QC for Samples:

1214673001, 1214673002, 1214673003, 1214673004, 1214673005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	87.0	86.6	%	0.50	(< 15)

Batch Information

Analytical Batch: SPT11336
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM

Print Date: 08/19/2021 4:15:25PM

Duplicate Sample Summary

Original Sample ID: 1214678004
Duplicate Sample ID: 1626713
Analysis Date: 07/29/2021 17:30
Matrix: Soil/Solid (dry weight)

QC for Samples:

1214673001, 1214673002, 1214673003, 1214673004, 1214673005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	79.5	81.5	%	2.50	(< 15)

Batch Information

Analytical Batch: SPT11336
Analytical Method: SM21 2540G
Instrument:
Analyst: TMM

Print Date: 08/19/2021 4:15:25PM

Method Blank

Blank ID: MB for HBN 1823306 [VXX/37543]
Blank Lab ID: 1627090

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673003

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1823306 [VXX/37543]
Blank Lab ID: 1627090

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673003

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00200U	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	98.2	71-136		%
4-Bromofluorobenzene (surr)	96.9	55-151		%
Toluene-d8 (surr)	101	85-116		%

Method Blank

Blank ID: MB for HBN 1823306 [VXX/37543]
Blank Lab ID: 1627090

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673003

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS20993
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/30/2021 11:19:00AM

Prep Batch: VXX37543
Prep Method: SW5035A
Prep Date/Time: 7/30/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37543]
Blank Spike Lab ID: 1627091
Date Analyzed: 07/30/2021 11:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673003

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.786	105	(78-125)
1,1,1-Trichloroethane	0.750	0.768	102	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.768	102	(70-124)
1,1,2-Trichloroethane	0.750	0.742	99	(78-121)
1,1-Dichloroethane	0.750	0.733	98	(76-125)
1,1-Dichloroethene	0.750	0.790	105	(70-131)
1,1-Dichloropropene	0.750	0.760	101	(76-125)
1,2,3-Trichlorobenzene	0.750	0.855	114	(66-130)
1,2,3-Trichloropropane	0.750	0.736	98	(73-125)
1,2,4-Trichlorobenzene	0.750	0.859	115	(67-129)
1,2,4-Trimethylbenzene	0.750	0.753	100	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.767	102	(61-132)
1,2-Dibromoethane	0.750	0.802	107	(78-122)
1,2-Dichlorobenzene	0.750	0.750	100	(78-121)
1,2-Dichloroethane	0.750	0.692	92	(73-128)
1,2-Dichloropropane	0.750	0.761	101	(76-123)
1,3,5-Trimethylbenzene	0.750	0.755	101	(73-124)
1,3-Dichlorobenzene	0.750	0.749	100	(77-121)
1,3-Dichloropropane	0.750	0.751	100	(77-121)
1,4-Dichlorobenzene	0.750	0.740	99	(75-120)
2,2-Dichloropropane	0.750	0.786	105	(67-133)
2-Butanone (MEK)	2.25	2.32	103	(51-148)
2-Chlorotoluene	0.750	0.745	99	(75-122)
2-Hexanone	2.25	2.28	101	(53-145)
4-Chlorotoluene	0.750	0.728	97	(72-124)
4-Isopropyltoluene	0.750	0.753	100	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.37	105	(65-135)
Acetone	2.25	2.05	91	(36-164)
Benzene	0.750	0.748	100	(77-121)
Bromobenzene	0.750	0.755	101	(78-121)
Bromochloromethane	0.750	0.773	103	(78-125)
Bromodichloromethane	0.750	0.834	111	(75-127)
Bromoform	0.750	0.779	104	(67-132)
Bromomethane	0.750	0.772	103	(53-143)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37543]
Blank Spike Lab ID: 1627091
Date Analyzed: 07/30/2021 11:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673003

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1.13	1.13	100	(63-132)
Carbon tetrachloride	0.750	0.791	106	(70-135)
Chlorobenzene	0.750	0.734	98	(79-120)
Chloroethane	0.750	0.760	101	(59-139)
Chloroform	0.750	0.718	96	(78-123)
Chloromethane	0.750	0.732	98	(50-136)
cis-1,2-Dichloroethene	0.750	0.754	100	(77-123)
cis-1,3-Dichloropropene	0.750	0.838	112	(74-126)
Dibromochloromethane	0.750	0.771	103	(74-126)
Dibromomethane	0.750	0.775	103	(78-125)
Dichlorodifluoromethane	0.750	0.889	118	(29-149)
Ethylbenzene	0.750	0.728	97	(76-122)
Freon-113	1.13	1.17	104	(66-136)
Hexachlorobutadiene	0.750	0.831	111	(61-135)
Isopropylbenzene (Cumene)	0.750	0.753	100	(68-134)
Methylene chloride	0.750	0.775	103	(70-128)
Methyl-t-butyl ether	1.13	1.12	99	(73-125)
Naphthalene	0.750	0.820	109	(62-129)
n-Butylbenzene	0.750	0.779	104	(70-128)
n-Propylbenzene	0.750	0.742	99	(73-125)
o-Xylene	0.750	0.745	99	(77-123)
P & M -Xylene	1.50	1.44	96	(77-124)
sec-Butylbenzene	0.750	0.765	102	(73-126)
Styrene	0.750	0.766	102	(76-124)
tert-Butylbenzene	0.750	0.753	100	(73-125)
Tetrachloroethene	0.750	0.784	104	(73-128)
Toluene	0.750	0.735	98	(77-121)
trans-1,2-Dichloroethene	0.750	0.775	103	(74-125)
trans-1,3-Dichloropropene	0.750	0.753	100	(71-130)
Trichloroethene	0.750	0.758	101	(77-123)
Trichlorofluoromethane	0.750	0.968	129	(62-140)
Vinyl acetate	0.750	0.813	108	(50-151)
Vinyl chloride	0.750	0.770	103	(56-135)
Xylenes (total)	2.25	2.18	97	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37543]
Blank Spike Lab ID: 1627091
Date Analyzed: 07/30/2021 11:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673003

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		95	(71-136)
4-Bromofluorobenzene (surr)	0.750		92	(55-151)
Toluene-d8 (surr)	0.750		102	(85-116)

Batch Information

Analytical Batch: **VMS20993**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX37543**
Prep Method: **SW5035A**
Prep Date/Time: **07/30/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1627092
MS Sample ID: 1627093 MS
MSD Sample ID: 1627094 MSD

Analysis Date: 07/30/2021 15:27
Analysis Date: 07/30/2021 13:24
Analysis Date: 07/30/2021 13:40
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673003

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00890U	0.671	0.718	107	0.671	0.708	105	78-125	1.40	(< 20)
1,1,1-Trichloroethane	0.0112U	0.671	0.697	104	0.671	0.693	103	73-130	0.58	(< 20)
1,1,2,2-Tetrachloroethane	0.000890U	0.671	0.691	103	0.671	0.706	105	70-124	2.10	(< 20)
1,1,2-Trichloroethane	0.000356U	0.671	0.673	100	0.671	0.652	97	78-121	3.00	(< 20)
1,1-Dichloroethane	0.0112U	0.671	0.661	99	0.671	0.657	98	76-125	0.57	(< 20)
1,1-Dichloroethene	0.0112U	0.671	0.728	109	0.671	0.717	107	70-131	1.60	(< 20)
1,1-Dichloropropene	0.0112U	0.671	0.688	103	0.671	0.684	102	76-125	0.58	(< 20)
1,2,3-Trichlorobenzene	0.0223U	0.671	0.814	121	0.671	0.812	121	66-130	0.19	(< 20)
1,2,3-Trichloropropane	0.000890U	0.671	0.675	101	0.671	0.679	101	73-125	0.59	(< 20)
1,2,4-Trichlorobenzene	0.0112U	0.671	0.787	117	0.671	0.750	112	67-129	4.70	(< 20)
1,2,4-Trimethylbenzene	0.0223U	0.671	0.673	100	0.671	0.692	103	75-123	2.70	(< 20)
1,2-Dibromo-3-chloropropane	0.0445U	0.671	0.727	108	0.671	0.701	104	61-132	3.70	(< 20)
1,2-Dibromoethane	0.000445U	0.671	0.724	108	0.671	0.703	105	78-122	3.00	(< 20)
1,2-Dichlorobenzene	0.0112U	0.671	0.686	102	0.671	0.690	103	78-121	0.49	(< 20)
1,2-Dichloroethane	0.000890U	0.671	0.622	93	0.671	0.604	90	73-128	3.10	(< 20)
1,2-Dichloropropane	0.00445U	0.671	0.689	103	0.671	0.676	101	76-123	1.80	(< 20)
1,3,5-Trimethylbenzene	0.0112U	0.671	0.675	101	0.671	0.699	104	73-124	3.50	(< 20)
1,3-Dichlorobenzene	0.0112U	0.671	0.666	99	0.671	0.685	102	77-121	2.80	(< 20)
1,3-Dichloropropane	0.00445U	0.671	0.674	100	0.671	0.659	98	77-121	2.20	(< 20)
1,4-Dichlorobenzene	0.0112U	0.671	0.657	98	0.671	0.673	100	75-120	2.40	(< 20)
2,2-Dichloropropane	0.0112U	0.671	0.727	108	0.671	0.719	107	67-133	1.10	(< 20)
2-Butanone (MEK)	0.112U	2.01	2.14	106	2.01	2.01	100	51-148	6.10	(< 20)
2-Chlorotoluene	0.0112U	0.671	0.661	99	0.671	0.694	103	75-122	4.80	(< 20)
2-Hexanone	0.0445U	2.01	2.12	106	2.01	2.02	100	53-145	5.20	(< 20)
4-Chlorotoluene	0.0112U	0.671	0.669	100	0.671	0.685	102	72-124	2.40	(< 20)
4-Isopropyltoluene	0.0445U	0.671	0.677	101	0.671	0.707	105	73-127	4.40	(< 20)
4-Methyl-2-pentanone (MIBK)	0.112U	2.01	2.18	108	2.01	2.05	102	65-135	5.70	(< 20)
Acetone	0.112U	2.01	1.92	95	2.01	1.79	89	36-164	6.90	(< 20)
Benzene	0.00555U	0.671	0.679	101	0.671	0.672	100	77-121	0.92	(< 20)
Bromobenzene	0.0112U	0.671	0.683	102	0.671	0.703	105	78-121	2.90	(< 20)
Bromochloromethane	0.0112U	0.671	0.695	104	0.671	0.683	102	78-125	1.80	(< 20)
Bromodichloromethane	0.000890U	0.671	0.762	114	0.671	0.744	111	75-127	2.40	(< 20)
Bromoform	0.0112U	0.671	0.730	109	0.671	0.696	104	67-132	4.80	(< 20)
Bromomethane	0.00890U	0.671	0.644	96	0.671	0.621	93	53-143	3.60	(< 20)
Carbon disulfide	0.0445U	1.01	1.07	106	1.01	1.04	104	63-132	2.30	(< 20)
Carbon tetrachloride	0.00555U	0.671	0.725	108	0.671	0.721	107	70-135	0.55	(< 20)
Chlorobenzene	0.0112U	0.671	0.662	99	0.671	0.654	97	79-120	1.20	(< 20)

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Matrix Spike Summary

Original Sample ID: 1627092
MS Sample ID: 1627093 MS
MSD Sample ID: 1627094 MSD

QC for Samples: 1214673003

Analysis Date: 07/30/2021 15:27
Analysis Date: 07/30/2021 13:24
Analysis Date: 07/30/2021 13:40
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260D**

		Matrix Spike (mg/kg)				Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroethane	0.0890U	0.671	0.645	96		0.671	0.626	93		59-139	3.00	(< 20)
Chloroform	0.00178U	0.671	0.648	97		0.671	0.643	96		78-123	0.83	(< 20)
Chloromethane	0.0112U	0.671	0.551	82		0.671	0.557	83		50-136	1.00	(< 20)
cis-1,2-Dichloroethene	0.0112U	0.671	0.679	101		0.671	0.685	102		77-123	0.85	(< 20)
cis-1,3-Dichloropropene	0.00555U	0.671	0.771	115		0.671	0.753	112		74-126	2.40	(< 20)
Dibromochloromethane	0.00223U	0.671	0.702	105		0.671	0.685	102		74-126	2.40	(< 20)
Dibromomethane	0.0112U	0.671	0.701	104		0.671	0.682	102		78-125	2.70	(< 20)
Dichlorodifluoromethane	0.0223U	0.671	0.457	68		0.671	0.481	72		29-149	5.10	(< 20)
Ethylbenzene	0.0112U	0.671	0.655	98		0.671	0.653	97		76-122	0.24	(< 20)
Freon-113	0.0445U	1.01	1.08	108		1.01	1.06	105		66-136	2.30	(< 20)
Hexachlorobutadiene	0.00890U	0.671	0.731	109		0.671	0.756	113		61-135	3.50	(< 20)
Isopropylbenzene (Cumene)	0.0112U	0.671	0.694	103		0.671	0.675	101		68-134	2.80	(< 20)
Methylene chloride	0.0445U	0.671	0.678	101		0.671	0.666	99		70-128	1.80	(< 20)
Methyl-t-butyl ether	0.0445U	1.01	1.01	101		1.01	0.986	98		73-125	2.60	(< 20)
Naphthalene	0.0112U	0.671	0.765	114		0.671	0.731	109		62-129	4.50	(< 20)
n-Butylbenzene	0.0112U	0.671	0.691	103		0.671	0.699	104		70-128	1.10	(< 20)
n-Propylbenzene	0.0112U	0.671	0.680	101		0.671	0.709	106		73-125	4.20	(< 20)
o-Xylene	0.0112U	0.671	0.675	101		0.671	0.665	99		77-123	1.40	(< 20)
P & M -Xylene	0.0223U	1.34	1.30	97		1.34	1.28	96		77-124	1.40	(< 20)
sec-Butylbenzene	0.0112U	0.671	0.682	102		0.671	0.698	104		73-126	2.40	(< 20)
Styrene	0.0112U	0.671	0.695	104		0.671	0.686	102		76-124	1.30	(< 20)
tert-Butylbenzene	0.0112U	0.671	0.673	100		0.671	0.713	106		73-125	5.90	(< 20)
Tetrachloroethene	0.00555U	0.671	0.693	103		0.671	0.715	107		73-128	3.20	(< 20)
Toluene	0.0112U	0.671	0.663	99		0.671	0.661	99		77-121	0.40	(< 20)
trans-1,2-Dichloroethene	0.0112U	0.671	0.765	114		0.671	0.702	105		74-125	8.70	(< 20)
trans-1,3-Dichloropropene	0.00555U	0.671	0.687	102		0.671	0.672	100		71-130	2.20	(< 20)
Trichloroethene	0.00223U	0.671	0.683	102		0.671	0.682	102		77-123	0.16	(< 20)
Trichlorofluoromethane	0.0223U	0.671	0.836	125		0.671	0.836	125		62-140	0.05	(< 20)
Vinyl acetate	0.0445U	0.671	0.734	109		0.671	0.705	105		50-151	4.10	(< 20)
Vinyl chloride	0.000356U	0.671	0.632	94		0.671	0.548	82		56-135	14.20	(< 20)
Xylenes (total)	0.0334U	2.01	1.97	98		2.01	1.95	97		78-124	1.40	(< 20)
Surrogates												
1,2-Dichloroethane-D4 (surr)		0.671	0.641	96		0.671	0.618	92		71-136	3.80	
4-Bromofluorobenzene (surr)		0.777	0.0176	2	*	0.777	0.0174	2	*	55-151	1.30	
Toluene-d8 (surr)		0.671	0.673	100		0.671	0.675	101		85-116	0.40	

Print Date: 08/19/2021 4:15:32PM

Matrix Spike Summary

Original Sample ID: 1627092
MS Sample ID: 1627093 MS
MSD Sample ID: 1627094 MSD

QC for Samples: 1214673003

Analysis Date:
Analysis Date: 07/30/2021 13:24
Analysis Date: 07/30/2021 13:40
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS20993
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/30/2021 1:24:00PM

Prep Batch: VXX37543
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/30/2021 6:00:00AM
Prep Initial Wt./Vol.: 80.47g
Prep Extract Vol: 35.85mL

Print Date: 08/19/2021 4:15:32PM

Method Blank

Blank ID: MB for HBN 1823550 [VXX/37579]
Blank Lab ID: 1628093

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/kg
1,2-Dibromoethane	0.000500U	0.00100	0.000400	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
2-Hexanone	0.0500U	0.100	0.0310	mg/kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/kg
Acetone	0.125U	0.250	0.0780	mg/kg
Benzene	0.00625U	0.0125	0.00390	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/kg
Bromoform	0.0125U	0.0250	0.00780	mg/kg
Bromomethane	0.0100U	0.0200	0.00620	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/kg
Chloroethane	0.100U	0.200	0.0620	mg/kg

Method Blank

Blank ID: MB for HBN 1823550 [VXX/37579]
Blank Lab ID: 1628093

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00125J	0.00400	0.00100	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Dibromochloromethane	0.00250U	0.00500	0.00150	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/kg
Freon-113	0.0500U	0.100	0.0310	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Styrene	0.0125U	0.0250	0.00780	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/kg
Toluene	0.0125U	0.0250	0.00780	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	94.1	71-136		%
4-Bromofluorobenzene (surr)	90.9	55-151		%
Toluene-d8 (surr)	101	85-116		%

Method Blank

Blank ID: MB for HBN 1823550 [VXX/37579]
Blank Lab ID: 1628093

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21016
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 8/3/2021 10:00:00PM

Prep Batch: VXX37579
Prep Method: SW5035A
Prep Date/Time: 8/3/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37579]
Blank Spike Lab ID: 1628094
Date Analyzed: 08/03/2021 22:15

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002, 1214673006

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.777	104	(78-125)
1,1,1-Trichloroethane	0.750	0.773	103	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.748	100	(70-124)
1,1,2-Trichloroethane	0.750	0.730	97	(78-121)
1,1-Dichloroethane	0.750	0.740	99	(76-125)
1,1-Dichloroethene	0.750	0.843	112	(70-131)
1,1-Dichloropropene	0.750	0.778	104	(76-125)
1,2,3-Trichlorobenzene	0.750	0.644	86	(66-130)
1,2,3-Trichloropropane	0.750	0.727	97	(73-125)
1,2,4-Trichlorobenzene	0.750	0.675	90	(67-129)
1,2,4-Trimethylbenzene	0.750	0.729	97	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.722	96	(61-132)
1,2-Dibromoethane	0.750	0.796	106	(78-122)
1,2-Dichlorobenzene	0.750	0.728	97	(78-121)
1,2-Dichloroethane	0.750	0.678	90	(73-128)
1,2-Dichloropropane	0.750	0.767	102	(76-123)
1,3,5-Trimethylbenzene	0.750	0.723	96	(73-124)
1,3-Dichlorobenzene	0.750	0.743	99	(77-121)
1,3-Dichloropropane	0.750	0.743	99	(77-121)
1,4-Dichlorobenzene	0.750	0.711	95	(75-120)
2,2-Dichloropropane	0.750	0.799	107	(67-133)
2-Butanone (MEK)	2.25	2.28	101	(51-148)
2-Chlorotoluene	0.750	0.726	97	(75-122)
2-Hexanone	2.25	2.20	98	(53-145)
4-Chlorotoluene	0.750	0.708	94	(72-124)
4-Isopropyltoluene	0.750	0.726	97	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.36	105	(65-135)
Acetone	2.25	2.03	90	(36-164)
Benzene	0.750	0.767	102	(77-121)
Bromobenzene	0.750	0.764	102	(78-121)
Bromochloromethane	0.750	0.795	106	(78-125)
Bromodichloromethane	0.750	0.831	111	(75-127)
Bromoform	0.750	0.776	103	(67-132)
Bromomethane	0.750	0.799	106	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37579]
Blank Spike Lab ID: 1628094
Date Analyzed: 08/03/2021 22:15

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002, 1214673006

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1.13	1.21	108	(63-132)
Carbon tetrachloride	0.750	0.799	106	(70-135)
Chlorobenzene	0.750	0.731	98	(79-120)
Chloroethane	0.750	0.772	103	(59-139)
Chloroform	0.750	0.726	97	(78-123)
Chloromethane	0.750	0.668	89	(50-136)
cis-1,2-Dichloroethene	0.750	0.793	106	(77-123)
cis-1,3-Dichloropropene	0.750	0.860	115	(74-126)
Dibromochloromethane	0.750	0.762	102	(74-126)
Dibromomethane	0.750	0.780	104	(78-125)
Dichlorodifluoromethane	0.750	0.725	97	(29-149)
Ethylbenzene	0.750	0.726	97	(76-122)
Freon-113	1.13	1.24	110	(66-136)
Hexachlorobutadiene	0.750	0.647	86	(61-135)
Isopropylbenzene (Cumene)	0.750	0.738	98	(68-134)
Methylene chloride	0.750	0.802	107	(70-128)
Methyl-t-butyl ether	1.13	1.14	101	(73-125)
Naphthalene	0.750	0.715	95	(62-129)
n-Butylbenzene	0.750	0.705	94	(70-128)
n-Propylbenzene	0.750	0.722	96	(73-125)
o-Xylene	0.750	0.744	99	(77-123)
P & M -Xylene	1.50	1.43	95	(77-124)
sec-Butylbenzene	0.750	0.711	95	(73-126)
Styrene	0.750	0.768	102	(76-124)
tert-Butylbenzene	0.750	0.729	97	(73-125)
Tetrachloroethene	0.750	0.785	105	(73-128)
Toluene	0.750	0.740	99	(77-121)
trans-1,2-Dichloroethene	0.750	0.798	106	(74-125)
trans-1,3-Dichloropropene	0.750	0.740	99	(71-130)
Trichloroethene	0.750	0.773	103	(77-123)
Trichlorofluoromethane	0.750	0.916	122	(62-140)
Vinyl acetate	0.750	0.796	106	(50-151)
Vinyl chloride	0.750	0.803	107	(56-135)
Xylenes (total)	2.25	2.17	96	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37579]
Blank Spike Lab ID: 1628094
Date Analyzed: 08/03/2021 22:15

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002, 1214673006

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		92	(71-136)
4-Bromofluorobenzene (surr)	0.750		90	(55-151)
Toluene-d8 (surr)	0.750		102	(85-116)

Batch Information

Analytical Batch: **VMS21016**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX37579**
Prep Method: **SW5035A**
Prep Date/Time: **08/03/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1628100
MS Sample ID: 1628101 MS
MSD Sample ID: 1628102 MSD

Analysis Date: 08/04/2021 1:49
Analysis Date: 08/03/2021 23:45
Analysis Date: 08/04/2021 0:00
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673001, 1214673002, 1214673006

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0100U	0.750	0.787	105	0.750	0.776	103	78-125	1.50	(< 20)
1,1,1-Trichloroethane	0.0125U	0.750	0.770	103	0.750	0.773	103	73-130	0.39	(< 20)
1,1,2,2-Tetrachloroethane	0.00100U	0.750	0.763	102	0.750	0.774	103	70-124	1.50	(< 20)
1,1,2-Trichloroethane	0.000400U	0.750	0.731	98	0.750	0.708	94	78-121	3.20	(< 20)
1,1-Dichloroethane	0.0125U	0.750	0.744	99	0.750	0.731	98	76-125	1.70	(< 20)
1,1-Dichloroethene	0.0125U	0.750	0.821	110	0.750	0.812	108	70-131	1.20	(< 20)
1,1-Dichloropropene	0.0125U	0.750	0.766	102	0.750	0.771	103	76-125	0.62	(< 20)
1,2,3-Trichlorobenzene	0.0250U	0.750	0.641	86	0.750	0.684	91	66-130	6.50	(< 20)
1,2,3-Trichloropropane	0.00100U	0.750	0.750	100	0.750	0.753	101	73-125	0.40	(< 20)
1,2,4-Trichlorobenzene	0.0125U	0.750	0.682	91	0.750	0.628	84	67-129	8.20	(< 20)
1,2,4-Trimethylbenzene	0.0250U	0.750	0.742	99	0.750	0.774	103	75-123	4.30	(< 20)
1,2-Dibromo-3-chloropropane	0.0500U	0.750	0.742	99	0.750	0.673	90	61-132	9.70	(< 20)
1,2-Dibromoethane	0.000500U	0.750	0.789	105	0.750	0.763	102	78-122	3.30	(< 20)
1,2-Dichlorobenzene	0.0125U	0.750	0.729	97	0.750	0.733	98	78-121	0.62	(< 20)
1,2-Dichloroethane	0.00100U	0.750	0.680	91	0.750	0.656	88	73-128	3.60	(< 20)
1,2-Dichloropropane	0.00500U	0.750	0.774	103	0.750	0.755	101	76-123	2.50	(< 20)
1,3,5-Trimethylbenzene	0.0125U	0.750	0.736	98	0.750	0.782	104	73-124	6.10	(< 20)
1,3-Dichlorobenzene	0.0125U	0.750	0.745	99	0.750	0.758	101	77-121	1.70	(< 20)
1,3-Dichloropropane	0.00500U	0.750	0.734	98	0.750	0.717	96	77-121	2.40	(< 20)
1,4-Dichlorobenzene	0.0125U	0.750	0.731	98	0.750	0.760	101	75-120	4.00	(< 20)
2,2-Dichloropropane	0.0125U	0.750	0.805	107	0.750	0.805	107	67-133	0.03	(< 20)
2-Butanone (MEK)	0.125U	2.25	2.27	101	2.25	2.10	93	51-148	7.50	(< 20)
2-Chlorotoluene	0.0125U	0.750	0.733	98	0.750	0.763	102	75-122	4.00	(< 20)
2-Hexanone	0.0500U	2.25	2.20	98	2.25	2.07	92	53-145	6.10	(< 20)
4-Chlorotoluene	0.0125U	0.750	0.740	99	0.750	0.765	102	72-124	3.40	(< 20)
4-Isopropyltoluene	0.0500U	0.750	0.719	96	0.750	0.755	101	73-127	5.00	(< 20)
4-Methyl-2-pentanone (MIBK)	0.125U	2.25	2.41	107	2.25	2.26	100	65-135	6.50	(< 20)
Acetone	0.125U	2.25	2.05	91	2.25	1.86	83	36-164	9.60	(< 20)
Benzene	0.00625U	0.750	0.770	103	0.750	0.765	102	77-121	0.68	(< 20)
Bromobenzene	0.0125U	0.750	0.772	103	0.750	0.796	106	78-121	3.00	(< 20)
Bromochloromethane	0.0125U	0.750	0.798	106	0.750	0.783	104	78-125	1.90	(< 20)
Bromodichloromethane	0.00100U	0.750	0.853	114	0.750	0.830	111	75-127	2.70	(< 20)
Bromoform	0.0125U	0.750	0.784	105	0.750	0.750	100	67-132	4.40	(< 20)
Bromomethane	0.0100U	0.750	0.809	108	0.750	0.796	106	53-143	1.60	(< 20)
Carbon disulfide	0.0500U	1.12	1.18	105	1.12	1.17	104	63-132	1.10	(< 20)
Carbon tetrachloride	0.00625U	0.750	0.800	107	0.750	0.803	107	70-135	0.41	(< 20)
Chlorobenzene	0.0125U	0.750	0.735	98	0.750	0.725	97	79-120	1.40	(< 20)

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1628100
MS Sample ID: 1628101 MS
MSD Sample ID: 1628102 MSD

Analysis Date: 08/04/2021 1:49
Analysis Date: 08/03/2021 23:45
Analysis Date: 08/04/2021 0:00
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673001, 1214673002, 1214673006

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.100U	0.750	0.788	105	0.750	0.782	104	59-139	0.83	(< 20)
Chloroform	0.00200U	0.750	0.729	97	0.750	0.721	96	78-123	1.10	(< 20)
Chloromethane	0.0125U	0.750	0.683	91	0.750	0.655	87	50-136	4.10	(< 20)
cis-1,2-Dichloroethene	0.0125U	0.750	0.778	104	0.750	0.781	104	77-123	0.42	(< 20)
cis-1,3-Dichloropropene	0.00625U	0.750	0.876	117	0.750	0.849	113	74-126	3.10	(< 20)
Dibromochloromethane	0.00250U	0.750	0.769	103	0.750	0.745	99	74-126	3.10	(< 20)
Dibromomethane	0.0125U	0.750	0.789	105	0.750	0.755	101	78-125	4.30	(< 20)
Dichlorodifluoromethane	0.0250U	0.750	0.669	89	0.750	0.655	87	29-149	2.10	(< 20)
Ethylbenzene	0.0125U	0.750	0.726	97	0.750	0.722	96	76-122	0.55	(< 20)
Freon-113	0.0500U	1.12	1.20	107	1.12	1.19	106	66-136	0.85	(< 20)
Hexachlorobutadiene	0.0100U	0.750	0.678	91	0.750	0.695	93	61-135	2.50	(< 20)
Isopropylbenzene (Cumene)	0.0125U	0.750	0.732	98	0.750	0.732	98	68-134	0.03	(< 20)
Methylene chloride	0.0500U	0.750	0.782	104	0.750	0.766	102	70-128	2.20	(< 20)
Methyl-t-butyl ether	0.0500U	1.12	1.14	101	1.12	1.10	98	73-125	3.20	(< 20)
Naphthalene	0.0125U	0.750	0.714	95	0.750	0.661	88	62-129	7.70	(< 20)
n-Butylbenzene	0.0125U	0.750	0.699	93	0.750	0.729	97	70-128	4.20	(< 20)
n-Propylbenzene	0.0125U	0.750	0.730	97	0.750	0.767	102	73-125	5.00	(< 20)
o-Xylene	0.0125U	0.750	0.744	99	0.750	0.730	97	77-123	1.90	(< 20)
P & M -Xylene	0.0250U	1.50	1.42	95	1.50	1.41	94	77-124	0.34	(< 20)
sec-Butylbenzene	0.0125U	0.750	0.708	95	0.750	0.739	99	73-126	4.30	(< 20)
Styrene	0.0125U	0.750	0.771	103	0.750	0.755	101	76-124	2.10	(< 20)
tert-Butylbenzene	0.0125U	0.750	0.726	97	0.750	0.772	103	73-125	6.10	(< 20)
Tetrachloroethene	0.00625U	0.750	0.761	101	0.750	0.800	107	73-128	5.10	(< 20)
Toluene	0.0125U	0.750	0.734	98	0.750	0.737	98	77-121	0.34	(< 20)
trans-1,2-Dichloroethene	0.0125U	0.750	0.871	116	0.750	0.821	110	74-125	5.80	(< 20)
trans-1,3-Dichloropropene	0.00625U	0.750	0.754	101	0.750	0.737	98	71-130	2.30	(< 20)
Trichloroethene	0.00250U	0.750	0.777	104	0.750	0.774	103	77-123	0.42	(< 20)
Trichlorofluoromethane	0.0250U	0.750	0.936	125	0.750	1.02	136	62-140	8.90	(< 20)
Vinyl acetate	0.0500U	0.750	0.811	108	0.750	0.775	103	50-151	4.60	(< 20)
Vinyl chloride	0.000400U	0.750	0.816	109	0.750	0.791	106	56-135	3.10	(< 20)
Xylenes (total)	0.0375U	2.25	2.16	96	2.25	2.14	95	78-124	0.88	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.750	0.696	93	0.750	0.675	90	71-136	3.00	
4-Bromofluorobenzene (surr)		1.25	1.00	80	1.25	1.02	82	55-151	1.80	
Toluene-d8 (surr)		0.750	0.755	101	0.750	0.767	102	85-116	1.50	

Print Date: 08/19/2021 4:15:38PM

Matrix Spike Summary

Original Sample ID: 1628100
MS Sample ID: 1628101 MS
MSD Sample ID: 1628102 MSD

Analysis Date:
Analysis Date: 08/03/2021 23:45
Analysis Date: 08/04/2021 0:00
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673001, 1214673002, 1214673006

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS21016
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 8/3/2021 11:45:00PM

Prep Batch: VXX37579
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 8/3/2021 6:00:00AM
Prep Initial Wt./Vol.: 50.02g
Prep Extract Vol: 25.00mL

Print Date: 08/19/2021 4:15:38PM

Method Blank

Blank ID: MB for HBN 1823634 [VXX/37592]
Blank Lab ID: 1628473

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673003, 1214673006

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.17J	2.50	0.750	mg/kg
Surrogates				
4-Bromofluorobenzene (surr)	93.6	50-150		%

Batch Information

Analytical Batch: VFC15752
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: MDT
Analytical Date/Time: 8/5/2021 3:14:00PM

Prep Batch: VXX37592
Prep Method: SW5035A
Prep Date/Time: 8/5/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37592]
Blank Spike Lab ID: 1628474
Date Analyzed: 08/05/2021 14:38

Spike Duplicate ID: LCSD for HBN 1214673 [VXX37592]
Spike Duplicate Lab ID: 1628475
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002, 1214673003, 1214673006

Results by **AK101**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	13.3	107	12.5	13.1	105	(60-120)	1.50	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25		96	1.25		97	(50-150)	1.80	

Batch Information

Analytical Batch: **VFC15752**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37592**
Prep Method: **SW5035A**
Prep Date/Time: **08/05/2021 06:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1823641 [VXX/37595]
Blank Lab ID: 1628504

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Naphthalene	0.0125U	0.0250	0.00780	mg/kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	91.8	71-136		%
4-Bromofluorobenzene (surr)	98.1	55-151		%
Toluene-d8 (surr)	102	85-116		%

Batch Information

Analytical Batch: VMS21025
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 8/5/2021 10:13:00AM

Prep Batch: VXX37595
Prep Method: SW5035A
Prep Date/Time: 8/5/2021 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [VXX37595]
Blank Spike Lab ID: 1628505
Date Analyzed: 08/05/2021 10:28

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Naphthalene	0.750	0.671	90	(62-129)
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		92	(71-136)
4-Bromofluorobenzene (surr)	0.750		97	(55-151)
Toluene-d8 (surr)	0.750		104	(85-116)

Batch Information

Analytical Batch: **VMS21025**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX37595**
Prep Method: **SW5035A**
Prep Date/Time: **08/05/2021 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1628506
MS Sample ID: 1628507 MS
MSD Sample ID: 1628508 MSD

Analysis Date: 08/05/2021 14:43
Analysis Date: 08/05/2021 12:24
Analysis Date: 08/05/2021 12:39
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1214673001

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Naphthalene	0.0124U	0.747	0.698	94	0.747	0.775	104	62-129	10.40	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.747	0.693	93	0.747	0.686	92	71-136	0.97	
4-Bromofluorobenzene (surr)		1.24	1.08	87	1.24	1.08	87	55-151	0.28	
Toluene-d8 (surr)		0.747	0.781	105	0.747	0.776	104	85-116	0.74	

Batch Information

Analytical Batch: VMS21025
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 8/5/2021 12:24:00PM

Prep Batch: VXX37595
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 8/5/2021 6:00:00AM
Prep Initial Wt./Vol.: 50.22g
Prep Extract Vol: 25.00mL

Print Date: 08/19/2021 4:15:48PM

Method Blank

Blank ID: MB for HBN 1823178 [XXX/45263]
Blank Lab ID: 1626466

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673004, 1214673005

Results by **SW8270D**

Parameter	Results	LOQ/CL	DL	Units
1,2,4-Trichlorobenzene	0.125U	0.250	0.0780	mg/kg
1,2-Dichlorobenzene	0.125U	0.250	0.0780	mg/kg
1,3-Dichlorobenzene	0.125U	0.250	0.0780	mg/kg
1,4-Dichlorobenzene	0.125U	0.250	0.0780	mg/kg
1-Chloronaphthalene	0.125U	0.250	0.0780	mg/kg
1-Methylnaphthalene	0.125U	0.250	0.0780	mg/kg
2,4,5-Trichlorophenol	0.125U	0.250	0.0780	mg/kg
2,4,6-Trichlorophenol	0.125U	0.250	0.0780	mg/kg
2,4-Dichlorophenol	0.125U	0.250	0.0780	mg/kg
2,4-Dimethylphenol	0.125U	0.250	0.0780	mg/kg
2,4-Dinitrophenol	1.50U	3.00	0.940	mg/kg
2,4-Dinitrotoluene	0.125U	0.250	0.0780	mg/kg
2,6-Dichlorophenol	0.125U	0.250	0.0780	mg/kg
2,6-Dinitrotoluene	0.125U	0.250	0.0780	mg/kg
2-Chloronaphthalene	0.125U	0.250	0.0780	mg/kg
2-Chlorophenol	0.125U	0.250	0.0780	mg/kg
2-Methyl-4,6-dinitrophenol	1.00U	2.00	0.620	mg/kg
2-Methylnaphthalene	0.125U	0.250	0.0780	mg/kg
2-Methylphenol (o-Cresol)	0.125U	0.250	0.0780	mg/kg
2-Nitroaniline	0.125U	0.250	0.0780	mg/kg
2-Nitrophenol	0.125U	0.250	0.0780	mg/kg
3&4-Methylphenol (p&m-Cresol)	0.500U	1.00	0.310	mg/kg
3,3-Dichlorobenzidine	0.250U	0.500	0.150	mg/kg
3-Nitroaniline	0.250U	0.500	0.150	mg/kg
4-Bromophenyl-phenylether	0.125U	0.250	0.0780	mg/kg
4-Chloro-3-methylphenol	0.125U	0.250	0.0780	mg/kg
4-Chloroaniline	0.500U	1.00	0.310	mg/kg
4-Chlorophenyl-phenylether	0.125U	0.250	0.0780	mg/kg
4-Nitroaniline	1.50U	3.00	0.940	mg/kg
4-Nitrophenol	1.00U	2.00	0.620	mg/kg
Acenaphthene	0.125U	0.250	0.0780	mg/kg
Acenaphthylene	0.125U	0.250	0.0780	mg/kg
Aniline	1.00U	2.00	0.620	mg/kg
Anthracene	0.125U	0.250	0.0780	mg/kg
Azobenzene	0.125U	0.250	0.0780	mg/kg
Benzo(a)Anthracene	0.125U	0.250	0.0780	mg/kg
Benzo[a]pyrene	0.125U	0.250	0.0780	mg/kg
Benzo[b]Fluoranthene	0.125U	0.250	0.0780	mg/kg

Method Blank

Blank ID: MB for HBN 1823178 [XXX/45263]
Blank Lab ID: 1626466

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673004, 1214673005

Results by **SW8270D**

Parameter	Results	LOQ/CL	DL	Units
Benzo[g,h,i]perylene	0.125U	0.250	0.0780	mg/kg
Benzo[k]fluoranthene	0.125U	0.250	0.0780	mg/kg
Benzoic acid	0.750U	1.50	0.470	mg/kg
Benzyl alcohol	0.125U	0.250	0.0780	mg/kg
Bis(2chloro1methylethyl)Ether	0.125U	0.250	0.0780	mg/kg
Bis(2-Chloroethoxy)methane	0.125U	0.250	0.0780	mg/kg
Bis(2-Chloroethyl)ether	0.125U	0.250	0.0780	mg/kg
bis(2-Ethylhexyl)phthalate	0.0848J	0.250	0.0780	mg/kg
Butylbenzylphthalate	0.125U	0.250	0.0780	mg/kg
Carbazole	0.125U	0.250	0.0780	mg/kg
Chrysene	0.125U	0.250	0.0780	mg/kg
Dibenzo[a,h]anthracene	0.125U	0.250	0.0780	mg/kg
Dibenzofuran	0.125U	0.250	0.0780	mg/kg
Diethylphthalate	0.125U	0.250	0.0780	mg/kg
Dimethylphthalate	0.125U	0.250	0.0780	mg/kg
Di-n-butylphthalate	0.125U	0.250	0.0780	mg/kg
di-n-Octylphthalate	0.250U	0.500	0.150	mg/kg
Fluoranthene	0.125U	0.250	0.0780	mg/kg
Fluorene	0.125U	0.250	0.0780	mg/kg
Hexachlorobenzene	0.125U	0.250	0.0780	mg/kg
Hexachlorobutadiene	0.125U	0.250	0.0780	mg/kg
Hexachlorocyclopentadiene	0.350U	0.700	0.200	mg/kg
Hexachloroethane	0.125U	0.250	0.0780	mg/kg
Indeno[1,2,3-c,d] pyrene	0.125U	0.250	0.0780	mg/kg
Isophorone	0.125U	0.250	0.0780	mg/kg
Naphthalene	0.125U	0.250	0.0780	mg/kg
Nitrobenzene	0.125U	0.250	0.0780	mg/kg
N-Nitrosodimethylamine	0.125U	0.250	0.0780	mg/kg
N-Nitroso-di-n-propylamine	0.125U	0.250	0.0780	mg/kg
N-Nitrosodiphenylamine	0.125U	0.250	0.0780	mg/kg
Pentachlorophenol	1.00U	2.00	0.620	mg/kg
Phenanthrene	0.125U	0.250	0.0780	mg/kg
Phenol	0.125U	0.250	0.0780	mg/kg
Pyrene	0.125U	0.250	0.0780	mg/kg
Surrogates				
2,4,6-Tribromophenol (surr)	89.9	35-125		%
2-Fluorobiphenyl (surr)	62	44-115		%
2-Fluorophenol (surr)	56.8	35-115		%

Method Blank

Blank ID: MB for HBN 1823178 [XXX/45263]
Blank Lab ID: 1626466

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673004, 1214673005

Results by **SW8270D**

Parameter	Results	LOQ/CL	DL	Units
Nitrobenzene-d5 (surr)	56.4	37-122		%
Phenol-d6 (surr)	63.3	33-122		%
Terphenyl-d14 (surr)	81.7	54-127		%

Batch Information

Analytical Batch: XMS12786
Analytical Method: SW8270D
Instrument: HP 6890/5973 SSA
Analyst: NRB
Analytical Date/Time: 7/29/2021 5:00:00PM

Prep Batch: XXX45263
Prep Method: SW3550C
Prep Date/Time: 7/29/2021 11:30:15AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [XXX45263]
Blank Spike Lab ID: 1626467
Date Analyzed: 07/29/2021 17:17

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673004, 1214673005

Results by **SW8270D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)		CL
1,2,4-Trichlorobenzene	4.44	3.42	77		(34-118)
1,2-Dichlorobenzene	4.44	3.14	71		(33-117)
1,3-Dichlorobenzene	4.44	3.16	71		(30-115)
1,4-Dichlorobenzene	4.44	3.06	69		(31-115)
1-Chloronaphthalene	1.78	1.36	77		(48-115)
1-Methylnaphthalene	4.44	3.57	80		(40-119)
2,4,5-Trichlorophenol	4.44	3.81	86		(41-124)
2,4,6-Trichlorophenol	4.44	3.95	89		(39-126)
2,4-Dichlorophenol	4.44	3.94	89		(40-122)
2,4-Dimethylphenol	4.44	3.55	80		(30-127)
2,4-Dinitrophenol	8	10.1	127	*	(62-113)
2,4-Dinitrotoluene	4.44	4.21	95		(48-126)
2,6-Dichlorophenol	1.78	1.57	88		(41-117)
2,6-Dinitrotoluene	4.44	4.00	90		(46-124)
2-Chloronaphthalene	4.44	3.62	81		(41-114)
2-Chlorophenol	4.44	3.16	71		(34-121)
2-Methyl-4,6-dinitrophenol	8	11.1	138	*	(29-132)
2-Methylnaphthalene	4.44	3.55	80		(38-122)
2-Methylphenol (o-Cresol)	4.44	3.29	74		(32-122)
2-Nitroaniline	4.44	3.94	89		(44-127)
2-Nitrophenol	4.44	3.46	78		(36-123)
3&4-Methylphenol (p&m-Cresol)	6.22	5.47	88		(34-119)
3,3-Dichlorobenzidine	4.44	3.77	85		(22-121)
3-Nitroaniline	4.44	3.83	86		(33-119)
4-Bromophenyl-phenylether	4.44	4.39	99		(46-124)
4-Chloro-3-methylphenol	4.44	3.97	89		(45-122)
4-Chloroaniline	4.44	3.18	72		(17-106)
4-Chlorophenyl-phenylether	4.44	3.77	85		(45-121)
4-Nitroaniline	4.44	4.11	93		(77-120)
4-Nitrophenol	6.22	5.92	95		(30-132)
Acenaphthene	4.44	3.54	80		(40-123)
Acenaphthylene	4.44	3.52	79		(32-132)
Aniline	4.44	2.17	49		(24-89)
Anthracene	4.44	4.13	93		(47-123)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [XXX45263]
Blank Spike Lab ID: 1626467
Date Analyzed: 07/29/2021 17:17

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673004, 1214673005

Results by **SW8270D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)		CL
Azobenzene	4.44	3.60	81		(39-125)
Benzo(a)Anthracene	4.44	4.12	93		(49-126)
Benzo[a]pyrene	4.44	4.22	95		(45-129)
Benzo[b]Fluoranthene	4.44	4.23	95		(45-132)
Benzo[g,h,i]perylene	4.44	4.17	94		(43-134)
Benzo[k]fluoranthene	4.44	4.24	95		(47-132)
Benzoic acid	6.22	9.46	152	*	(53-124)
Benzyl alcohol	4.44	3.65	82		(29-122)
Bis(2chloro1methylethyl)Ether	4.44	2.70	61		(33-131)
Bis(2-Chloroethoxy)methane	4.44	3.55	80		(36-121)
Bis(2-Chloroethyl)ether	4.44	2.64	59		(31-120)
bis(2-Ethylhexyl)phthalate	4.44	3.98	90		(51-133)
Butylbenzylphthalate	4.44	3.84	86		(48-132)
Carbazole	4.44	4.44	100		(50-123)
Chrysene	4.44	4.17	94		(50-124)
Dibenzo[a,h]anthracene	4.44	4.19	94		(45-134)
Dibenzofuran	4.44	3.68	83		(44-120)
Diethylphthalate	4.44	4.13	93		(50-124)
Dimethylphthalate	4.44	4.34	98		(48-124)
Di-n-butylphthalate	4.44	4.45	100		(51-128)
di-n-Octylphthalate	4.44	4.02	91		(45-140)
Fluoranthene	4.44	4.32	97		(50-127)
Fluorene	4.44	3.89	88		(43-125)
Hexachlorobenzene	4.44	4.49	101		(45-122)
Hexachlorobutadiene	4.44	3.75	84		(32-123)
Hexachlorocyclopentadiene	4.44	2.93	66		(34-74)
Hexachloroethane	4.44	2.93	66		(28-117)
Indeno[1,2,3-c,d] pyrene	4.44	4.14	93		(45-133)
Isophorone	4.44	3.78	85		(30-122)
Naphthalene	4.44	3.35	75		(35-123)
Nitrobenzene	4.44	3.24	73		(34-122)
N-Nitrosodimethylamine	4.44	2.76	62		(23-120)
N-Nitroso-di-n-propylamine	4.44	3.75	84		(36-120)
N-Nitrosodiphenylamine	4.44	3.28	74		(38-127)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [XXX45263]
Blank Spike Lab ID: 1626467
Date Analyzed: 07/29/2021 17:17

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673004, 1214673005

Results by **SW8270D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Pentachlorophenol	6.22	7.46	120	(25-133)
Phenanthrene	4.44	4.29	97	(50-121)
Phenol	4.44	3.41	77	(34-121)
Pyrene	4.44	3.90	88	(47-127)
Surrogates				
2,4,6-Tribromophenol (surr)	8.89		107	(35-125)
2-Fluorobiphenyl (surr)	4.44		75	(44-115)
2-Fluorophenol (surr)	8.89		67	(35-115)
Nitrobenzene-d5 (surr)	4.44		72	(37-122)
Phenol-d6 (surr)	8.89		79	(33-122)
Terphenyl-d14 (surr)	4.44		95	(54-127)

Batch Information

Analytical Batch: **XMS12786**
Analytical Method: **SW8270D**
Instrument: **HP 6890/5973 SSA**
Analyst: **NRB**

Prep Batch: **XXX45263**
Prep Method: **SW3550C**
Prep Date/Time: **07/29/2021 11:30**
Spike Init Wt./Vol.: 4.44 mg/kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1214673005
MS Sample ID: 1626471 MS
MSD Sample ID: 1626470 MSD

Analysis Date: 07/29/2021 21:44
Analysis Date: 07/29/2021 22:01
Analysis Date: 07/29/2021 22:18
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673004, 1214673005

Results by **SW8270D**

		Matrix Spike (mg/kg)				Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1,2,4-Trichlorobenzene	0.740U	5.27	3.98	75		5.24	3.85	73		34-118	3.40	(< 20)
1,2-Dichlorobenzene	0.740U	5.27	3.57	68		5.24	3.42	65		33-117	4.40	(< 20)
1,3-Dichlorobenzene	0.740U	5.27	3.41	65		5.24	3.30	63		30-115	3.10	(< 20)
1,4-Dichlorobenzene	0.740U	5.27	3.42	65		5.24	3.36	64		31-115	1.80	(< 20)
1-Chloronaphthalene	0.740U	2.11	1.56	74		2.09	1.59	76		48-115	2.10	(< 20)
1-Methylnaphthalene	0.740U	5.27	3.79	72		5.24	3.65	70		40-119	3.80	(< 20)
2,4,5-Trichlorophenol	0.740U	5.27	3.98	76		5.24	4.18	80		41-124	5.00	(< 20)
2,4,6-Trichlorophenol	0.740U	5.27	4.33	82		5.24	4.00	76		39-126	8.00	(< 20)
2,4-Dichlorophenol	0.740U	5.27	4.22	80		5.24	4.23	81		40-122	0.09	(< 20)
2,4-Dimethylphenol	0.740U	5.27	4.00	76		5.24	4.09	78		30-127	1.80	(< 20)
2,4-Dinitrophenol	8.90U	9.50	9.41J	99		9.42	10.1J	107		62-113	6.70	(< 20)
2,4-Dinitrotoluene	0.740U	5.27	4.76	90		5.24	4.38	84		48-126	8.30	(< 20)
2,6-Dichlorophenol	0.740U	2.11	1.72	81		2.09	1.72	82		41-117	0.32	(< 20)
2,6-Dinitrotoluene	0.740U	5.27	3.97	75		5.24	4.42	84		46-124	10.90	(< 20)
2-Chloronaphthalene	0.740U	5.27	4.17	79		5.24	3.99	76		41-114	4.40	(< 20)
2-Chlorophenol	0.740U	5.27	3.36	64		5.24	3.53	67		34-121	4.70	(< 20)
2-Methyl-4,6-dinitrophenol	5.95U	9.50	12.5	131		9.42	12.4	131		29-132	1.30	(< 20)
2-Methylnaphthalene	0.740U	5.27	3.88	74		5.24	3.74	72		38-122	3.70	(< 20)
2-Methylphenol (o-Cresol)	0.740U	5.27	3.76	71		5.24	3.69	71		32-122	1.70	(< 20)
2-Nitroaniline	0.740U	5.27	4.14	79		5.24	4.14	79		44-127	0.12	(< 20)
2-Nitrophenol	0.740U	5.27	3.76	71		5.24	3.62	69		36-123	4.10	(< 20)
3&4-Methylphenol (p&m-Cresol)	2.96U	7.39	5.99	81		7.33	6.09	83		34-119	1.80	(< 20)
3,3-Dichlorobenzidine	1.49U	5.27	4.61	87		5.24	3.92	75		22-121	16.30	(< 20)
3-Nitroaniline	1.49U	5.27	4.14	78		5.24	4.39	84		33-119	5.90	(< 20)
4-Bromophenyl-phenylether	0.740U	5.27	4.66	88		5.24	5.04	96		46-124	7.60	(< 20)
4-Chloro-3-methylphenol	0.740U	5.27	4.16	79		5.24	4.28	82		45-122	2.80	(< 20)
4-Chloroaniline	2.96U	5.27	4.09J	78		5.24	3.80J	73		17-106	7.20	(< 20)
4-Chlorophenyl-phenylether	0.740U	5.27	4.04	77		5.24	4.14	79		45-121	2.60	(< 20)
4-Nitroaniline	8.90U	5.27	8.90U	0	*	5.24	8.90U	0	*	77-120	0.00	(< 20)
4-Nitrophenol	5.95U	7.39	5.55J	75		7.33	5.81J	79		30-132	4.60	(< 20)
Acenaphthene	0.740U	5.27	3.90	74		5.24	3.90	74		40-123	0.21	(< 20)
Acenaphthylene	0.740U	5.27	3.99	76		5.24	3.99	76		32-132	0.14	(< 20)
Aniline	5.95U	5.27	5.95U	0	*	5.24	5.95U	0	*	24-89	0.00	(< 20)
Anthracene	0.740U	5.27	4.61	87		5.24	4.73	90		47-123	2.40	(< 20)
Azobenzene	0.740U	5.27	4.39	83		5.24	4.51	86		39-125	2.40	(< 20)
Benzo(a)Anthracene	0.740U	5.27	4.38	83		5.24	4.74	90		49-126	7.60	(< 20)
Benzo[a]pyrene	0.740U	5.27	4.28	81		5.24	4.57	87		45-129	6.70	(< 20)

Print Date: 08/19/2021 4:15:54PM

Matrix Spike Summary

Original Sample ID: 1214673005
MS Sample ID: 1626471 MS
MSD Sample ID: 1626470 MSD

Analysis Date: 07/29/2021 21:44
Analysis Date: 07/29/2021 22:01
Analysis Date: 07/29/2021 22:18
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673004, 1214673005

Results by **SW8270D**

		Matrix Spike (mg/kg)				Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Benzo[b]Fluoranthene	0.740U	5.27	4.32	82		5.24	4.73	90		45-132	9.00	(< 20)
Benzo[g,h,i]perylene	0.740U	5.27	4.56	87		5.24	5.17	99		43-134	12.40	(< 20)
Benzo[k]fluoranthene	0.740U	5.27	4.38	83		5.24	4.75	91		47-132	8.00	(< 20)
Benzoic acid	4.45U	7.39	5.69J	77		7.33	5.65J	77		53-124	0.58	(< 20)
Benzyl alcohol	0.740U	5.27	3.94	75		5.24	3.78	72		29-122	4.30	(< 20)
Bis(2chloro1methylethyl)Ether	0.740U	5.27	3.17	60		5.24	3.29	63		33-131	3.70	(< 20)
Bis(2-Chloroethoxy)methane	0.740U	5.27	3.92	74		5.24	4.06	78		36-121	3.30	(< 20)
Bis(2-Chloroethyl)ether	0.740U	5.27	3.06	58		5.24	3.18	61		31-120	4.00	(< 20)
bis(2-Ethylhexyl)phthalate	0.740U	5.27	5.72	108		5.24	6.10	117		51-133	6.50	(< 20)
Butylbenzylphthalate	0.740U	5.27	5.29	100		5.24	5.77	110		48-132	8.80	(< 20)
Carbazole	0.740U	5.27	4.85	92		5.24	4.88	93		50-123	0.78	(< 20)
Chrysene	0.740U	5.27	4.43	84		5.24	4.52	87		50-124	2.20	(< 20)
Dibenzo[a,h]anthracene	0.740U	5.27	5.00	95		5.24	5.57	106		45-134	10.70	(< 20)
Dibenzofuran	0.740U	5.27	4.07	77		5.24	3.94	75		44-120	3.30	(< 20)
Diethylphthalate	0.740U	5.27	4.44	84		5.24	4.66	89		50-124	4.70	(< 20)
Dimethylphthalate	0.740U	5.27	4.74	90		5.24	5.08	97		48-124	6.90	(< 20)
Di-n-butylphthalate	0.740U	5.27	5.05	96		5.24	5.37	103		51-128	6.20	(< 20)
di-n-Octylphthalate	1.49U	5.27	5.50	104		5.24	5.83	111		45-140	5.80	(< 20)
Fluoranthene	0.740U	5.27	4.19	79		5.24	4.26	82		50-127	1.90	(< 20)
Fluorene	0.740U	5.27	4.24	80		5.24	4.37	83		43-125	3.00	(< 20)
Hexachlorobenzene	0.740U	5.27	4.69	89		5.24	4.99	95		45-122	6.20	(< 20)
Hexachlorobutadiene	0.740U	5.27	4.33	82		5.24	4.22	81		32-123	2.90	(< 20)
Hexachlorocyclopentadiene	2.08U	5.27	2.08U	0	*	5.24	2.08U	0	*	34-74	0.00	(< 20)
Hexachloroethane	0.740U	5.27	2.96	56		5.24	2.90	55		28-117	1.70	(< 20)
Indeno[1,2,3-c,d] pyrene	0.740U	5.27	4.87	92		5.24	5.55	106		45-133	13.00	(< 20)
Isophorone	0.740U	5.27	4.13	78		5.24	4.11	79		30-122	0.50	(< 20)
Naphthalene	0.740U	5.27	3.71	70		5.24	3.73	71		35-123	0.52	(< 20)
Nitrobenzene	0.740U	5.27	3.57	68		5.24	3.60	69		34-122	0.51	(< 20)
N-Nitrosodimethylamine	0.740U	5.27	2.99	57		5.24	3.10	59		23-120	3.60	(< 20)
N-Nitroso-di-n-propylamine	0.740U	5.27	4.16	79		5.24	4.23	81		36-120	1.70	(< 20)
N-Nitrosodiphenylamine	0.740U	5.27	3.81	72		5.24	3.91	75		38-127	2.60	(< 20)
Pentachlorophenol	5.95U	7.39	6.67J	90		7.33	6.96J	95		25-133	4.20	(< 20)
Phenanthrene	0.740U	5.27	4.69	89		5.24	4.82	92		50-121	2.90	(< 20)
Phenol	0.740U	5.27	3.68	70		5.24	3.68	70		34-121	0.18	(< 20)
Pyrene	0.740U	5.27	5.24	99		5.24	5.33	102		47-127	1.70	(< 20)
Surrogates												
2,4,6-Tribromophenol (surr)		10.6	9.73	92		10.5	9.75	93		35-125	0.27	

Print Date: 08/19/2021 4:15:54PM

Matrix Spike Summary

Original Sample ID: 1214673005
MS Sample ID: 1626471 MS
MSD Sample ID: 1626470 MSD

Analysis Date:
Analysis Date: 07/29/2021 22:01
Analysis Date: 07/29/2021 22:18
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673004, 1214673005

Results by **SW8270D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
2-Fluorobiphenyl (surr)		5.27	3.90	74	5.24	3.92	75	44-115	0.47	
2-Fluorophenol (surr)		10.6	6.20	59	10.5	6.52	62	35-115	5.10	
Nitrobenzene-d5 (surr)		5.27	3.52	67	5.24	3.57	68	37-122	1.70	
Phenol-d6 (surr)		10.6	7.47	71	10.5	7.60	73	33-122	1.80	
Terphenyl-d14 (surr)		5.27	5.37	102	5.24	5.52	105	54-127	2.90	

Batch Information

Analytical Batch: XMS12786
Analytical Method: SW8270D
Instrument: HP 6890/5973 SSA
Analyst: NRB
Analytical Date/Time: 7/29/2021 10:01:00PM

Prep Batch: XXX45263
Prep Method: Sonication Extraction Soil SW8270
Prep Date/Time: 7/29/2021 11:30:15AM
Prep Initial Wt./Vol.: 22.50g
Prep Extract Vol: 1.00mL

Print Date: 08/19/2021 4:15:54PM

Method Blank

Blank ID: MB for HBN 1823231 [XXX/45270]
Blank Lab ID: 1626714

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673003

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	7.53J	20.0	6.20	mg/kg
Surrogates				
5a Androstane (surr)	117	60-120		%

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: A.A
Analytical Date/Time: 8/3/2021 2:40:00AM

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 7/30/2021 9:41:33AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 08/19/2021 4:15:55PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [XXX45270]
Blank Spike Lab ID: 1626715
Date Analyzed: 08/03/2021 12:23

Spike Duplicate ID: LCSD for HBN 1214673 [XXX45270]
Spike Duplicate Lab ID: 1626716
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002, 1214673003

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	667	768	115	667	778	117	(75-125)	1.40	(< 20)
Surrogates									
5a Androstane (surr)	16.7		115	16.7		115	(60-120)	0.22	

Batch Information

Analytical Batch: **XFC16025**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **A.A**

Prep Batch: **XXX45270**
Prep Method: **SW3550C**
Prep Date/Time: **07/30/2021 09:41**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1823231 [XXX/45270]
Blank Lab ID: 1626714

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002, 1214673003

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	50.0U	100	43.0	mg/kg
Surrogates				
n-Triacontane-d62 (surr)	114	60-120		%

Batch Information

Analytical Batch: XFC16025
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: A.A
Analytical Date/Time: 8/3/2021 2:40:00AM

Prep Batch: XXX45270
Prep Method: SW3550C
Prep Date/Time: 7/30/2021 9:41:33AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [XXX45270]
Blank Spike Lab ID: 1626715
Date Analyzed: 08/03/2021 12:23

Spike Duplicate ID: LCSD for HBN 1214673 [XXX45270]
Spike Duplicate Lab ID: 1626716
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002, 1214673003

Results by **AK103**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	667	788	118	667	792	119	(60-120)	0.49	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7		113	16.7		112	(60-120)	1.30	

Batch Information

Analytical Batch: **XFC16025**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **A.A**

Prep Batch: **XXX45270**
Prep Method: **SW3550C**
Prep Date/Time: **07/30/2021 09:41**
Spike Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 667 mg/kg Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1823384 [XXX/45298]
Blank Lab ID: 1627412

Matrix: Soil/Solid (dry weight)

QC for Samples:
1214673001, 1214673002

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0125U	0.0250	0.00625	mg/kg
2-Methylnaphthalene	0.0125U	0.0250	0.00625	mg/kg
Acenaphthene	0.0125U	0.0250	0.00625	mg/kg
Acenaphthylene	0.0125U	0.0250	0.00625	mg/kg
Anthracene	0.0125U	0.0250	0.00625	mg/kg
Benzo(a)Anthracene	0.0125U	0.0250	0.00625	mg/kg
Benzo[a]pyrene	0.0125U	0.0250	0.00625	mg/kg
Benzo[b]Fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Benzo[g,h,i]perylene	0.0125U	0.0250	0.00625	mg/kg
Benzo[k]fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Chrysene	0.0125U	0.0250	0.00625	mg/kg
Dibenzo[a,h]anthracene	0.0125U	0.0250	0.00625	mg/kg
Fluoranthene	0.0125U	0.0250	0.00625	mg/kg
Fluorene	0.0125U	0.0250	0.00625	mg/kg
Indeno[1,2,3-c,d] pyrene	0.0125U	0.0250	0.00625	mg/kg
Naphthalene	0.0100U	0.0200	0.00500	mg/kg
Phenanthrene	0.0125U	0.0250	0.00625	mg/kg
Pyrene	0.0125U	0.0250	0.00625	mg/kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	93.7	58-103		%
Fluoranthene-d10 (surr)	88.7	54-113		%

Batch Information

Analytical Batch: XMS12818
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: LAW
Analytical Date/Time: 8/10/2021 3:40:00PM

Prep Batch: XXX45298
Prep Method: SW3550C
Prep Date/Time: 8/3/2021 7:32:38AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214673 [XXX45298]
Blank Spike Lab ID: 1627413
Date Analyzed: 08/10/2021 16:00

Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002

Results by **8270D SIM (PAH)**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	0.111	0.0950	86	(43-111)
2-Methylnaphthalene	0.111	0.0970	87	(39-114)
Acenaphthene	0.111	0.0971	87	(44-111)
Acenaphthylene	0.111	0.0949	85	(39-116)
Anthracene	0.111	0.0961	87	(50-114)
Benzo(a)Anthracene	0.111	0.0958	86	(54-122)
Benzo[a]pyrene	0.111	0.0966	87	(50-125)
Benzo[b]Fluoranthene	0.111	0.102	92	(53-128)
Benzo[g,h,i]perylene	0.111	0.0969	87	(49-127)
Benzo[k]fluoranthene	0.111	0.0979	88	(56-123)
Chrysene	0.111	0.0995	90	(57-118)
Dibenzo[a,h]anthracene	0.111	0.0998	90	(50-129)
Fluoranthene	0.111	0.0954	86	(55-119)
Fluorene	0.111	0.0979	88	(47-114)
Indeno[1,2,3-c,d] pyrene	0.111	0.0986	89	(49-130)
Naphthalene	0.111	0.0938	84	(38-111)
Phenanthrene	0.111	0.0967	87	(49-113)
Pyrene	0.111	0.0956	86	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	0.111		94	(58-103)
Fluoranthene-d10 (surr)	0.111		88	(54-113)

Batch Information

Analytical Batch: **XMS12818**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **LAW**

Prep Batch: **XXX45298**
Prep Method: **SW3550C**
Prep Date/Time: **08/03/2021 07:32**
Spike Init Wt./Vol.: 0.111 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1214703001
MS Sample ID: 1627414 MS
MSD Sample ID: 1627415 MSD

Analysis Date: 08/10/2021 23:33
Analysis Date: 08/10/2021 23:53
Analysis Date: 08/11/2021 0:14
Matrix: Soil/Solid (dry weight)

QC for Samples: 1214673001, 1214673002

Results by **8270D SIM (PAH)**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0131U	0.117	0.0861	74	0.117	0.0893	77	43-111	3.60	(< 20)
2-Methylnaphthalene	0.0131U	0.117	0.0880	76	0.117	0.0914	79	39-114	3.90	(< 20)
Acenaphthene	0.0131U	0.117	0.0928	80	0.117	0.0950	82	44-111	2.40	(< 20)
Acenaphthylene	0.0131U	0.117	0.0856	73	0.117	0.0864	74	39-116	0.93	(< 20)
Anthracene	0.0131U	0.117	0.0856	73	0.117	0.0877	75	50-114	2.50	(< 20)
Benzo(a)Anthracene	0.0131U	0.117	0.0891	76	0.117	0.0906	78	54-122	1.70	(< 20)
Benzo[a]pyrene	0.0131U	0.117	0.0870	75	0.117	0.0885	76	50-125	1.80	(< 20)
Benzo[b]Fluoranthene	0.0131U	0.117	0.0897	77	0.117	0.0901	77	53-128	0.41	(< 20)
Benzo[g,h,i]perylene	0.0131U	0.117	0.0827	71	0.117	0.0845	73	49-127	2.10	(< 20)
Benzo[k]fluoranthene	0.0131U	0.117	0.0908	78	0.117	0.0919	79	56-123	1.30	(< 20)
Chrysene	0.0131U	0.117	0.0918	79	0.117	0.0932	80	57-118	1.50	(< 20)
Dibenzo[a,h]anthracene	0.0131U	0.117	0.0861	74	0.117	0.0881	76	50-129	2.40	(< 20)
Fluoranthene	0.0131U	0.117	0.0931	80	0.117	0.0939	81	55-119	0.85	(< 20)
Fluorene	0.0131U	0.117	0.0901	77	0.117	0.0919	79	47-114	2.00	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0131U	0.117	0.0838	72	0.117	0.0862	74	49-130	2.90	(< 20)
Naphthalene	0.0104U	0.117	0.0817	70	0.117	0.0843	72	38-111	3.10	(< 20)
Phenanthrene	0.0131U	0.117	0.0877	75	0.117	0.0907	78	49-113	3.20	(< 20)
Pyrene	0.0131U	0.117	0.0934	80	0.117	0.0935	80	55-117	0.14	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		0.117	0.0941	81	0.117	0.0966	83	58-103	2.70	
Fluoranthene-d10 (surr)		0.117	0.0973	84	0.117	0.0980	84	54-113	0.61	

Batch Information

Analytical Batch: XMS12818
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: LAW
Analytical Date/Time: 8/10/2021 11:53:00PM

Prep Batch: XXX45298
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 8/3/2021 7:32:38AM
Prep Initial Wt./Vol.: 22.77g
Prep Extract Vol: 5.00mL

Print Date: 08/19/2021 4:16:10PM

1214673

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Laboratory SGS North Am
Attn:

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No: —

MSA Number: SGS-2016

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	GRO (AK 101)	VOCs (EPA 8260)	DRO/RRO (AK 102/103)	PAHs (EPA 8270D-SIM)	SVOCs	TCLP Metals	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB13-35-37.5	1AB	1120	7/22/21	✓	✓	✓	✓			2	Soil
SB13-~~13.5~~35-137.5	2AB	1110	7/22/21	✓	✓	✓	✓			2	
SB11-22.5-25.4	3AB	1336	7/17/21	✓	✓	✓				2	
Drum 55	4AB	1615	7/26/21				✓	✓		2	
Drum 40	5AB	2040	7/26/21				✓	✓		2	
*Trip blank	6A	—	—	✓	✓					1	trip blank/sand

Project Information
Number: 102581-009
Name: Dillingham Airport
Contact: MDN
Ongoing Project? Yes [X] No [ ]
Sampler: ALF

Sample Receipt
Total No. of Containers: 10
COC Seals/Intact? Y/N/NA:
Received Good Cond./Cold:
Temp:
Delivery Method: Goldstreak

Notes:
PioGA #350732QM

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: M. Nadel Time: 0830	Signature: Time:	Signature: Time:
Printed Name: Marcy Nadel Date: 7/28/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson, Inc.	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time: 16:32
Printed Name: Date:	Printed Name: Date:	Printed Name: Ryan Conlon Date:
Company:	Company:	Company: SGS IE IR

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

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* stored/shipped in same cooler @ soil samples

Cooler temp. 5.2 D55

No.

SGS North America Inc.
200 W. Potter Drive, Anchorage, AK 99518
phone (907) 562-2343, fax (907) 561-5301

Characterization of TCLP Samples for LIMS Login

Date Characterized: 7/28/21 **Analyst:** RJC

Sample Container ID:	Matrix	%	Is sufficient volume/mass available?	Notes:
Drum 55	Xylene miscible (Top layer * = matrix 3 **)	—	Yes / No (Yes circled)	If multiple jars were received, were they consistent? Yes / No / NA (Yes circled) If biphasic, was there **only** one layer with sufficient sample ? Yes / No / NA (NA circled) Sample description/other observations: Soil **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)	—		
	Solid (Bottom layer = matrix 7 or 2 if % solids required)	100		
Drum 40	Xylene miscible (Top layer * = matrix 3 **)	—	Yes / No (Yes circled)	If multiple jars were received, were they consistent? Yes / No / NA (Yes circled) If biphasic, was there **only** one layer with sufficient sample ? Yes / No / NA (NA circled) Sample description/other observations: Soil **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)	—		
	Solid (Bottom layer = matrix 7 or 2 if % solids required)	100		
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there **only** one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there **only** one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			
	Xylene miscible (Top layer * = matrix 3 **)		Yes / No	If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there **only** one layer with sufficient sample ? Yes / No / NA Sample description/other observations: **Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.
	Water miscible (Middle layer = matrix 6)			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			

Remember: ** = Chlorinated oils will be heavier than water and present as the bottom later.*
*** = Oils must be filterable to be logged in as matrix 3. Nonfilterable oils must be logged in as matrix 7.*
**** = Refer to F078 'Characterization of TCLP Samples for LIMS' to determine if there's sufficent volume/mass.*

Alert Expeditors Inc.

#413344

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 7/25/21

From S+W

To SGS

Collect ☐	Prepay ☐	Advance Charges ☐
Job # DLG	PO# AS 7664 8794	

Sample

Shipped Signature

Total Charge

Received By: Ryan Conlon

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e-Sample Receipt Form

SGS Workorder #: **1214673** | 1214673

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F, 1R
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 5.2 °C Therm. ID: D55
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
	N/A	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214673001-A	No Preservative Required	OK			
1214673001-B	Methanol field pres. 4 C	OK			
1214673002-A	No Preservative Required	OK			
1214673002-B	Methanol field pres. 4 C	OK			
1214673003-A	No Preservative Required	OK			
1214673003-B	Methanol field pres. 4 C	OK			
1214673004-A	No Preservative Required	OK			
1214673004-B	No Preservative Required	OK			
1214673005-A	No Preservative Required	OK			
1214673005-B	No Preservative Required	OK			
1214673006-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Marcy Nadel

Title:

Geologist

Date:

August 24, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1214673

Laboratory Report Date:

August 19, 2021

CS Site Name:

Dillingham Airport PFAS

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

1214673

Laboratory Report Date:

August 19, 2021

CS Site Name:

Dillingham Airport PFAS

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by SGS North America, Inc. in Anchorage, AK.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

The temperature blank was measured within the acceptable temperature range of 0 °C to 6 °C upon arrival at the laboratory. The temperature of the sample cooler upon receipt was 5.2°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The laboratory noted that samples were received in acceptable condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

There were no sample receipt discrepancies noted for this work order.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

The samples arrived in good condition, properly preserved, and within the required temperature range.

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The LOQs for semivolatile organic compounds (SVOCs) in project samples *Drum 55* and *Drum 40* are eleated due to sample dilution. These samples were diluted due to the dark color of the extract.

The laboratory control sample (LCS) recoveries for several analytes in QC sample 1823178 do not meet QC criteria. These analytes were not reported above the LOQ in the associated samples.

The matrix spike (MS) and matrix spike duplicate (MSD) recovery for hexachlorocyclopentadiene do not meet QC criteria in project sample Drum 40. See LCS for accuracy requirements.

c. Were all corrective actions documented?

Yes☐ No☒ N/A☐ Comments:

No corrective actions were documented in the case narrative.

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d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative does not note an effect on data quality.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

The samples were extracted within 14 days and analyzed within 40 days of collection, meeting the hold time requirements for GRO, DRO, RRO, VOCs, SVOCs, and PAHs per their respective methods. The two project samples analyzed for TCLP metals were extracted within 14 days and analyzed within 14 days, meeting the most sensative hold time requirement for mercury analysis by Method SW 6020B.

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

The LOQ is greater than the DEC cleanup level in one or more sample results for VOC analytes 1,2,3-trichloropropane, 1,2-dibromoethane, and dibromochloromethane. The LOQ is also greater than the DEC cleanup level for 22 SVOC analytes. These results are bolded in bold in the analytical tables.

e. Data quality or usability affected?

The data quality and/or usability are not affected.

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6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Project analytes were not detected above the LOQ in the method blank samples. However, four analytes were detected in the method blank samples at estimated concentrations between the detection limit (DL) and LOQ.
Chloroform, GRO, bis(2-ethylhexyl)phthalate, and DRO were detected ate estimated concentration below the LOQ in the method blank samples associated with preparation batches VXX37579, VXX37592, XXX45263, and XXX45270, respectively.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Samples *SB13-35-37.5* and *SB13-135-137.5* are associated with preparation batch associated VXX37579 with the method blank detection for chloroform. Chloroform was not detected in these project samples; therefore, the results are not considered affected.

Samples *SB13-35-37.5*, *SB13-135-137.5*, and *SB11-22.5-25.4* are associated with preparation batch associated VXX37592 with the method blank detection for GRO. GRO was not detected in sample *SB11-22.5-25.4*, the result is not considered affected. GRO was detected at a concentration below the LOQ and within five times the method blank detection for samples *SB13-35-37.5* and *SB13-135-137.5*.

Samples *Drum 40* and *Drum 55* are associated with preparation batch associated XXX45263 with the method blank detection for bis(2-ethylhexyl)phthalate. Bis(2-ethylhexyl)phthalate was not detected in these project samples; therefore, the results are not considered affected.

Samples *SB13-35-37.5*, *SB13-135-137.5*, and *SB11-22.5-25.4* are associated with preparation batch associated XXX45263 with the method blank detection for DRO. DRO was detected in these project samples at concentrations less than the LOQ and within five times the method blank detection.

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iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

The GRO results for project samples *SB13-35-37.5* and *SB13-135-137.5* are considered non-detect due to the possible laboratory contamination observed in the method blank. These GRO results are flagged 'UB' at the LOQ.

The DRO results for project samples *SB13-35-37.5*, *SB13-135-137.5*, and *SB11-22.5-25.4* are considered non-detect due to the possible laboratory contamination observed in the method blank. These results are flagged 'UB' at the LOQ.

v. Data quality or usability affected?

Comments:

Yes; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☐ No☒ N/A☐ Comments:

LCS/LCSD samples are reported for GRO, DRO, RRO, and PAH analyses.

LCS samples were reported for VOC and SVOC analyses. Refer to section 6.c. for assessment of precision and accuracy for these analyses.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☒ N/A☐ Comments:

LCS samples were reported for TCLP metals analysis. Refer to Section 6.c. for assessment of precision and accuracy for TCLP metals analysis using MS/MSD samples.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

The LCS associated with preparation batch XXX45263 had recoveries for SVOC analytes 2,4-dinitrophenol, 2-methyl-4,6-dinitrophenol, and benzoic acid are above laboratory limits.

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Project samples *Drum 40* and *Drum 55* are associated with the SVOC preparation batch XXX45263. However, analytes with high LCS recoveries were not detected in the project samples; therefore, the sample results are not affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☒ N/A☐ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected; see above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

MS/MSD samples were reported for VOC and SVOC analyses. Precision and accuracy for GRO, DRO, RRO, and PAHs are evaluated using LCS/LCSD samples (Section 6.b).

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

MS/MSD samples were reported for TCLP metals analysis.

1214673

Laboratory Report Date:

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CS Site Name:

Dillingham Airport PFAS

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☒ N/A☐ Comments:

MS recovery for TCLP barium and chromium are below laboratory limits. MSD recovery for all seven of the eight TCLP metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) are also below laboratory limits. This MS sample is associated with preparation batch MXT6134. However, the MS parent sample is not included in this work order. Sample results are not affected by these recovery failures.

MS and MSD had no recovery for the SVOC analytes 4-nitroaniline, aniline, and hexachlorocyclo-pentadiene. These samples are associated with preparation batch XXX45263. The parent sample is *Drum 40* associated with this project sample set. However, this sample was analyzed at a dilution due to the dark color of the extract. The sample results are not considered affected by the recovery failures for these analytes.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☒ N/A☐ Comments:

The MS/MSD associated with preparation batch MXT6134 had RPD failures for the TCLP metals arsenic, barium, cadmium, chromium, lead, and mercury are outside QC limits. However, the MS parent sample is not included in this work order. Sample results are not affected by these precision failures.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Project samples are not affected by the accuracy and precision failures for the MS/MSD samples.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☒ N/A☐ Comments:

See above.

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Laboratory Report Date:

August 19, 2021

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Dillingham Airport PFAS

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected; see above.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The VOC surrogate recovery for 4-bromofluorobenzene was below the laboratory acceptance criteria for the MS and MSD samples associated with preparation batch XXX37543.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☒ N/A☐ Comments:

Project samples are not affected by surrogate recovery failures in QC samples.

iv. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

Trip blank samples were analyzed for GRO and VOCs.

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Dillingham Airport PFAS

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

The samples were submitted in a single cooler.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☒ N/A☐ Comments:

Project analytes were not detected above the LOQ in the trip blank samples. However, GRO was detected at an estimated concentration between the DL and LOQ. This trip blank and project samples are associated with preparation batch VXX37579 and were affected by the method blank detection. Further qualification is not required.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No; see above.

v. Data quality or usability affected?

Comments:

Data quality and usability are not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☐ No☒ N/A☐ Comments:

Field-duplicate sample pair SB13-35-37.5 / SB13-135-137.5 was submitted for GRO, DRO, RRO, VOC, and PAH analysis. These samples were collected as part of the PFAS site characterization field effort.

A field-duplicate sample was not submitted for SVOC or TCLP metals analysis. These samples were collected to characterize investigation-derived waste for disposal and are not part of a DEC-approved Work Plan.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Yes; see above.

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Laboratory Report Date:

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CS Site Name:

Dillingham Airport PFAS

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

Field duplicate RPDs are within the recommended DQO, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Theses sample was not collected with reusable equipment; therefore, potential for equipment based cross-contamination does not exist.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

N/A; an equipment blank sample was not collected

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment-blank sample was not collected.

iii. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

1214673

Laboratory Report Date:

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CS Site Name:

Dillingham Airport PFAS

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

There were no additional flags/qualifiers required for this work order.

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707
(907)479-0600

Report Number: **1214677**

Client Project: **102581-009 Dillingham Airport**

Dear Marcy Nadel,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede 2021.08.06 11:29:29 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1214677**
Project Name/Site: **102581-009 Dillingham Airport**
Project Contact: **Marcy Nadel**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 05/27/2021 for Nitrate as N by SM 4500NO3-F) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
DLG-MW111-34	1214677001	07/22/2021	07/28/2021	Water (Surface, Eff., Ground)
DLG-MW11-34	1214677002	07/22/2021	07/28/2021	Water (Surface, Eff., Ground)
Trip Blank	1214677003	07/22/2021	07/28/2021	Water (Surface, Eff., Ground)

Method	Method Description
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W) FULL

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
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Results of **DLG-MW111-34**

Client Sample ID: **DLG-MW111-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677001
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/02/21 16:11
Surrogates								
4-Bromofluorobenzene (surr)	98.4		50-150		%	1		08/02/21 16:11

Batch Information

Analytical Batch: VFC15745
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/02/21 16:11
Container ID: 1214677001-A

Prep Batch: VXX37556
Prep Method: SW5030B
Prep Date/Time: 08/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 10:36:10AM

J flagging is activated

Results of **DLG-MW111-34**

Client Sample ID: **DLG-MW111-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677001
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/03/21 18:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/03/21 18:52
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/03/21 18:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 18:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/03/21 18:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 18:52
Benzene	0.200	U	0.400	0.120	ug/L	1		08/03/21 18:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/03/21 18:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/03/21 18:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 18:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 18:52

Print Date: 08/06/2021 10:36:10AM

J flagging is activated

Results of **DLG-MW111-34**

Client Sample ID: **DLG-MW111-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677001
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Chloromethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		08/03/21 18:52
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		08/03/21 18:52
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Freon-113	5.00 U		10.0	3.10	ug/L	1		08/03/21 18:52
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		08/03/21 18:52
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		08/03/21 18:52
Naphthalene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
o-Xylene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		08/03/21 18:52
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Styrene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Toluene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 18:52
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		08/03/21 18:52
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		08/03/21 18:52
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		08/03/21 18:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		08/03/21 18:52
4-Bromofluorobenzene (surr)	99.7		85-114		%	1		08/03/21 18:52
Toluene-d8 (surr)	98.5		89-112		%	1		08/03/21 18:52

Print Date: 08/06/2021 10:36:10AM

J flagging is activated

Results of **DLG-MW111-34**

Client Sample ID: **DLG-MW111-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677001
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/03/21 18:52
Container ID: 1214677001-D

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 08/03/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 10:36:10AM

J flagging is activated

Results of **DLG-MW11-34**

Client Sample ID: **DLG-MW11-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677002
Lab Project ID: 1214677

Collection Date: 07/22/21 18:10
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/02/21 16:29
Surrogates								
4-Bromofluorobenzene (surr)	106		50-150		%	1		08/02/21 16:29

Batch Information

Analytical Batch: VFC15745
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/02/21 16:29
Container ID: 1214677002-A

Prep Batch: VXX37556
Prep Method: SW5030B
Prep Date/Time: 08/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 10:36:10AM

J flagging is activated

Results of **DLG-MW11-34**

Client Sample ID: **DLG-MW11-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677002
Lab Project ID: 1214677

Collection Date: 07/22/21 18:10
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/03/21 19:07
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/03/21 19:07
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
Benzene	0.200	U	0.400	0.120	ug/L	1		08/03/21 19:07
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/03/21 19:07
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07

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Results of **DLG-MW11-34**

Client Sample ID: **DLG-MW11-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677002
Lab Project ID: 1214677

Collection Date: 07/22/21 18:10
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Chloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 19:07
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Freon-113	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
Naphthalene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
o-Xylene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		08/03/21 19:07
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Styrene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Toluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 19:07
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		08/03/21 19:07
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		08/03/21 19:07
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		08/03/21 19:07
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		08/03/21 19:07
4-Bromofluorobenzene (surr)	98.9		85-114		%	1		08/03/21 19:07
Toluene-d8 (surr)	99		89-112		%	1		08/03/21 19:07

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J flagging is activated

Results of **DLG-MW11-34**

Client Sample ID: **DLG-MW11-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677002
Lab Project ID: 1214677

Collection Date: 07/22/21 18:10
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/03/21 19:07
Container ID: 1214677002-D

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 08/03/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677003
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/02/21 12:17
Surrogates								
4-Bromofluorobenzene (surr)	92.6		50-150		%	1		08/02/21 12:17

Batch Information

Analytical Batch: VFC15745
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/02/21 12:17
Container ID: 1214677003-A

Prep Batch: VXX37556
Prep Method: SW5030B
Prep Date/Time: 08/02/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677003
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/03/21 17:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/03/21 17:52
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/03/21 17:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 17:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/03/21 17:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 17:52
Benzene	0.200	U	0.400	0.120	ug/L	1		08/03/21 17:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/03/21 17:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/03/21 17:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 17:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 17:52

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677003
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Chloromethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		08/03/21 17:52
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		08/03/21 17:52
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Freon-113	5.00 U		10.0	3.10	ug/L	1		08/03/21 17:52
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		08/03/21 17:52
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		08/03/21 17:52
Naphthalene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
o-Xylene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		08/03/21 17:52
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Styrene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Toluene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		08/03/21 17:52
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		08/03/21 17:52
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		08/03/21 17:52
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		08/03/21 17:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		08/03/21 17:52
4-Bromofluorobenzene (surr)	101		85-114		%	1		08/03/21 17:52
Toluene-d8 (surr)	99.6		89-112		%	1		08/03/21 17:52

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214677003
Lab Project ID: 1214677

Collection Date: 07/22/21 18:00
Received Date: 07/28/21 16:32
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/03/21 17:52
Container ID: 1214677003-B

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 08/03/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1823395 [VXX/37556]
Blank Lab ID: 1627464

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214677001, 1214677002, 1214677003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	96.5	50-150		%

Batch Information

Analytical Batch: VFC15745
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: MDT
Analytical Date/Time: 8/2/2021 9:24:00AM

Prep Batch: VXX37556
Prep Method: SW5030B
Prep Date/Time: 8/2/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214677 [VXX37556]
Blank Spike Lab ID: 1627465
Date Analyzed: 08/02/2021 10:17

Spike Duplicate ID: LCSD for HBN 1214677 [VXX37556]
Spike Duplicate Lab ID: 1627466
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214677001, 1214677002, 1214677003

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	1.02	102	1.00	1.03	103	(60-120)	1.20	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		104	0.0500		111	(50-150)	6.90	

Batch Information

Analytical Batch: **VFC15745**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37556**
Prep Method: **SW5030B**
Prep Date/Time: **08/02/2021 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1823490 [VXX/37574]
Blank Lab ID: 1627818

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214677001, 1214677002, 1214677003

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	2.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1823490 [VXX/37574]
Blank Lab ID: 1627818

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214677001, 1214677002, 1214677003

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	99.9	85-114		%
Toluene-d8 (surr)	99.7	89-112		%

Method Blank

Blank ID: MB for HBN 1823490 [VXX/37574]
Blank Lab ID: 1627818

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214677001, 1214677002, 1214677003

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JMG
Analytical Date/Time: 8/3/2021 3:00:00PM

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 8/3/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/06/2021 10:36:17AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214677 [VXX37574]
Blank Spike Lab ID: 1627819
Date Analyzed: 08/03/2021 15:15

Spike Duplicate ID: LCSD for HBN 1214677 [VXX37574]
Spike Duplicate Lab ID: 1627820
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214677001, 1214677002, 1214677003

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	29.0	97	30	29.0	97	(78-124)	0.12	(< 20)
1,1,1-Trichloroethane	30	29.0	97	30	28.6	95	(74-131)	1.40	(< 20)
1,1,2,2-Tetrachloroethane	30	28.3	94	30	28.4	95	(71-121)	0.64	(< 20)
1,1,2-Trichloroethane	30	29.0	97	30	29.0	97	(80-119)	0.05	(< 20)
1,1-Dichloroethane	30	28.0	94	30	27.8	93	(77-125)	0.82	(< 20)
1,1-Dichloroethene	30	29.1	97	30	28.6	95	(71-131)	1.70	(< 20)
1,1-Dichloropropene	30	29.7	99	30	29.2	97	(79-125)	1.80	(< 20)
1,2,3-Trichlorobenzene	30	28.2	94	30	29.4	98	(69-129)	4.00	(< 20)
1,2,3-Trichloropropane	30	28.2	94	30	28.4	95	(73-122)	0.62	(< 20)
1,2,4-Trichlorobenzene	30	28.2	94	30	29.1	97	(69-130)	3.00	(< 20)
1,2,4-Trimethylbenzene	30	28.5	95	30	28.7	96	(79-124)	0.64	(< 20)
1,2-Dibromo-3-chloropropane	30	26.9	90	30	27.6	92	(62-128)	2.40	(< 20)
1,2-Dibromoethane	30	28.6	95	30	28.6	96	(77-121)	0.26	(< 20)
1,2-Dichlorobenzene	30	28.5	95	30	28.7	96	(80-119)	0.95	(< 20)
1,2-Dichloroethane	30	26.9	90	30	27.0	90	(73-128)	0.52	(< 20)
1,2-Dichloropropane	30	28.7	96	30	28.7	96	(78-122)	0.01	(< 20)
1,3,5-Trimethylbenzene	30	28.9	96	30	29.1	97	(75-124)	0.60	(< 20)
1,3-Dichlorobenzene	30	28.7	96	30	28.8	96	(80-119)	0.36	(< 20)
1,3-Dichloropropane	30	28.6	96	30	28.6	95	(80-119)	0.19	(< 20)
1,4-Dichlorobenzene	30	28.7	96	30	28.9	97	(79-118)	1.00	(< 20)
2,2-Dichloropropane	30	28.4	95	30	27.9	93	(60-139)	1.90	(< 20)
2-Butanone (MEK)	90	80.7	90	90	82.9	92	(56-143)	2.70	(< 20)
2-Chlorotoluene	30	28.5	95	30	28.6	95	(79-122)	0.39	(< 20)
2-Hexanone	90	80.8	90	90	81.6	91	(57-139)	1.10	(< 20)
4-Chlorotoluene	30	28.5	95	30	28.8	96	(78-122)	0.86	(< 20)
4-Isopropyltoluene	30	29.6	99	30	29.7	99	(77-127)	0.52	(< 20)
4-Methyl-2-pentanone (MIBK)	90	82.1	91	90	83.1	92	(67-130)	1.20	(< 20)
Benzene	30	28.7	96	30	28.4	95	(79-120)	1.10	(< 20)
Bromobenzene	30	28.6	95	30	29.0	97	(80-120)	1.30	(< 20)
Bromochloromethane	30	28.4	95	30	28.4	95	(78-123)	0.01	(< 20)
Bromodichloromethane	30	28.4	95	30	28.5	95	(79-125)	0.27	(< 20)
Bromoform	30	29.3	98	30	29.1	97	(66-130)	0.51	(< 20)
Bromomethane	30	24.9	83	30	27.1	90	(53-141)	8.30	(< 20)
Carbon disulfide	45	42.8	95	45	42.0	93	(64-133)	1.90	(< 20)

Print Date: 08/06/2021 10:36:19AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214677 [VXX37574]
Blank Spike Lab ID: 1627819
Date Analyzed: 08/03/2021 15:15

Spike Duplicate ID: LCSD for HBN 1214677 [VXX37574]
Spike Duplicate Lab ID: 1627820
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214677001, 1214677002, 1214677003

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	29.8	99	30	29.2	97	(72-136)	1.90	(< 20)
Chlorobenzene	30	28.5	95	30	28.7	96	(82-118)	0.48	(< 20)
Chloroethane	30	34.8	116	30	29.2	97	(60-138)	17.40	(< 20)
Chloroform	30	27.7	92	30	27.6	92	(79-124)	0.09	(< 20)
Chloromethane	30	26.8	90	30	26.8	89	(50-139)	0.09	(< 20)
cis-1,2-Dichloroethene	30	28.3	94	30	28.3	94	(78-123)	0.01	(< 20)
cis-1,3-Dichloropropene	30	28.6	95	30	28.5	95	(75-124)	0.17	(< 20)
Dibromochloromethane	30	28.8	96	30	28.8	96	(74-126)	0.05	(< 20)
Dibromomethane	30	28.3	94	30	28.2	94	(79-123)	0.17	(< 20)
Dichlorodifluoromethane	30	31.1	104	30	30.6	102	(32-152)	1.40	(< 20)
Ethylbenzene	30	28.6	95	30	28.7	96	(79-121)	0.24	(< 20)
Freon-113	45	44.8	100	45	43.9	98	(70-136)	2.00	(< 20)
Hexachlorobutadiene	30	29.6	99	30	30.1	100	(66-134)	1.60	(< 20)
Isopropylbenzene (Cumene)	30	29.5	98	30	29.4	98	(72-131)	0.35	(< 20)
Methylene chloride	30	28.5	95	30	28.5	95	(74-124)	0.06	(< 20)
Methyl-t-butyl ether	45	42.6	95	45	42.7	95	(71-124)	0.29	(< 20)
Naphthalene	30	26.5	89	30	28.0	93	(61-128)	5.30	(< 20)
n-Butylbenzene	30	29.5	98	30	30.0	100	(75-128)	1.50	(< 20)
n-Propylbenzene	30	29.2	97	30	29.4	98	(76-126)	0.54	(< 20)
o-Xylene	30	28.7	96	30	28.6	95	(78-122)	0.35	(< 20)
P & M -Xylene	60	57.4	96	60	56.9	95	(80-121)	0.90	(< 20)
sec-Butylbenzene	30	29.3	98	30	29.9	100	(77-126)	1.90	(< 20)
Styrene	30	28.8	96	30	28.9	96	(78-123)	0.41	(< 20)
tert-Butylbenzene	30	29.0	97	30	29.5	99	(78-124)	1.90	(< 20)
Tetrachloroethene	30	29.8	100	30	29.4	98	(74-129)	1.30	(< 20)
Toluene	30	28.1	94	30	27.9	93	(80-121)	0.60	(< 20)
trans-1,2-Dichloroethene	30	28.7	96	30	28.5	95	(75-124)	0.71	(< 20)
trans-1,3-Dichloropropene	30	28.9	96	30	28.8	96	(73-127)	0.27	(< 20)
Trichloroethene	30	29.3	98	30	28.9	97	(79-123)	1.20	(< 20)
Trichlorofluoromethane	30	30.5	102	30	29.6	99	(65-141)	2.90	(< 20)
Vinyl acetate	30	28.4	95	30	28.6	95	(54-146)	0.59	(< 20)
Vinyl chloride	30	28.6	95	30	28.3	94	(58-137)	1.20	(< 20)
Xylenes (total)	90	86.1	96	90	85.5	95	(79-121)	0.71	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214677 [VXX37574]
Blank Spike Lab ID: 1627819
Date Analyzed: 08/03/2021 15:15

Spike Duplicate ID: LCSD for HBN 1214677 [VXX37574]
Spike Duplicate Lab ID: 1627820
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214677001, 1214677002, 1214677003

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		99	30		98	(81-118)	0.63	
4-Bromofluorobenzene (surr)	30		98	30		99	(85-114)	1.10	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.19	

Batch Information

Analytical Batch: **VMS21011**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JMG**

Prep Batch: **VXX37574**
Prep Method: **SW5030B**
Prep Date/Time: **08/03/2021 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Laboratory SGS North America
Attn:

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No: Open Quote 2021
MSA Number: SGS-2016
J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	GRO (AK 101)	VOCs (8260)	DRO (AK102)	RRO (AK103)	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW111-34	1A	1800	7/22/21	✓	✓	✓	✓	8	Groundwater
DLG-MW11-34	2A	1810	↓	✓	✓	✓	✓	8	↓
*Trip Blank	3A	—	—	✓	✓			—	Water

1214677

Project Information	
Number:	102581-009
Name:	Dillingham Airport
Contact:	MDN
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY/SAH

Sample Receipt	
Total No. of Containers:	16
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	Goldstreak

Notes:

Profit #350732 GM

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: M. Nadel	Signature:	Signature:
Time: 0830	Time:	Time:
Printed Name: Marcy Nadel	Printed Name:	Printed Name:
Date: 7/23/21	Date:	Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature:	Signature:	Signature: John Conlon RJC
Time:	Time:	Time: 1632
Printed Name:	Printed Name:	Printed Name: Ryan Conlon
Date:	Date:	Date: 7/28/21
Company:	Company:	Company: SGS IE, IR

* TB stored in same cooler as project samples.

Cooler temp: 5.2 DSS

No.

Alert Expeditors Inc.

#413344

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 7/23/21

From

To

Collect ❒	Prepay ❒	Advance Charges ❒
Job # DLG	PO#	

Shipped Signature

Total Charge 16.32

Received By: Ryan Conlon 7/23/21

e-Sample Receipt Form

SGS Workorder #:	1214677	1214677

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F, 1R
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 5.2 °C Therm. ID: D55
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	No	No DRO/RRO containers were received with samples.
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
N/A ***Exemption permitted for metals (e.g,200.8/6020A).		
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214677001-A	HCL to pH < 2	OK			
1214677001-B	HCL to pH < 2	OK			
1214677001-C	HCL to pH < 2	OK			
1214677001-D	HCL to pH < 2	OK			
1214677001-E	HCL to pH < 2	OK			
1214677001-F	HCL to pH < 2	OK			
1214677002-A	HCL to pH < 2	OK			
1214677002-B	HCL to pH < 2	OK			
1214677002-C	HCL to pH < 2	OK			
1214677002-D	HCL to pH < 2	OK			
1214677002-E	HCL to pH < 2	OK			
1214677002-F	HCL to pH < 2	OK			
1214677003-A	HCL to pH < 2	OK			
1214677003-B	HCL to pH < 2	OK			
1214677003-C	HCL to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 31, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1214677

Laboratory Report Date:

August 6, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

1214677

Laboratory Report Date:

August 6, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the SGS North America, Inc. (SGS) laboratory in Anchorage, AK. SGS has been approved by the DEC CS program and certified by the DoD National Environmental Laboratory Accreditation Program (NELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   The samples were not transferred to a network laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☐ No☒ N/A☐ Comments:

   DRO and RRO analysis was also requested; however, the bottles were not submitted. They were submitted under a different work order.

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

1214677

Laboratory Report Date:

August 6, 2021

CS Site Name:

Dillingham DOT&PF

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt forms note that the samples arrived in good condition and properly preserved.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

The sample receipt forms note that the samples arrived in good condition and properly preserved.

e. Data quality or usability affected?

Comments:

Data quality/usability is not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☐ No☒ N/A☐ Comments:

No discrepancies, errors, or QC failures were identified by the lab.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not documented in the Case Narrative.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative does not specify an effect on data quality/usability. See sections 5 and 6 for further assessment.

1214677

Laboratory Report Date:

August 6, 2021

CS Site Name:

Dillingham DOT&PF

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not submitted with this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

The LOD for 1,2,3-trichloropropane is greater than the cleanup level.

e. Data quality or usability affected?

We cannot determine if analyte with an elevated reporting limit is present at a concentration above the DEC regulatory limit.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

1214677

Laboratory Report Date:

August 6, 2021

CS Site Name:

Dillingham DOT&PF

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; see above.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

The data usability is not affected. See the applied qualifiers above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

LCS/LCSD pairs were reported for methods AK101 and SW8260D.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptable limits; see 6.b.iii.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification of the results was not required; see section 6.b.v above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

MS/MSD sample pairs were not reported for this work order. See section 6.b to determine laboratory precision and accuracy.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

MS/MSD sample pairs were not reported for this work order.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

MS/MSD sample pairs were not reported for this work order.

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Samples are unaffected; see 6.c.iii and 6.c.iv.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

N/A; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No qualifications were required; see 6.e.ii.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

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August 6, 2021

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e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

Samples are unaffected; see above.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate sample *DLG-MW11-34/DLG-MW111-34* was submitted with this work order.

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iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 30% for the reported analytes.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality/usability is not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☒ N/A☐ Comments:

An equipment blank was not included in this work order; however, they are taken at an interval appropriate for the project.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank was not submitted with this work order.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment blank was not submitted with this work order.

iii. Data quality or usability affected?

Comments:

Data quality or usability is not affected.

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CS Site Name:

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7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

   a. Defined and appropriate?

      Yes☐ No☐ N/A☒ Comments:

No additional data flags/qualifiers are required.

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707
(907)479-0600

Report Number: **1214737**

Client Project: **102581-009 Dillingham Airport**

Dear Marcy Nadel,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede 2021.08.25 11:47:32 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1214737**
Project Name/Site: **102581-009 Dillingham Airport**
Project Contact: **Marcy Nadel**

Refer to sample receipt form for information on sample condition.

MB for HBN 1823335 [XXX/45294] (1627216) MB

8270D SIM - Phenanthrene is detect in the PAH method blank at less than the LOQ.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
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Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
DLG-MW14-50	1214737001	07/26/2021	07/30/2021	Water (Surface, Eff., Ground)
DLG-MW14-150	1214737002	07/26/2021	07/30/2021	Water (Surface, Eff., Ground)
EB-MW14-50	1214737003	07/26/2021	07/30/2021	Water (Surface, Eff., Ground)
DLG-MW12-40	1214737004	07/28/2021	07/30/2021	Water (Surface, Eff., Ground)
Trip Blank	1214737005	07/26/2021	07/30/2021	Water (Surface, Eff., Ground)
DLG-MW11-34	1214737006	07/22/2021	07/30/2021	Water (Surface, Eff., Ground)
DLG-MW111-34	1214737007	07/22/2021	07/30/2021	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS LV
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **EB-MW14-50**
Lab Sample ID: 1214737003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Naphthalene	0.0376J	ug/L
	Phenanthrene	0.0212J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.200J	mg/L
	Residual Range Organics	0.251J	mg/L
Volatile GC/MS	Toluene	0.479J	ug/L

Client Sample ID: **DLG-MW12-40**
Lab Sample ID: 1214737004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.206J	mg/L

Client Sample ID: **DLG-MW11-34**
Lab Sample ID: 1214737006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.222J	mg/L

Client Sample ID: **DLG-MW111-34**
Lab Sample ID: 1214737007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.217J	mg/L

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Results of **DLG-MW14-50**

Client Sample ID: **DLG-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737001
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
2-Methylnaphthalene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
Acenaphthene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
Acenaphthylene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
Benzo(a)Anthracene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Benzo[a]pyrene	0.00980	U	0.0196	0.00608	ug/L	1		08/13/21 00:32
Benzo[b]Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Benzo[g,h,i]perylene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Benzo[k]fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Chrysene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Dibenzo[a,h]anthracene	0.00980	U	0.0196	0.00608	ug/L	1		08/13/21 00:32
Fluoranthene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Fluorene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
Indeno[1,2,3-c,d] pyrene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Naphthalene	0.0490	U	0.0980	0.0304	ug/L	1		08/17/21 07:59
Phenanthrene	0.0245	U	0.0490	0.0147	ug/L	1		08/17/21 07:59
Pyrene	0.0245	U	0.0490	0.0147	ug/L	1		08/13/21 00:32
Surrogates								
2-Methylnaphthalene-d10 (surr)	41.6	*	42-86		%	1		08/17/21 07:59
Fluoranthene-d10 (surr)	56.4		50-97		%	1		08/13/21 00:32

Batch Information

Analytical Batch: XMS12828
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 08/13/21 00:32
Container ID: 1214737001-C

Prep Batch: XXX45294
Prep Method: SW3535A
Prep Date/Time: 08/02/21 12:00
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Analytical Batch: XMS12841
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 08/17/21 07:59
Container ID: 1214737001-C

Prep Batch: XXX45294
Prep Method: SW3535A
Prep Date/Time: 08/02/21 12:00
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **DLG-MW14-50**

Client Sample ID: **DLG-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737001
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.288	U	0.577	0.173	mg/L	1		08/09/21 14:15
Surrogates								
5a Androstane (surr)	81.1		50-150		%	1		08/09/21 14:15

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 08/09/21 14:15
Container ID: 1214737001-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.240	U	0.481	0.144	mg/L	1		08/09/21 14:15
Surrogates								
n-Triacontane-d62 (surr)	99.8		50-150		%	1		08/09/21 14:15

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 08/09/21 14:15
Container ID: 1214737001-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **DLG-MW14-50**

Client Sample ID: **DLG-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737001
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/06/21 00:29
Surrogates								
4-Bromofluorobenzene (surr)	88.6		50-150		%	1		08/06/21 00:29

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/06/21 00:29
Container ID: 1214737001-E

Prep Batch: VXX37588
Prep Method: SW5030B
Prep Date/Time: 08/05/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/25/2021 11:17:57AM

J flagging is activated

Results of **DLG-MW14-50**

Client Sample ID: **DLG-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737001
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/03/21 23:20
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/03/21 23:20
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
Benzene	0.200	U	0.400	0.120	ug/L	1		08/03/21 23:20
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/03/21 23:20
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20

Print Date: 08/25/2021 11:17:57AM

J flagging is activated

Results of **DLG-MW14-50**

Client Sample ID: **DLG-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737001
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Chloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:20
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Freon-113	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
Naphthalene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
o-Xylene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		08/03/21 23:20
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Styrene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Toluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:20
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:20
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		08/03/21 23:20
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		08/03/21 23:20
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		08/03/21 23:20
4-Bromofluorobenzene (surr)	101		85-114		%	1		08/03/21 23:20
Toluene-d8 (surr)	99.2		89-112		%	1		08/03/21 23:20

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J flagging is activated

Results of **DLG-MW14-50**

Client Sample ID: **DLG-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737001
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/03/21 23:20
Container ID: 1214737001-H

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 08/03/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **DLG-MW14-150**

Client Sample ID: **DLG-MW14-150**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737002
Lab Project ID: 1214737

Collection Date: 07/26/21 18:47
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		08/14/21 19:56
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		08/14/21 19:56
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		08/14/21 19:56
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		08/14/21 19:56
Surrogates								
2-Methylnaphthalene-d10 (surr)	45.5		42-86		%	1		08/14/21 19:56
Fluoranthene-d10 (surr)	59.4		50-97		%	1		08/14/21 19:56

Batch Information

Analytical Batch: XMS12821
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 08/14/21 19:56
Container ID: 1214737002-C

Prep Batch: XXX45294
Prep Method: SW3535A
Prep Date/Time: 08/02/21 12:00
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/25/2021 11:17:57AM

J flagging is activated

Results of **DLG-MW14-150**

Client Sample ID: **DLG-MW14-150**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737002
Lab Project ID: 1214737

Collection Date: 07/26/21 18:47
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.283	U	0.566	0.170	mg/L	1		08/09/21 14:25
Surrogates								
5a Androstane (surr)	89.7		50-150		%	1		08/09/21 14:25

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 08/09/21 14:25
Container ID: 1214737002-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.236	U	0.472	0.142	mg/L	1		08/09/21 14:25
Surrogates								
n-Triacontane-d62 (surr)	104		50-150		%	1		08/09/21 14:25

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 08/09/21 14:25
Container ID: 1214737002-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Results of **DLG-MW14-150**

Client Sample ID: **DLG-MW14-150**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737002
Lab Project ID: 1214737

Collection Date: 07/26/21 18:47
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/06/21 00:47
Surrogates								
4-Bromofluorobenzene (surr)	86.3		50-150		%	1		08/06/21 00:47

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/06/21 00:47
Container ID: 1214737002-E

Prep Batch: VXX37588
Prep Method: SW5030B
Prep Date/Time: 08/05/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 08/25/2021 11:17:57AM

J flagging is activated

Results of **DLG-MW14-150**

Client Sample ID: **DLG-MW14-150**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737002
Lab Project ID: 1214737

Collection Date: 07/26/21 18:47
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/06/21 14:28
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:28
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/06/21 14:28
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:28
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:28
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:28
Benzene	0.200	U	0.400	0.120	ug/L	1		08/06/21 14:28
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/06/21 14:28
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:28
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:28
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:28

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Results of **DLG-MW14-150**

Client Sample ID: **DLG-MW14-150**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737002
Lab Project ID: 1214737

Collection Date: 07/26/21 18:47
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Chloromethane	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		08/06/21 14:28
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		08/06/21 14:28
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Freon-113	5.00 U		10.0	3.10	ug/L	1		08/06/21 14:28
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		08/06/21 14:28
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		08/06/21 14:28
Naphthalene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
o-Xylene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		08/06/21 14:28
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Styrene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Toluene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		08/06/21 14:28
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		08/06/21 14:28
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		08/06/21 14:28
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		08/06/21 14:28
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		08/06/21 14:28
4-Bromofluorobenzene (surr)	100		85-114		%	1		08/06/21 14:28
Toluene-d8 (surr)	100		89-112		%	1		08/06/21 14:28

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J flagging is activated

Results of **DLG-MW14-150**

Client Sample ID: **DLG-MW14-150**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737002
Lab Project ID: 1214737

Collection Date: 07/26/21 18:47
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21031
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/06/21 14:28
Container ID: 1214737002-H

Prep Batch: VXX37606
Prep Method: SW5030B
Prep Date/Time: 08/06/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **EB-MW14-50**

Client Sample ID: **EB-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737003
Lab Project ID: 1214737

Collection Date: 07/26/21 19:40
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
2-Methylnaphthalene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Acenaphthene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Acenaphthylene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Anthracene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Benzo(a)Anthracene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Benzo[a]pyrene	0.0102	U	0.0204	0.00633	ug/L	1		08/14/21 20:17
Benzo[b]Fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Benzo[g,h,i]perylene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Benzo[k]fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Chrysene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Dibenzo[a,h]anthracene	0.0102	U	0.0204	0.00633	ug/L	1		08/14/21 20:17
Fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Fluorene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Indeno[1,2,3-c,d] pyrene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Naphthalene	0.0376	J	0.102	0.0316	ug/L	1		08/14/21 20:17
Phenanthrene	0.0212	J	0.0510	0.0153	ug/L	1		08/14/21 20:17
Pyrene	0.0255	U	0.0510	0.0153	ug/L	1		08/14/21 20:17
Surrogates								
2-Methylnaphthalene-d10 (surr)	51.8		42-86		%	1		08/14/21 20:17
Fluoranthene-d10 (surr)	67.3		50-97		%	1		08/14/21 20:17

Batch Information

Analytical Batch: XMS12821
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 08/14/21 20:17
Container ID: 1214737003-C

Prep Batch: XXX45294
Prep Method: SW3535A
Prep Date/Time: 08/02/21 12:00
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Results of **EB-MW14-50**

Client Sample ID: **EB-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737003
Lab Project ID: 1214737

Collection Date: 07/26/21 19:40
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.200	J	0.577	0.173	mg/L	1		08/09/21 14:35
Surrogates								
5a Androstane (surr)	94.7		50-150		%	1		08/09/21 14:35

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 08/09/21 14:35
Container ID: 1214737003-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.251	J	0.481	0.144	mg/L	1		08/09/21 14:35
Surrogates								
n-Triacontane-d62 (surr)	103		50-150		%	1		08/09/21 14:35

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 08/09/21 14:35
Container ID: 1214737003-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 08/25/2021 11:17:57AM

J flagging is activated

Results of **EB-MW14-50**

Client Sample ID: **EB-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737003
Lab Project ID: 1214737

Collection Date: 07/26/21 19:40
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/06/21 01:05
Surrogates								
4-Bromofluorobenzene (surr)	86.9		50-150		%	1		08/06/21 01:05

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/06/21 01:05
Container ID: 1214737003-E

Prep Batch: VXX37588
Prep Method: SW5030B
Prep Date/Time: 08/05/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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J flagging is activated

Results of **EB-MW14-50**

Client Sample ID: **EB-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737003
Lab Project ID: 1214737

Collection Date: 07/26/21 19:40
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/06/21 14:43
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/06/21 14:43
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
Benzene	0.200	U	0.400	0.120	ug/L	1		08/06/21 14:43
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/06/21 14:43
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43

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Results of **EB-MW14-50**

Client Sample ID: **EB-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737003
Lab Project ID: 1214737

Collection Date: 07/26/21 19:40
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Chloromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:43
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Freon-113	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
Naphthalene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
o-Xylene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		08/06/21 14:43
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Styrene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Toluene	0.479	J	1.00	0.310	ug/L	1		08/06/21 14:43
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:43
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:43
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		08/06/21 14:43
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		08/06/21 14:43
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		08/06/21 14:43
4-Bromofluorobenzene (surr)	102		85-114		%	1		08/06/21 14:43
Toluene-d8 (surr)	100		89-112		%	1		08/06/21 14:43

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Results of **EB-MW14-50**

Client Sample ID: **EB-MW14-50**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737003
Lab Project ID: 1214737

Collection Date: 07/26/21 19:40
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21031
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/06/21 14:43
Container ID: 1214737003-H

Prep Batch: VXX37606
Prep Method: SW5030B
Prep Date/Time: 08/06/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **DLG-MW12-40**

Client Sample ID: **DLG-MW12-40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737004
Lab Project ID: 1214737

Collection Date: 07/28/21 18:52
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.206	J	0.566	0.170	mg/L	1		08/09/21 14:45
Surrogates								
5a Androstane (surr)	85.6		50-150		%	1		08/09/21 14:45

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 08/09/21 14:45
Container ID: 1214737004-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.236	U	0.472	0.142	mg/L	1		08/09/21 14:45
Surrogates								
n-Triacontane-d62 (surr)	99.1		50-150		%	1		08/09/21 14:45

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 08/09/21 14:45
Container ID: 1214737004-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Results of **DLG-MW12-40**

Client Sample ID: **DLG-MW12-40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737004
Lab Project ID: 1214737

Collection Date: 07/28/21 18:52
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/06/21 01:23
Surrogates								
4-Bromofluorobenzene (surr)	83.4		50-150		%	1		08/06/21 01:23

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/06/21 01:23
Container ID: 1214737004-C

Prep Batch: VXX37588
Prep Method: SW5030B
Prep Date/Time: 08/05/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **DLG-MW12-40**

Client Sample ID: **DLG-MW12-40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737004
Lab Project ID: 1214737

Collection Date: 07/28/21 18:52
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/06/21 14:58
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/06/21 14:58
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
Benzene	0.200	U	0.400	0.120	ug/L	1		08/06/21 14:58
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/06/21 14:58
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58

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Results of **DLG-MW12-40**

Client Sample ID: **DLG-MW12-40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737004
Lab Project ID: 1214737

Collection Date: 07/28/21 18:52
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Chloromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		08/06/21 14:58
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Freon-113	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
Naphthalene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
o-Xylene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		08/06/21 14:58
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Styrene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Toluene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		08/06/21 14:58
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		08/06/21 14:58
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		08/06/21 14:58
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		08/06/21 14:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		08/06/21 14:58
4-Bromofluorobenzene (surr)	101		85-114		%	1		08/06/21 14:58
Toluene-d8 (surr)	100		89-112		%	1		08/06/21 14:58

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Results of **DLG-MW12-40**

Client Sample ID: **DLG-MW12-40**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737004
Lab Project ID: 1214737

Collection Date: 07/28/21 18:52
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21031
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/06/21 14:58
Container ID: 1214737004-F

Prep Batch: VXX37606
Prep Method: SW5030B
Prep Date/Time: 08/06/21 10:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737005
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		08/05/21 17:20
Surrogates								
4-Bromofluorobenzene (surr)	92.9		50-150		%	1		08/05/21 17:20

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Analyst: MDT
Analytical Date/Time: 08/05/21 17:20
Container ID: 1214737005-A

Prep Batch: VXX37587
Prep Method: SW5030B
Prep Date/Time: 08/05/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737005
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		08/03/21 23:35
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		08/03/21 23:35
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
Benzene	0.200	U	0.400	0.120	ug/L	1		08/03/21 23:35
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
Bromoform	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Bromomethane	2.50	U	5.00	2.00	ug/L	1		08/03/21 23:35
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
Chloroethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737005
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Chloromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		08/03/21 23:35
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Freon-113	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
Naphthalene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
o-Xylene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		08/03/21 23:35
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Styrene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Toluene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		08/03/21 23:35
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		08/03/21 23:35
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		08/03/21 23:35
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		08/03/21 23:35
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		08/03/21 23:35
4-Bromofluorobenzene (surr)	100		85-114		%	1		08/03/21 23:35
Toluene-d8 (surr)	98.8		89-112		%	1		08/03/21 23:35

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737005
Lab Project ID: 1214737

Collection Date: 07/26/21 18:57
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 08/03/21 23:35
Container ID: 1214737005-D

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 08/03/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **DLG-MW11-34**

Client Sample ID: **DLG-MW11-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737006
Lab Project ID: 1214737

Collection Date: 07/22/21 18:10
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.222	J	0.588	0.176	mg/L	1		08/09/21 15:44
Surrogates								
5a Androstane (surr)	87.5		50-150		%	1		08/09/21 15:44

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 08/09/21 15:44
Container ID: 1214737006-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.245	U	0.490	0.147	mg/L	1		08/09/21 15:44
Surrogates								
n-Triacontane-d62 (surr)	98.6		50-150		%	1		08/09/21 15:44

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 08/09/21 15:44
Container ID: 1214737006-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **DLG-MW111-34**

Client Sample ID: **DLG-MW111-34**
Client Project ID: **102581-009 Dillingham Airport**
Lab Sample ID: 1214737007
Lab Project ID: 1214737

Collection Date: 07/22/21 18:00
Received Date: 07/30/21 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.217	J	0.588	0.176	mg/L	1		08/09/21 15:53
Surrogates								
5a Androstane (surr)	83.1		50-150		%	1		08/09/21 15:53

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 08/09/21 15:53
Container ID: 1214737007-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.245	U	0.490	0.147	mg/L	1		08/09/21 15:53
Surrogates								
n-Triacontane-d62 (surr)	98.5		50-150		%	1		08/09/21 15:53

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Analyst: IVM
Analytical Date/Time: 08/09/21 15:53
Container ID: 1214737007-A

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 08/02/21 16:27
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1823490 [VXX/37574]
Blank Lab ID: 1627818

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737005

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	2.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1823490 [VXX/37574]
Blank Lab ID: 1627818

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737005

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	99.9	85-114		%
Toluene-d8 (surr)	99.7	89-112		%

Method Blank

Blank ID: MB for HBN 1823490 [VXX/37574]
Blank Lab ID: 1627818

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737005

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21011
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JMG
Analytical Date/Time: 8/3/2021 3:00:00PM

Prep Batch: VXX37574
Prep Method: SW5030B
Prep Date/Time: 8/3/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37574]
Blank Spike Lab ID: 1627819
Date Analyzed: 08/03/2021 15:15

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37574]
Spike Duplicate Lab ID: 1627820
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737005

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	29.0	97	30	29.0	97	(78-124)	0.12	(< 20)
1,1,1-Trichloroethane	30	29.0	97	30	28.6	95	(74-131)	1.40	(< 20)
1,1,2,2-Tetrachloroethane	30	28.3	94	30	28.4	95	(71-121)	0.64	(< 20)
1,1,2-Trichloroethane	30	29.0	97	30	29.0	97	(80-119)	0.05	(< 20)
1,1-Dichloroethane	30	28.0	94	30	27.8	93	(77-125)	0.82	(< 20)
1,1-Dichloroethene	30	29.1	97	30	28.6	95	(71-131)	1.70	(< 20)
1,1-Dichloropropene	30	29.7	99	30	29.2	97	(79-125)	1.80	(< 20)
1,2,3-Trichlorobenzene	30	28.2	94	30	29.4	98	(69-129)	4.00	(< 20)
1,2,3-Trichloropropane	30	28.2	94	30	28.4	95	(73-122)	0.62	(< 20)
1,2,4-Trichlorobenzene	30	28.2	94	30	29.1	97	(69-130)	3.00	(< 20)
1,2,4-Trimethylbenzene	30	28.5	95	30	28.7	96	(79-124)	0.64	(< 20)
1,2-Dibromo-3-chloropropane	30	26.9	90	30	27.6	92	(62-128)	2.40	(< 20)
1,2-Dibromoethane	30	28.6	95	30	28.6	96	(77-121)	0.26	(< 20)
1,2-Dichlorobenzene	30	28.5	95	30	28.7	96	(80-119)	0.95	(< 20)
1,2-Dichloroethane	30	26.9	90	30	27.0	90	(73-128)	0.52	(< 20)
1,2-Dichloropropane	30	28.7	96	30	28.7	96	(78-122)	0.01	(< 20)
1,3,5-Trimethylbenzene	30	28.9	96	30	29.1	97	(75-124)	0.60	(< 20)
1,3-Dichlorobenzene	30	28.7	96	30	28.8	96	(80-119)	0.36	(< 20)
1,3-Dichloropropane	30	28.6	96	30	28.6	95	(80-119)	0.19	(< 20)
1,4-Dichlorobenzene	30	28.7	96	30	28.9	97	(79-118)	1.00	(< 20)
2,2-Dichloropropane	30	28.4	95	30	27.9	93	(60-139)	1.90	(< 20)
2-Butanone (MEK)	90	80.7	90	90	82.9	92	(56-143)	2.70	(< 20)
2-Chlorotoluene	30	28.5	95	30	28.6	95	(79-122)	0.39	(< 20)
2-Hexanone	90	80.8	90	90	81.6	91	(57-139)	1.10	(< 20)
4-Chlorotoluene	30	28.5	95	30	28.8	96	(78-122)	0.86	(< 20)
4-Isopropyltoluene	30	29.6	99	30	29.7	99	(77-127)	0.52	(< 20)
4-Methyl-2-pentanone (MIBK)	90	82.1	91	90	83.1	92	(67-130)	1.20	(< 20)
Benzene	30	28.7	96	30	28.4	95	(79-120)	1.10	(< 20)
Bromobenzene	30	28.6	95	30	29.0	97	(80-120)	1.30	(< 20)
Bromochloromethane	30	28.4	95	30	28.4	95	(78-123)	0.01	(< 20)
Bromodichloromethane	30	28.4	95	30	28.5	95	(79-125)	0.27	(< 20)
Bromoform	30	29.3	98	30	29.1	97	(66-130)	0.51	(< 20)
Bromomethane	30	24.9	83	30	27.1	90	(53-141)	8.30	(< 20)
Carbon disulfide	45	42.8	95	45	42.0	93	(64-133)	1.90	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37574]
Blank Spike Lab ID: 1627819
Date Analyzed: 08/03/2021 15:15

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37574]
Spike Duplicate Lab ID: 1627820
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737005

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	29.8	99	30	29.2	97	(72-136)	1.90	(< 20)
Chlorobenzene	30	28.5	95	30	28.7	96	(82-118)	0.48	(< 20)
Chloroethane	30	34.8	116	30	29.2	97	(60-138)	17.40	(< 20)
Chloroform	30	27.7	92	30	27.6	92	(79-124)	0.09	(< 20)
Chloromethane	30	26.8	90	30	26.8	89	(50-139)	0.09	(< 20)
cis-1,2-Dichloroethene	30	28.3	94	30	28.3	94	(78-123)	0.01	(< 20)
cis-1,3-Dichloropropene	30	28.6	95	30	28.5	95	(75-124)	0.17	(< 20)
Dibromochloromethane	30	28.8	96	30	28.8	96	(74-126)	0.05	(< 20)
Dibromomethane	30	28.3	94	30	28.2	94	(79-123)	0.17	(< 20)
Dichlorodifluoromethane	30	31.1	104	30	30.6	102	(32-152)	1.40	(< 20)
Ethylbenzene	30	28.6	95	30	28.7	96	(79-121)	0.24	(< 20)
Freon-113	45	44.8	100	45	43.9	98	(70-136)	2.00	(< 20)
Hexachlorobutadiene	30	29.6	99	30	30.1	100	(66-134)	1.60	(< 20)
Isopropylbenzene (Cumene)	30	29.5	98	30	29.4	98	(72-131)	0.35	(< 20)
Methylene chloride	30	28.5	95	30	28.5	95	(74-124)	0.06	(< 20)
Methyl-t-butyl ether	45	42.6	95	45	42.7	95	(71-124)	0.29	(< 20)
Naphthalene	30	26.5	89	30	28.0	93	(61-128)	5.30	(< 20)
n-Butylbenzene	30	29.5	98	30	30.0	100	(75-128)	1.50	(< 20)
n-Propylbenzene	30	29.2	97	30	29.4	98	(76-126)	0.54	(< 20)
o-Xylene	30	28.7	96	30	28.6	95	(78-122)	0.35	(< 20)
P & M -Xylene	60	57.4	96	60	56.9	95	(80-121)	0.90	(< 20)
sec-Butylbenzene	30	29.3	98	30	29.9	100	(77-126)	1.90	(< 20)
Styrene	30	28.8	96	30	28.9	96	(78-123)	0.41	(< 20)
tert-Butylbenzene	30	29.0	97	30	29.5	99	(78-124)	1.90	(< 20)
Tetrachloroethene	30	29.8	100	30	29.4	98	(74-129)	1.30	(< 20)
Toluene	30	28.1	94	30	27.9	93	(80-121)	0.60	(< 20)
trans-1,2-Dichloroethene	30	28.7	96	30	28.5	95	(75-124)	0.71	(< 20)
trans-1,3-Dichloropropene	30	28.9	96	30	28.8	96	(73-127)	0.27	(< 20)
Trichloroethene	30	29.3	98	30	28.9	97	(79-123)	1.20	(< 20)
Trichlorofluoromethane	30	30.5	102	30	29.6	99	(65-141)	2.90	(< 20)
Vinyl acetate	30	28.4	95	30	28.6	95	(54-146)	0.59	(< 20)
Vinyl chloride	30	28.6	95	30	28.3	94	(58-137)	1.20	(< 20)
Xylenes (total)	90	86.1	96	90	85.5	95	(79-121)	0.71	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37574]
Blank Spike Lab ID: 1627819
Date Analyzed: 08/03/2021 15:15

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37574]
Spike Duplicate Lab ID: 1627820
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737005

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		99	30		98	(81-118)	0.63	
4-Bromofluorobenzene (surr)	30		98	30		99	(85-114)	1.10	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.19	

Batch Information

Analytical Batch: **VMS21011**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JMG**

Prep Batch: **VXX37574**
Prep Method: **SW5030B**
Prep Date/Time: **08/03/2021 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1823607 [VXX/37587]
Blank Lab ID: 1628353

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737005

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	83.9	50-150		%

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: MDT
Analytical Date/Time: 8/5/2021 10:47:00AM

Prep Batch: VXX37587
Prep Method: SW5030B
Prep Date/Time: 8/5/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37587]
Blank Spike Lab ID: 1628354
Date Analyzed: 08/05/2021 11:40

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37587]
Spike Duplicate Lab ID: 1628355
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737005

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.991	99	1.00	1.09	109	(60-120)	9.10	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		99	0.0500		104	(50-150)	4.30	

Batch Information

Analytical Batch: **VFC15751**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37587**
Prep Method: **SW5030B**
Prep Date/Time: **08/05/2021 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1823608 [VXX/37588]
Blank Lab ID: 1628356

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737002, 1214737003, 1214737004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	88.7	50-150		%

Batch Information

Analytical Batch: VFC15751
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: MDT
Analytical Date/Time: 8/6/2021 12:11:00AM

Prep Batch: VXX37588
Prep Method: SW5030B
Prep Date/Time: 8/5/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37588]
Blank Spike Lab ID: 1628359
Date Analyzed: 08/06/2021 03:28

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37588]
Spike Duplicate Lab ID: 1628360
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737002, 1214737003, 1214737004

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.998	100	1.00	1.02	102	(60-120)	2.30	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		93	0.0500		93	(50-150)	0.71	

Batch Information

Analytical Batch: **VFC15751**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **MDT**

Prep Batch: **VXX37588**
Prep Method: **SW5030B**
Prep Date/Time: **08/05/2021 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1823791 [VXX/37606]
Blank Lab ID: 1628874

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737002, 1214737003, 1214737004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	2.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1823791 [VXX/37606]
Blank Lab ID: 1628874

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737002, 1214737003, 1214737004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	105	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	101	89-112		%

Method Blank

Blank ID: MB for HBN 1823791 [VXX/37606]
Blank Lab ID: 1628874

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737002, 1214737003, 1214737004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21031
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 8/6/2021 10:22:00AM

Prep Batch: VXX37606
Prep Method: SW5030B
Prep Date/Time: 8/6/2021 10:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Leaching Blank

Blank ID: LB for HBN 1823225 [TCLP/11308
Blank Lab ID: 1626662

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737002, 1214737003, 1214737004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1-Dichloroethene	25.0U	50.0	15.5	ug/L
1,2-Dichloroethane	12.5U	25.0	7.50	ug/L
1,4-Dichlorobenzene	12.5U	25.0	7.50	ug/L
2-Butanone (MEK)	250U	500	155	ug/L
Benzene	10.0U	20.0	6.00	ug/L
Carbon tetrachloride	25.0U	50.0	15.5	ug/L
Chlorobenzene	12.5U	25.0	7.50	ug/L
Chloroform	25.0U	50.0	15.5	ug/L
Hexachlorobutadiene	25.0U	50.0	15.5	ug/L
Tetrachloroethene	25.0U	50.0	15.5	ug/L
Trichloroethene	25.0U	50.0	15.5	ug/L
Vinyl chloride	25.0U	50.0	15.5	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	98.4	85-114		%
Toluene-d8 (surr)	98.9	89-112		%

Batch Information

Analytical Batch: VMS21031
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 8/6/2021 6:01:00PM

Prep Batch: VXX37606
Prep Method: SW5030B
Prep Date/Time: 8/6/2021 10:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37606]
Blank Spike Lab ID: 1628875
Date Analyzed: 08/06/2021 10:37

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37606]
Spike Duplicate Lab ID: 1628876
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737002, 1214737003, 1214737004

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	31.3	104	30	30.3	101	(78-124)	3.40	(< 20)
1,1,1-Trichloroethane	30	30.2	101	30	29.5	98	(74-131)	2.40	(< 20)
1,1,2,2-Tetrachloroethane	30	29.8	99	30	28.7	96	(71-121)	3.80	(< 20)
1,1,2-Trichloroethane	30	30.5	102	30	29.1	97	(80-119)	4.90	(< 20)
1,1-Dichloroethane	30	29.4	98	30	28.4	95	(77-125)	3.30	(< 20)
1,1-Dichloroethene	30	30.4	101	30	30.4	101	(71-131)	0.24	(< 20)
1,1-Dichloropropene	30	30.5	102	30	29.8	99	(79-125)	2.10	(< 20)
1,2,3-Trichlorobenzene	30	31.3	104	30	29.6	99	(69-129)	5.70	(< 20)
1,2,3-Trichloropropane	30	30.1	100	30	28.4	95	(73-122)	5.60	(< 20)
1,2,4-Trichlorobenzene	30	31.7	106	30	30.3	101	(69-130)	4.60	(< 20)
1,2,4-Trimethylbenzene	30	30.8	103	30	30.5	102	(79-124)	0.92	(< 20)
1,2-Dibromo-3-chloropropane	30	30.5	102	30	28.2	94	(62-128)	7.70	(< 20)
1,2-Dibromoethane	30	31.6	105	30	29.7	99	(77-121)	6.20	(< 20)
1,2-Dichlorobenzene	30	29.5	98	30	28.8	96	(80-119)	2.10	(< 20)
1,2-Dichloroethane	30	28.9	97	30	27.6	92	(73-128)	4.80	(< 20)
1,2-Dichloropropane	30	30.2	101	30	28.9	97	(78-122)	4.30	(< 20)
1,3,5-Trimethylbenzene	30	30.9	103	30	30.2	101	(75-124)	2.10	(< 20)
1,3-Dichlorobenzene	30	29.9	100	30	29.3	98	(80-119)	1.80	(< 20)
1,3-Dichloropropane	30	30.6	102	30	29.1	97	(80-119)	5.10	(< 20)
1,4-Dichlorobenzene	30	29.5	98	30	29.1	97	(79-118)	1.20	(< 20)
2,2-Dichloropropane	30	30.6	102	30	29.8	99	(60-139)	2.70	(< 20)
2-Butanone (MEK)	90	86.9	97	90	76.7	85	(56-143)	12.50	(< 20)
2-Chlorotoluene	30	30.0	100	30	29.7	99	(79-122)	1.20	(< 20)
2-Hexanone	90	92.3	103	90	83.2	93	(57-139)	10.30	(< 20)
4-Chlorotoluene	30	30.0	100	30	29.6	99	(78-122)	1.40	(< 20)
4-Isopropyltoluene	30	31.5	105	30	31.0	103	(77-127)	1.80	(< 20)
4-Methyl-2-pentanone (MIBK)	90	94.9	105	90	85.4	95	(67-130)	10.50	(< 20)
Benzene	30	29.8	99	30	28.9	96	(79-120)	3.00	(< 20)
Bromobenzene	30	28.8	96	30	28.9	96	(80-120)	0.24	(< 20)
Bromochloromethane	30	29.6	99	30	28.4	95	(78-123)	3.90	(< 20)
Bromodichloromethane	30	30.9	103	30	29.7	99	(79-125)	3.90	(< 20)
Bromoform	30	32.1	107	30	29.9	100	(66-130)	7.10	(< 20)
Bromomethane	30	28.7	96	30	29.1	97	(53-141)	1.40	(< 20)
Carbon disulfide	45	46.3	103	45	47.2	105	(64-133)	1.90	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37606]
Blank Spike Lab ID: 1628875
Date Analyzed: 08/06/2021 10:37

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37606]
Spike Duplicate Lab ID: 1628876
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737002, 1214737003, 1214737004

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.8	103	30	30.3	101	(72-136)	1.50	(< 20)
Chlorobenzene	30	29.8	99	30	28.5	95	(82-118)	4.60	(< 20)
Chloroethane	30	33.0	110	30	33.5	112	(60-138)	1.40	(< 20)
Chloroform	30	29.1	97	30	28.2	94	(79-124)	3.30	(< 20)
Chloromethane	30	27.7	92	30	27.2	91	(50-139)	1.90	(< 20)
cis-1,2-Dichloroethene	30	28.9	97	30	27.9	93	(78-123)	3.60	(< 20)
cis-1,3-Dichloropropene	30	31.6	105	30	30.1	100	(75-124)	4.90	(< 20)
Dibromochloromethane	30	32.1	107	30	30.5	102	(74-126)	5.10	(< 20)
Dibromomethane	30	30.4	101	30	28.2	94	(79-123)	7.70	(< 20)
Dichlorodifluoromethane	30	26.9	90	30	26.4	88	(32-152)	1.90	(< 20)
Ethylbenzene	30	30.2	101	30	29.3	98	(79-121)	3.00	(< 20)
Freon-113	45	46.4	103	45	46.7	104	(70-136)	0.74	(< 20)
Hexachlorobutadiene	30	31.1	104	30	29.9	100	(66-134)	3.90	(< 20)
Isopropylbenzene (Cumene)	30	31.4	105	30	30.1	100	(72-131)	4.20	(< 20)
Methylene chloride	30	30.8	103	30	28.5	95	(74-124)	7.90	(< 20)
Methyl-t-butyl ether	45	48.6	108	45	43.9	98	(71-124)	10.20	(< 20)
Naphthalene	30	28.4	95	30	26.5	88	(61-128)	7.00	(< 20)
n-Butylbenzene	30	31.8	106	30	30.9	103	(75-128)	2.90	(< 20)
n-Propylbenzene	30	30.3	101	30	30.1	100	(76-126)	0.66	(< 20)
o-Xylene	30	30.3	101	30	29.3	98	(78-122)	3.20	(< 20)
P & M -Xylene	60	60.6	101	60	58.6	98	(80-121)	3.40	(< 20)
sec-Butylbenzene	30	31.1	104	30	30.7	102	(77-126)	1.50	(< 20)
Styrene	30	31.4	105	30	30.2	101	(78-123)	3.90	(< 20)
tert-Butylbenzene	30	30.3	101	30	30.1	100	(78-124)	0.72	(< 20)
Tetrachloroethene	30	30.2	101	30	29.6	99	(74-129)	2.20	(< 20)
Toluene	30	29.3	98	30	28.3	94	(80-121)	3.40	(< 20)
trans-1,2-Dichloroethene	30	31.1	104	30	28.8	96	(75-124)	7.60	(< 20)
trans-1,3-Dichloropropene	30	29.3	98	30	28.1	94	(73-127)	4.40	(< 20)
Trichloroethene	30	29.8	99	30	28.9	96	(79-123)	3.00	(< 20)
Trichlorofluoromethane	30	30.1	100	30	29.6	99	(65-141)	1.80	(< 20)
Vinyl acetate	30	28.9	96	30	26.6	89	(54-146)	8.30	(< 20)
Vinyl chloride	30	28.6	95	30	27.9	93	(58-137)	2.40	(< 20)
Xylenes (total)	90	90.8	101	90	87.9	98	(79-121)	3.30	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [VXX37606]
Blank Spike Lab ID: 1628875
Date Analyzed: 08/06/2021 10:37

Spike Duplicate ID: LCSD for HBN 1214737 [VXX37606]
Spike Duplicate Lab ID: 1628876
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737002, 1214737003, 1214737004

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		101	30		96	(81-118)	5.00	
4-Bromofluorobenzene (surr)	30		99	30		100	(85-114)	0.13	
Toluene-d8 (surr)	30		101	30		101	(89-112)	0.45	

Batch Information

Analytical Batch: **VMS21031**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **JMG**

Prep Batch: **VXX37606**
Prep Method: **SW5030B**
Prep Date/Time: **08/06/2021 10:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1823335 [XXX/45294]
Blank Lab ID: 1627216

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737002, 1214737003

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0279J	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	64.3	42-86		%
Fluoranthene-d10 (surr)	81.7	50-97		%

Batch Information

Analytical Batch: XMS12802
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: LAW
Analytical Date/Time: 8/5/2021 3:52:00AM

Prep Batch: XXX45294
Prep Method: SW3535A
Prep Date/Time: 8/2/2021 12:00:47PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [XXX45294]
Blank Spike Lab ID: 1627217
Date Analyzed: 08/05/2021 04:13

Spike Duplicate ID: LCSD for HBN 1214737 [XXX45294]
Spike Duplicate Lab ID: 1627218
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737002, 1214737003

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.42	71	2	1.18	59	(41-115)	18.70	(< 20)
2-Methylnaphthalene	2	1.41	71	2	1.18	59	(39-114)	18.10	(< 20)
Acenaphthene	2	1.54	77	2	1.32	66	(48-114)	15.70	(< 20)
Acenaphthylene	2	1.49	75	2	1.27	63	(35-121)	16.40	(< 20)
Anthracene	2	1.54	77	2	1.37	68	(53-119)	12.20	(< 20)
Benzo(a)Anthracene	2	1.51	75	2	1.40	70	(59-120)	7.50	(< 20)
Benzo[a]pyrene	2	1.57	78	2	1.41	70	(53-120)	10.90	(< 20)
Benzo[b]Fluoranthene	2	1.54	77	2	1.49	75	(53-126)	3.40	(< 20)
Benzo[g,h,i]perylene	2	1.67	84	2	1.52	76	(44-128)	9.40	(< 20)
Benzo[k]fluoranthene	2	1.69	85	2	1.50	75	(54-125)	12.00	(< 20)
Chrysene	2	1.62	81	2	1.48	74	(57-120)	8.80	(< 20)
Dibenzo[a,h]anthracene	2	1.64	82	2	1.49	74	(44-131)	9.70	(< 20)
Fluoranthene	2	1.57	78	2	1.42	71	(58-120)	9.50	(< 20)
Fluorene	2	1.58	79	2	1.36	68	(50-118)	14.60	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.63	82	2	1.48	74	(48-130)	9.70	(< 20)
Naphthalene	2	1.44	72	2	1.19	60	(43-114)	18.80	(< 20)
Phenanthrene	2	1.56	78	2	1.39	70	(53-115)	11.50	(< 20)
Pyrene	2	1.58	79	2	1.44	72	(53-121)	9.00	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2		72	2		60	(42-86)	17.40	
Fluoranthene-d10 (surr)	2		81	2		75	(50-97)	6.70	

Batch Information

Analytical Batch: **XMS12802**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **LAW**

Prep Batch: **XXX45294**
Prep Method: **SW3535A**
Prep Date/Time: **08/02/2021 12:00**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1823369 [XXX/45297]
Blank Lab ID: 1627333

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737002, 1214737003, 1214737004, 1214737006, 1214737007

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	95.5	60-120		%

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 8/9/2021 11:38:00AM

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 8/2/2021 4:27:41PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [XXX45297]
Blank Spike Lab ID: 1627334
Date Analyzed: 08/09/2021 12:17

Spike Duplicate ID: LCSD for HBN 1214737 [XXX45297]
Spike Duplicate Lab ID: 1627335
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737002, 1214737003, 1214737004, 1214737006, 1214737007

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	20.6	103	20	20.3	101	(75-125)	1.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4		110	0.4		110	(60-120)	0.06	

Batch Information

Analytical Batch: **XFC16037**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45297**
Prep Method: **SW3520C**
Prep Date/Time: **08/02/2021 16:27**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1823369 [XXX/45297]
Blank Lab ID: 1627333

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1214737001, 1214737002, 1214737003, 1214737004, 1214737006, 1214737007

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	107	60-120		%

Batch Information

Analytical Batch: XFC16037
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 8/9/2021 11:38:00AM

Prep Batch: XXX45297
Prep Method: SW3520C
Prep Date/Time: 8/2/2021 4:27:41PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1214737 [XXX45297]
Blank Spike Lab ID: 1627334
Date Analyzed: 08/09/2021 12:17

Spike Duplicate ID: LCSD for HBN 1214737 [XXX45297]
Spike Duplicate Lab ID: 1627335
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1214737001, 1214737002, 1214737003, 1214737004, 1214737006, 1214737007

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	20.4	102	20	20.0	100	(60-120)	2.20	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4		109	0.4		117	(60-120)	6.90	

Batch Information

Analytical Batch: **XFC16037**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45297**
Prep Method: **SW3520C**
Prep Date/Time: **08/02/2021 16:27**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

p#350372 DN

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory SGS North America
Attn:

Turn Around Time: [X] Normal [ ] Rush
Please Specify

Quote No: 2021 open quote
MSA Number: SGS-2016
J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

1214737

Sample Identity	Lab No.	Time	Date Sampled	GRO	VOCs	DRO	RRO	PAHs			Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW14-50	1AJ	1857	7/26/21	✓	✓	✓	✓	✓			10	Groundwater
DLGMW14-150	2AJ	1847	↓	✓	✓	✓	✓	✓			10	↓
EB-MW14-50	3AJ	~~18~~1940	↓	✓	✓	✓	✓	✓			10	↓
DLG-MW12-40	4AG	1852	7/28/21	✓	✓	✓	✓				~~8~~ 7	↓ x1 VOA file ruptured
~~DLG-MW~~		—	—	—	—	—	—		—	—		
*Trip Blank	5AF	—		✓	✓						—	Water
DLG-MW11-34	6AB	1810	7/22/21			✓	✓				2	~~Groundwater~~ VOCs on separate WO
DLG-MW111-34	7AB	1800	↓			✓	✓				2	↓ please combine

Project Information
Number: 102581-009
Name: Dillingham Airport
Contact: MDN
Ongoing Project? Yes [X] No [ ]
Sampler: VTY/SAH/ALF/MDN

Sample Receipt
Total No. of Containers: 41 ~~42~~
COC Seals/Intact? Y/N/NA
Received Good Cond./Cold
Temp:
Delivery Method: Goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 0830	Signature: Time:	Signature: Time:
Printed Name: Marcy Nadel Date: 7/30/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 1545 RJC
Printed Name: Date:	Printed Name: Date:	Printed Name: Ryan Conlon Date: 7/30/21
Company:	Company:	Company: SGS IF

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

*TB in same cooler as samples

4.1 D82 Alert

No.

7/14

027 DLG 7664 9145

027-7664 9145

Shipper's Name and Address Shannon and Wilson Inc 5430 Fairbanks Street Suite 3 Anchorage, AK 99518 USA Tel: 907-561-2120	**Shipper's Account Number** 27442311496 **Customer's ID Number** 10925
	Not Negotiable **Air Waybill** **Issued By** Alaska. AIR CARGO P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM
Consignee's Name and Address SGS North America 200 W Potter Drive Anchorage, AK 99518 USA alert Tel: 907-562-2343	**Consignee's Account Number** 27400215947
	Also notify Tel:
Issuing Carrier's Agent and City	**Accounting Information** 10925 Shannon and Wilson Inc 5430 Fairbanks Street Suite 3 Anchorage, AK 99518 USA GoldStreak
Agent's IATA Code / **Account No.**	
Airport of Departure (Addr. of First Carrier) and Requested Routing Dillingham	

To	By First Carrier	To / By	To / By	Currency	WT/VAL	Other	Declared Value For Carriage	Declared Value For Customs
ANC	Alaska Airlines			USD PX	X /	X /	NVD	NCV

Airport of Destination	Flight/Date	Flight/Date	Amount of Insurance
Anchorage	AS 2114/30		XXX

Handling Information
STORE IN COOLER WHEN POSSIBLE

SCI

No of Pieces	Gross Weight	kg lb	Commodity Item No.	Chargeable Weight	Rate / Charge	Total	Nature and Quantity of Goods (Incl. Dimensions or Volume)
1	44.0	L N		44.0		AS AGREED	WATER SAMPLES Dims: 26 x 13 x14 x 1 GSX COL
1	44.0					AS AGREED	Volume: 2.738

Prepaid	Weight Charge	Collect	Other Charges
AS AGREED			XBC 10.00
Valuation Charge			
Tax			
Total Other Charges Due Agent			
Total Other Charges Due Carrier			
Total Prepaid	Total Collect		
AS AGREED			

Shipper certifies that the particulars on the face hereof are correct and that **insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.**

For: Shannon and Wilson Inc

Signature of Shipper or his Agent

☒ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

☐ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

30 Jul 2021 11:00 — Executed On (Date)

Dillingham — at (Place)

Alaska Airlines — Signature of Issuing Carrier or its Agent

027-7664 9145

Alert Expeditors Inc.

#413948

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 7/30/21

From S+D

To SGS

Collect ❐	Prepay ❐	Advance Charges ❐
Job # DLG	PO# AS 7644 9145	

Sample

Shipped Signature DK

Total Charge

Received By:

e-Sample Receipt Form

SGS Workorder #: **1214737** | 1214737

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 4.1 °C Therm. ID: D52
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		N/A — ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	No	Sample 4 was received with 2 VOAs for VOC.
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1214737001-A	HCL to pH < 2	OK			
1214737001-B	HCL to pH < 2	OK			
1214737001-C	No Preservative Required	OK			
1214737001-D	No Preservative Required	OK			
1214737001-E	HCL to pH < 2	OK			
1214737001-F	HCL to pH < 2	OK			
1214737001-G	HCL to pH < 2	OK			
1214737001-H	HCL to pH < 2	OK			
1214737001-I	HCL to pH < 2	OK			
1214737001-J	HCL to pH < 2	OK			
1214737002-A	HCL to pH < 2	OK			
1214737002-B	HCL to pH < 2	OK			
1214737002-C	No Preservative Required	OK			
1214737002-D	No Preservative Required	OK			
1214737002-E	HCL to pH < 2	OK			
1214737002-F	HCL to pH < 2	OK			
1214737002-G	HCL to pH < 2	OK			
1214737002-H	HCL to pH < 2	OK			
1214737002-I	HCL to pH < 2	OK			
1214737002-J	HCL to pH < 2	OK			
1214737003-A	HCL to pH < 2	OK			
1214737003-B	HCL to pH < 2	OK			
1214737003-C	No Preservative Required	OK			
1214737003-D	No Preservative Required	OK			
1214737003-E	HCL to pH < 2	OK			
1214737003-F	HCL to pH < 2	OK			
1214737003-G	HCL to pH < 2	OK			
1214737003-H	HCL to pH < 2	OK			
1214737003-I	HCL to pH < 2	OK			
1214737003-J	HCL to pH < 2	OK			
1214737004-A	HCL to pH < 2	OK			
1214737004-B	HCL to pH < 2	OK			
1214737004-C	HCL to pH < 2	OK			
1214737004-D	HCL to pH < 2	OK			
1214737004-E	HCL to pH < 2	OK			
1214737004-F	HCL to pH < 2	OK			
1214737004-G	HCL to pH < 2	OK			
1214737005-A	HCL to pH < 2	OK			
1214737005-B	HCL to pH < 2	OK			
1214737005-C	HCL to pH < 2	OK			
1214737005-D	HCL to pH < 2	OK			
1214737005-E	HCL to pH < 2	OK			
1214737005-F	HCL to pH < 2	OK			
1214737006-A	HCL to pH < 2	OK			
1214737006-B	HCL to pH < 2	OK			
1214737007-A	HCL to pH < 2	OK			
1214737007-B	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 31, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1214737

Laboratory Report Date:

August 25, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

1214737

Laboratory Report Date:

August 25, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the SGS North America, Inc. (SGS) laboratory in Anchorage, AK. SGS has been approved by the DEC CS program and certified by the DoD National Environmental Laboratory Accreditation Program (NELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   The samples were not transferred to a network laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt forms note that the samples arrived in good condition and properly preserved except that "Sample 4" (*DLG-MW12-40*) was received with 2 VOAs for VOC. Analyses were performed using the limited volume and the results are not affected.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

No discrepancies were identified by the laboratories.

e. Data quality or usability affected?

Comments:

Data quality/usability is not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

MB for HBN 1823335 [XXX/45294] (1627216) MB - 8270D SIM - Phenanthrene is detect in the PAH method blank at less than the LOQ.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not necessary.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative does not specify an effect on data quality/usability. See sections 5 and 6 for further assessment.

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5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not submitted with this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

The LOD for 1,2,3-trichloropropane is greater than the cleanup level.

e. Data quality or usability affected?

We cannot determine if analyte with elevated the reporting limit is present at a concentration above the DEC regulatory limit.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

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ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☐ No☒ N/A☐ Comments:

The method blank associated with preparatory batch XXX45294 detected a concentration of phenanthrene below the LOQ. Due to this method blank detection the sample *EB-MW14-50* phenanthrene result is considered not detected at the LOQ.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

See 6.ii.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See 6.ii.

v. Data quality or usability affected?

Comments:

The data usability is not affected. See the applied qualifiers above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

LCS/LCSD pairs were reported for methods AK101, AK102, AK103, SW8260D, and 8270D SIM (PAH).

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptable limits; see 6.b.iii.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification of the results was not required; see section 6.b.v above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

MS/MSD sample pairs were not reported for this work order.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

MS/MSD sample pairs were not reported for this work order.

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

MS/MSD sample pairs were not reported for this work order.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

Samples are unaffected; see 6.c.iii and 6.c.iv.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

N/A; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected. See section 6.b to determine laboratory accuracy and precision.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The percent recovery for 2-methylnaphthalene-d10 was below laboratory limits for project sample *DLG-MW14-50*. None of the associated analytes are detected in the sample; therefore, the not detected results are considered estimated, flagged 'UJ' on the associated analytical table.

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iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

The following analytes for sample *DLG-MW14-50* are considered affected:

- 1-Methylnaphthalene
- 2-Methylnaphthalene
- Acenaphthene
- Acenaphthylene
- Anthracene
- Fluorene
- Naphthalene
- Phenanthrene

iv. Data quality or usability affected?

Comments:

The data quality/usability is affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

Samples are unaffected; see above.

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v. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate samples *DLG-MW14-50/DLG-MW14-150* and *DLG-MW11-34/DLG-MW111-34* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 30% for all analytes.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality/usability is not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☒ No☐ N/A☐ Comments:

EB-MW14-50 was submitted with this work order.

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i. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Naphthalene, phenanthrene, DRO, RRO, and toluene were detected below the LOQ in the equipment blank sample *EB-MW14-50*. The phenanthrene detection is considered to be due to the method blank detection; see section 6.ii.

Project samples *DLG-MW14-50, DLG-MW14-150,* and *DLG-MW12-40* are associated with the equipment blank.

DRO were detected below the LOQ in project sample *DLG-MW12-40*. The DRO result is considered not detected and has been flagged 'UB' at the LOQ.

No other analytes detected in the equipment blank were detected in the affected samples; therefore, no qualifications are required for the data.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Project sample *DLG-MW12*-40 is affected; see above.

iii. Data quality or usability affected?

Comments:

Data usability is not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No additional data flags/qualifiers are required.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-75676-1
Client Project/Site: Dilling ham Quarterly
Revision: 1

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
7/29/2021 2:26:23 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Job ID: 320-75676-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Revised Report 7-29-2021: This report has been revised to change sample ID 172210 to 172245 at client request

Receipt
The samples were received on 7/1/2021 3:25 PM. 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 5.6º C.

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

Organic Prep
Method 537.1 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-504888.

Method 537.1 DW: The following samples 191290 (320-75676-1), 191170 (320-75676-5), 191280 (320-75676-6), 191320 (320-75676-9) and 172245 (320-75676-11) in preparation batch 320-504888 were yellow/orange prior to extraction.

Method 537.1 DW: The following samples 191290 (320-75676-1), 191170 (320-75676-5), 191280 (320-75676-6), 191320 (320-75676-9) and 172245 (320-75676-11) in preparation batch 320-504888 were light yellow/yellow after extraction and final voluming.

Method 537.1 DW: Elevated reporting limits are provided for the following sample 191280 (320-75676-6) in preparation batch 320-504888 due to insufficient sample provided for preparation. Sample container held 236.8mL of sample vs normal 250mL used for the method.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191290 — Lab Sample ID: 320-75676-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	11		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.3		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	5.3		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		1.9	0.47	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 291050 — Lab Sample ID: 320-75676-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	55		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.4		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	4.8		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	61		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	160		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	37		1.9	0.47	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191050 — Lab Sample ID: 320-75676-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	56		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.7		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	4.9		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	65		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	170		1.9	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	37		1.9	0.49	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191741 — Lab Sample ID: 320-75676-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	21		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	2.2		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	20		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	46		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.0		1.9	0.48	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191170 — Lab Sample ID: 320-75676-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.5		2.0	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.52	J	2.0	0.49	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.59	J	2.0	0.49	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191280 — Lab Sample ID: 320-75676-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	5.5		2.1	0.53	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.2		2.1	0.53	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	2.2		2.1	0.53	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.9		2.1	0.53	ng/L	1		537.1 DW	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191090 — Lab Sample ID: 320-75676-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.81	J	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.87	J	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.9	0.48	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 200310 — Lab Sample ID: 320-75676-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	6.3		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.4	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.9		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6		1.9	0.47	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191320 — Lab Sample ID: 320-75676-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	88		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	15		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	3.4		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	23		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.7		1.9	0.48	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 172190 — Lab Sample ID: 320-75676-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.8		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.75	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	0.57	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.58	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 172245 — Lab Sample ID: 320-75676-11

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191290
Date Collected: 06/27/21 11:31
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-1
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**11**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluoroheptanoic acid (PFHpA)	**6.3**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorooctanoic acid (PFOA)	**5.3**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorohexanesulfonic acid (PFHxS)	**2.7**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*124*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:47*	*1*
13C2 PFDA	*110*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:47*	*1*
d5-NEtFOSAA	*107*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:47*	*1*
13C3 HFPO-DA	*100*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:47*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 291050
Date Collected: 06/27/21 12:20
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-2
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**55**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluoroheptanoic acid (PFHpA)	**4.4**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorooctanoic acid (PFOA)	**4.8**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorobutanesulfonic acid (PFBS)	**61**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorohexanesulfonic acid (PFHxS)	**160**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Perfluorooctanesulfonic acid (PFOS)	**37**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*114*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:01*	*1*
13C2 PFDA	*111*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:01*	*1*
d5-NEtFOSAA	*107*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:01*	*1*
13C3 HFPO-DA	*114*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:01*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191050
Date Collected: 06/27/21 12:25
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-3
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**56**		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluoroheptanoic acid (PFHpA)	**4.7**		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorooctanoic acid (PFOA)	**4.9**		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorobutanesulfonic acid (PFBS)	**65**		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorohexanesulfonic acid (PFHxS)	**170**		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Perfluorooctanesulfonic acid (PFOS)	**37**		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*118*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:54*	*1*
13C2 PFDA	*111*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:54*	*1*
d5-NEtFOSAA	*114*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:54*	*1*
13C3 HFPO-DA	*99*		*70 - 130*	*07/07/21 16:26*	*07/10/21 10:54*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191741
Date Collected: 06/27/21 13:43
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-4
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**21**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluoroheptanoic acid (PFHpA)	**1.9**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorooctanoic acid (PFOA)	**2.2**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorobutanesulfonic acid (PFBS)	**20**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorohexanesulfonic acid (PFHxS)	**46**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Perfluorooctanesulfonic acid (PFOS)	**8.0**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*124*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:16*	*1*
13C2 PFDA	*121*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:16*	*1*
d5-NEtFOSAA	*113*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:16*	*1*
13C3 HFPO-DA	*123*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:16*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191170
Date Collected: 06/27/21 15:15
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-5
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**2.5**		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorobutanesulfonic acid (PFBS)	**0.52**	**J**	2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorohexanesulfonic acid (PFHxS)	**0.59**	**J**	2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*118*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:02*	*1*
13C2 PFDA	*109*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:02*	*1*
d5-NEtFOSAA	*104*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:02*	*1*
13C3 HFPO-DA	*97*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:02*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191280
Date Collected: 06/27/21 16:02
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-6
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**5.5**		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluoroheptanoic acid (PFHpA)	**2.2**		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorooctanoic acid (PFOA)	**2.2**		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorotridecanoic acid (PFTriA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorohexanesulfonic acid (PFHxS)	**2.9**		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*121*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:32*	*1*
13C2 PFDA	*113*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:32*	*1*
d5-NEtFOSAA	*100*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:32*	*1*
13C3 HFPO-DA	*115*		*70 - 130*	*07/07/21 16:26*	*07/09/21 15:32*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191090
Date Collected: 06/27/21 16:48
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-7
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.81**	**J**	1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorobutanesulfonic acid (PFBS)	**0.87**	**J**	1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorohexanesulfonic acid (PFHxS)	**1.6**	**J**	1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*117*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:10*	*1*
13C2 PFDA	*110*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:10*	*1*
d5-NEtFOSAA	*111*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:10*	*1*
13C3 HFPO-DA	*97*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:10*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 200310
Date Collected: 06/27/21 17:34
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-8
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**6.3**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluoroheptanoic acid (PFHpA)	**1.4**	**J**	1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorooctanoic acid (PFOA)	**2.1**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorobutanesulfonic acid (PFBS)	**2.9**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorohexanesulfonic acid (PFHxS)	**15**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Perfluorooctanesulfonic acid (PFOS)	**3.6**		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*125*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:17*	*1*
13C2 PFDA	*110*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:17*	*1*
d5-NEtFOSAA	*120*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:17*	*1*
13C3 HFPO-DA	*102*		*70 - 130*	*07/07/21 16:26*	*07/10/21 11:17*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191320
Date Collected: 06/28/21 15:37
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-9
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**88**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluoroheptanoic acid (PFHpA)	**15**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorooctanoic acid (PFOA)	**3.4**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorobutanesulfonic acid (PFBS)	**23**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorohexanesulfonic acid (PFHxS)	**9.7**		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*118*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:33*	*1*
13C2 PFDA	*119*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:33*	*1*
d5-NEtFOSAA	*98*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:33*	*1*
13C3 HFPO-DA	*111*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:33*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 172190
Date Collected: 06/28/21 17:02
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-10
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**2.8**		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluoroheptanoic acid (PFHpA)	**0.75**	**J**	1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorooctanoic acid (PFOA)	**0.57**	**J**	1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorohexanesulfonic acid (PFHxS)	**0.58**	**J**	1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*126*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:41*	*1*
13C2 PFDA	*122*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:41*	*1*
d5-NEtFOSAA	*116*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:41*	*1*
13C3 HFPO-DA	*120*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:41*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 172245
Date Collected: 06/28/21 18:07
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-11
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*125*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:49*	*1*
13C2 PFDA	*120*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:49*	*1*
d5-NEtFOSAA	*107*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:49*	*1*
13C3 HFPO-DA	*122*		*70 - 130*	*07/07/21 16:26*	*07/09/21 16:49*	*1*

Surrogate Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)	HFPODA (70-130)
320-75676-1	191290	124	110	107	100
320-75676-2	291050	114	111	107	114
320-75676-3	191050	118	111	114	99
320-75676-4	191741	124	121	113	123
320-75676-5	191170	118	109	104	97
320-75676-6	191280	121	113	100	115
320-75676-7	191090	117	110	111	97
320-75676-8	200310	125	110	120	102
320-75676-9	191320	118	119	98	111
320-75676-10	172190	126	122	116	120
320-75676-11	172245	125	120	107	122
LLCS 320-504888/2-A	Lab Control Sample	115	114	108	112
LLCSD 320-504888/3-A	Lab Control Sample Dup	119	112	109	111
MB 320-504888/1-A	Method Blank	117	117	107	113

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-504888/1-A
Matrix: Water
Analysis Batch: 505342

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 504888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*117*		*70 - 130*	*07/07/21 16:26*	*07/09/21 14:45*	*1*
13C2 PFDA	*117*		*70 - 130*	*07/07/21 16:26*	*07/09/21 14:45*	*1*
d5-NEtFOSAA	*107*		*70 - 130*	*07/07/21 16:26*	*07/09/21 14:45*	*1*
13C3 HFPO-DA	*113*		*70 - 130*	*07/07/21 16:26*	*07/09/21 14:45*	*1*

Lab Sample ID: LLCS 320-504888/2-A
Matrix: Water
Analysis Batch: 505342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 504888

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	4.00	4.53		ng/L		113	50 - 150
Perfluoroheptanoic acid (PFHpA)	4.00	4.66		ng/L		117	50 - 150
Perfluorooctanoic acid (PFOA)	4.00	4.74		ng/L		118	50 - 150
Perfluorononanoic acid (PFNA)	4.00	4.42		ng/L		110	50 - 150
Perfluorodecanoic acid (PFDA)	4.00	4.81		ng/L		120	50 - 150
Perfluoroundecanoic acid (PFUnA)	4.00	4.57		ng/L		114	50 - 150
Perfluorododecanoic acid (PFDoA)	4.00	4.39		ng/L		110	50 - 150
Perfluorotridecanoic acid (PFTriA)	4.00	4.55		ng/L		114	50 - 150
Perfluorotetradecanoic acid (PFTeA)	4.00	4.33		ng/L		108	50 - 150
Perfluorobutanesulfonic acid (PFBS)	3.54	3.45		ng/L		97	50 - 150

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 320-504888/2-A
Matrix: Water
Analysis Batch: 505342

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 504888

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanesulfonic acid (PFHxS)	3.64	3.60		ng/L		99	50 - 150
Perfluorooctanesulfonic acid (PFOS)	3.71	3.66		ng/L		99	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	4.19		ng/L		105	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	4.01		ng/L		100	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	3.73	3.57		ng/L		96	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	3.77	3.45		ng/L		92	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	4.00	4.57		ng/L		114	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.77	4.52		ng/L		120	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*115*		*70 - 130*
13C2 PFDA	*114*		*70 - 130*
d5-NEtFOSAA	*108*		*70 - 130*
13C3 HFPO-DA	*112*		*70 - 130*

Lab Sample ID: LLCSD 320-504888/3-A
Matrix: Water
Analysis Batch: 505342

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 504888

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	4.00	4.64		ng/L		116	50 - 150	2	50
Perfluoroheptanoic acid (PFHpA)	4.00	4.75		ng/L		119	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	4.00	4.52		ng/L		113	50 - 150	5	50
Perfluorononanoic acid (PFNA)	4.00	4.47		ng/L		112	50 - 150	1	50
Perfluorodecanoic acid (PFDA)	4.00	4.52		ng/L		113	50 - 150	6	50
Perfluoroundecanoic acid (PFUnA)	4.00	4.49		ng/L		112	50 - 150	2	50
Perfluorododecanoic acid (PFDoA)	4.00	4.48		ng/L		112	50 - 150	2	50
Perfluorotridecanoic acid (PFTriA)	4.00	4.36		ng/L		109	50 - 150	4	50
Perfluorotetradecanoic acid (PFTeA)	4.00	4.30		ng/L		107	50 - 150	0.7	50
Perfluorobutanesulfonic acid (PFBS)	3.54	3.54		ng/L		100	50 - 150	3	50
Perfluorohexanesulfonic acid (PFHxS)	3.64	3.69		ng/L		101	50 - 150	3	50
Perfluorooctanesulfonic acid (PFOS)	3.71	3.80		ng/L		102	50 - 150	4	50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	3.92		ng/L		98	50 - 150	7	50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	3.82		ng/L		96	50 - 150	5	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	3.73	3.66		ng/L		98	50 - 150	2	50

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCSD 320-504888/3-A
Matrix: Water
Analysis Batch: 505342

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 504888

Analyte			Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF			3.77	3.57		ng/L		95	50 - 150	4	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			4.00	4.42		ng/L		111	50 - 150	3	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			3.77	4.42		ng/L		117	50 - 150	2	50

Surrogate	*LLCSD %Recovery*	*LLCSD Qualifier*	*Limits*
13C2 PFHxA	*119*		*70 - 130*
13C2 PFDA	*112*		*70 - 130*
d5-NEtFOSAA	*109*		*70 - 130*
13C3 HFPO-DA	*111*		*70 - 130*

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

LCMS

Prep Batch: 504888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-75676-1	191290	Total/NA	Water	537.1 DW	
320-75676-2	291050	Total/NA	Water	537.1 DW	
320-75676-3	191050	Total/NA	Water	537.1 DW	
320-75676-4	191741	Total/NA	Water	537.1 DW	
320-75676-5	191170	Total/NA	Water	537.1 DW	
320-75676-6	191280	Total/NA	Water	537.1 DW	
320-75676-7	191090	Total/NA	Water	537.1 DW	
320-75676-8	200310	Total/NA	Water	537.1 DW	
320-75676-9	191320	Total/NA	Water	537.1 DW	
320-75676-10	172190	Total/NA	Water	537.1 DW	
320-75676-11	172245	Total/NA	Water	537.1 DW	
MB 320-504888/1-A	Method Blank	Total/NA	Water	537.1 DW	
LLCS 320-504888/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCSD 320-504888/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	

Analysis Batch: 505342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-75676-2	291050	Total/NA	Water	537.1 DW	504888
320-75676-4	191741	Total/NA	Water	537.1 DW	504888
320-75676-6	191280	Total/NA	Water	537.1 DW	504888
MB 320-504888/1-A	Method Blank	Total/NA	Water	537.1 DW	504888
LLCS 320-504888/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	504888
LLCSD 320-504888/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	504888

Analysis Batch: 505344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-75676-9	191320	Total/NA	Water	537.1 DW	504888
320-75676-10	172190	Total/NA	Water	537.1 DW	504888
320-75676-11	172245	Total/NA	Water	537.1 DW	504888

Analysis Batch: 505555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-75676-1	191290	Total/NA	Water	537.1 DW	504888
320-75676-3	191050	Total/NA	Water	537.1 DW	504888
320-75676-5	191170	Total/NA	Water	537.1 DW	504888
320-75676-7	191090	Total/NA	Water	537.1 DW	504888
320-75676-8	200310	Total/NA	Water	537.1 DW	504888

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191290
Date Collected: 06/27/21 11:31
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			268.3 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505555	07/10/21 10:47	D1R	TAL SAC

Client Sample ID: 291050
Date Collected: 06/27/21 12:20
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			267.4 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505342	07/09/21 15:01	D1R	TAL SAC

Client Sample ID: 191050
Date Collected: 06/27/21 12:25
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			257.2 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505555	07/10/21 10:54	D1R	TAL SAC

Client Sample ID: 191741
Date Collected: 06/27/21 13:43
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			258.7 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505342	07/09/21 15:16	D1R	TAL SAC

Client Sample ID: 191170
Date Collected: 06/27/21 15:15
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			256.2 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505555	07/10/21 11:02	D1R	TAL SAC

Client Sample ID: 191280
Date Collected: 06/27/21 16:02
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			236.8 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505342	07/09/21 15:32	D1R	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Client Sample ID: 191090
Date Collected: 06/27/21 16:48
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			262 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505555	07/10/21 11:10	D1R	TAL SAC

Client Sample ID: 200310
Date Collected: 06/27/21 17:34
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			266.3 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505555	07/10/21 11:17	D1R	TAL SAC

Client Sample ID: 191320
Date Collected: 06/28/21 15:37
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			258 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505344	07/09/21 16:33	D1R	TAL SAC

Client Sample ID: 172190
Date Collected: 06/28/21 17:02
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			266.2 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505344	07/09/21 16:41	D1R	TAL SAC

Client Sample ID: 172245
Date Collected: 06/28/21 18:07
Date Received: 07/01/21 15:25

Lab Sample ID: 320-75676-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			262.3 mL	1.0 mL	504888	07/07/21 16:26	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			505344	07/09/21 16:49	D1R	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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
537.1 DW	537.1 DW	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF
537.1 DW	537.1 DW	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1 DW	537.1 DW	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O
537.1 DW	537.1 DW	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)
537.1 DW	537.1 DW	Water	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537.1 DW	537.1 DW	Water	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537.1 DW	537.1 DW	Water	Perfluorobutanesulfonic acid (PFBS)
537.1 DW	537.1 DW	Water	Perfluorodecanoic acid (PFDA)
537.1 DW	537.1 DW	Water	Perfluorododecanoic acid (PFDoA)
537.1 DW	537.1 DW	Water	Perfluoroheptanoic acid (PFHpA)
537.1 DW	537.1 DW	Water	Perfluorohexanesulfonic acid (PFHxS)
537.1 DW	537.1 DW	Water	Perfluorohexanoic acid (PFHxA)
537.1 DW	537.1 DW	Water	Perfluorononanoic acid (PFNA)
537.1 DW	537.1 DW	Water	Perfluorooctanesulfonic acid (PFOS)
537.1 DW	537.1 DW	Water	Perfluorooctanoic acid (PFOA)
537.1 DW	537.1 DW	Water	Perfluorotetradecanoic acid (PFTeA)
537.1 DW	537.1 DW	Water	Perfluorotridecanoic acid (PFTriA)
537.1 DW	537.1 DW	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Method	Method Description	Protocol	Laboratory
537.1 DW	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-75676-1	191290	Water	06/27/21 11:31	07/01/21 15:25
320-75676-2	291050	Water	06/27/21 12:20	07/01/21 15:25
320-75676-3	191050	Water	06/27/21 12:25	07/01/21 15:25
320-75676-4	191741	Water	06/27/21 13:43	07/01/21 15:25
320-75676-5	191170	Water	06/27/21 15:15	07/01/21 15:25
320-75676-6	191280	Water	06/27/21 16:02	07/01/21 15:25
320-75676-7	191090	Water	06/27/21 16:48	07/01/21 15:25
320-75676-8	200310	Water	06/27/21 17:34	07/01/21 15:25
320-75676-9	191320	Water	06/28/21 15:37	07/01/21 15:25
320-75676-10	172190	Water	06/28/21 17:02	07/01/21 15:25
320-75676-11	172245	Water	06/28/21 18:07	07/01/21 15:25

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Page 1 of 2

Laboratory Test America
Attn: David Althacker

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No: N/A, MSA na TBD

J-Flags: [X] Yes [ ] No

320-75676 Chain of Custody

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	+18 PFAS EPA 537.1	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
191290		1131	6/27/21	✓	2	GW used as drk water
291050		1220		✓	2	
191050		1225		✓	2	
191741		1343		✓	2	
191170		1515		✓	2	
191280		1602		✓	2	
191090		1648		✓	2	
200310		1734		✓	2	
191320		1537	6/28/21	✓	2	

Project Information
Number: 102581-007
Name: Dillingham Quarterly
Contact: MDN
Ongoing Project? Yes [X] No [ ]
Sampler: MDN

Sample Receipt
Total No. of Containers: 22
COC Seals/Intact? Y/N/NA:
Received Good Cond./Cold:
Temp: 5.6
Delivery Method: Goldstreak

Notes:

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 0800	Signature: Time:	Signature: Time:
Printed Name: Marcy Nadel Date: 6/30/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson, Inc.	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time:	Signature: Time:	Signature: Time:
Printed Name: [illegible] Date: 7/1/21	Printed Name: Date:	Printed Name: Date:
Company: ETC	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Trizma Lot #* 19510079 □ SLCD7801 △ SLBZ6597 No. 36424

□△

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SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Page 2 of 2
Laboratory: Test America Eurofins
Attn: David Alltucker

Turn Around Time: [X] Normal [ ] Rush
Please Specify

Quote No: N/A
MSA Number: TBD
J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

	Sample Identity	Lab No.	Time	Date Sampled	+18 PFAS by EPA 537.1							Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
*	172190		1702	6/28/21	✓							2	GW used as drk water
*	172210		1807	↓	✓							2	↓

Project Information
Number: (see pg 1)
Name:
Contact:
Ongoing Project? Yes [ ] No [ ]
Sampler:

Sample Receipt
Total No. of Containers:
COC Seals/Intact? Y/N/NA
Received Good Cond./Cold
Temp: 5.6
Delivery Method:

Reliquished By: 1.
Signature: M. Nadel Time: 0800
Printed Name: Marcy Nadel Date: 6/30/21
Company: Shannon & Wilson, Inc.

Reliquished By: 2.
Signature: Time:
Printed Name: Date:
Company:

Reliquished By: 3.
Signature: Time:
Printed Name: Date:
Company:

Received By: 1.
Signature: [signature] Time:
Printed Name: David [illegible] Date: 7/1/21
Company: ETA

Received By: 2.
Signature: Time:
Printed Name: Date:
Company:

Received By: 3.
Signature: Time:
Printed Name: Date:
Company:

Notes:
see pg 1

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Trizma Lot # * 19510079 ~~[illegible]~~ □ SLCD7801 △ SLBZ6597 7/1/21

No. ______

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-75676-1

Login Number: 75676
List Number: 1
Creator: Her, David A

List Source: Eurofins TestAmerica, 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.	True	SEALS
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	

Laboratory Data Review Checklist

Completed By:

Veselina Yakimova

Title:

Geologist

Date:

July 29, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins TestAmerica, Sacramento

Laboratory Report Number:

320-75676-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-75676-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   The ADEC certified the TestAmerica/Eurofins Laboratories West Sacramento, CA location for the analysis of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) on February 6, 2018. These compounds were included in the ADEC's Contaminated Sites Laboratory Approval 17-020.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Analyses were performed by TestAmerica Laboratories, Inc. in West Sacramento, CA.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   The temperature blank was measured within the acceptable temperature range of 0 °C to 6 °C upon arrival at the laboratory. The temperature of the sample cooler upon receipt was 5.6°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

   Analysis of PFAS in drinking water by EPA Method 537.1 requires preservation with Trizma. The samples were appropriately preserved.

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Dillingham DOT&PF PFAS

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

There were no discrepancies noted for this work order.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-504888.

Samples *191290, 191170, 191280, 191320* and *172210* in preparation batch 320-504888 were yellow/orange prior to extraction and light yellow/yellow after extraction and final voluming.

Elevated reporting limits are provided for sample *191280* due to insufficient sample provided for preparation. Sample container held 236.8mL of sample vs normal 250mL used for the method.

The case narrative further notes sample *172210* was changed to *172245* upon client request.

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c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Yes, sample *172245* was incorrectly identified in the COC. The revised report includes the correct sample name.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The case narrative does not note an effect on the data quality or usability.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

The samples were analyzed within 14 days of collection, meeting the 14-day hold time for extraction and 40-day hold time for analysis required by Method 537.1.

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

This work order does not include soil samples.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

The LOQ, equivalent to the TestAmerica Reporting Limit (RL), is less than the applicable DEC regulatory limits for PFOS and PFOA.

e. Data quality or usability affected?

The data quality and/or usability are not affected.

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CS Site Name:

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6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Target PFAS analytes were not detected in the method blank sample.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; no PFAS analytes were detected in the method blank sample.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; therefore, qualification is not required.

v. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None; method accuracy and precision were demonstrated to be within acceptable limits.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Sufficient volume was not available to complete an MS/MSD for the project sample set. Method accuracy and precision were evaluated using the LCS/LCSD samples.

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CS Site Name:

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ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

See section 6.b.iii for assessment of method accuracy.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

See section 6.b.iv for assessment of method precision.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

MS/MSD samples were not reported with this work order.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification is not required; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

Method 537.1 uses IDAs, which entails spiking samples with isotopically labed compounds for certain target analytes to assess recovery.

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ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

IDA recoveries were within laboratory limits for all reported samples.

iv. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not considered volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; a trip blank was not submitted with this work order.

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v. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Field duplicate pair *191050* / 2*91050* was submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The data quality or usability is not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

These samples were not collected with reusable equipment; therefore, there is no practical potential for equipment based cross-contamination.

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Laboratory Report Date:

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CS Site Name:

Dillingham DOT&PF PFAS

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank sample was not collected or required.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment-blank sample was not collected.

iii. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other flags or qualifications applied.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76026-1
Client Project/Site: Dillingham

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
7/22/2021 1:57:26 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Job ID: 320-76026-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Receipt
The samples were received on 7/9/2021 1:12 PM. 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 3.8º C.

LCMS
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: SB3-0.0-0.8 (320-76026-5). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: SB3-0.0-0.8 (320-76026-5). 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

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: SS-08 (320-76026-17). 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 sample(s).

Method EPA 537(Mod): Results for sample SB3-0.0-0.8 (320-76026-5) were reported from the analysis of a diluted extract due to high concentration and matrix interference of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Method EPA 537(Mod): Internal standard (ISTD) response for the following samples was outside control limits: SB3-0.0-0.8 (320-76026-5). The samples were re-analyzed with concurring results, and the original set of data has been reported. The internal standard is not used to quantitate target analytes; therefore, there is no adverse impact to the data.

Method EPA 537(Mod): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for several analytes of preparation batch 320-505809 and analytical batch 320-506420 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method EPA 537(Mod): The matrix spike (MS) recoveries for DONA of preparation batch 320-505990 and analytical batch 320-508826 were outside control limits. Sample matrix interference is suspected.

Method EPA 537(Mod): The matrix spike duplicate (MSD) recoveries for DONA and Perfluoroundecanoic acid (PFUnA) ofpreparation batch 320-505990 and analytical batch 320-508826 were outside control limits. Sample matrix interference is suspected.

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 SHAKE: The following samples were yellow after extraction/final volume: SS-10 (320-76026-19), SS-14 (320-76026-23), (320-76026-A-19 MS) and (320-76026-A-19 MSD)

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SB1-15.7-16.3 — Lab Sample ID: 320-76026-1

No Detections.

Client Sample ID: SB1-27.3-28.0 — Lab Sample ID: 320-76026-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.094	J	0.21	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB2-31.7-32.3 — Lab Sample ID: 320-76026-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.052	J	0.23	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB2-37.5-38.4 — Lab Sample ID: 320-76026-4

No Detections.

Client Sample ID: SB3-0.0-0.8 — Lab Sample ID: 320-76026-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.9		0.27	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		0.27	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	9.9		0.27	0.11	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	15		0.27	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.18	J	0.27	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.078	J	0.27	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.8		0.27	0.041	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	61		6.7	2.7	ug/Kg	10	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB3-10.0-11.0 — Lab Sample ID: 320-76026-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.10	J	0.24	0.050	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.090	J	0.24	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.14	J	0.24	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB31-10.0-11.0 — Lab Sample ID: 320-76026-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.10	J I	0.24	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.087	J	0.24	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.18	J	0.24	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB3-20.0-20.9 — Lab Sample ID: 320-76026-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.067	J	0.22	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.043	J	0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.084	J	0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB3-23.0-24.0 — Lab Sample ID: 320-76026-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.079	J	0.22	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.070	J	0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.14	J	0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-01 — Lab Sample ID: 320-76026-10

No Detections.

Client Sample ID: SS-02 — Lab Sample ID: 320-76026-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.035	J	0.21	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.44	J	0.52	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-03 — Lab Sample ID: 320-76026-12

No Detections.

Client Sample ID: SS-04 — Lab Sample ID: 320-76026-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.064	J	0.20	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.55		0.51	0.20	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-05 — Lab Sample ID: 320-76026-14

No Detections.

Client Sample ID: SS-06 — Lab Sample ID: 320-76026-15

No Detections.

Client Sample ID: SS-07 — Lab Sample ID: 320-76026-16

No Detections.

Client Sample ID: SS-08 — Lab Sample ID: 320-76026-17

No Detections.

Client Sample ID: SS-09 — Lab Sample ID: 320-76026-18

No Detections.

Client Sample ID: SS-10 — Lab Sample ID: 320-76026-19

No Detections.

Client Sample ID: SS-11 — Lab Sample ID: 320-76026-20

No Detections.

Client Sample ID: SS-12 — Lab Sample ID: 320-76026-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.033	J	0.22	0.024	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.74		0.54	0.22	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-13 — Lab Sample ID: 320-76026-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.077	J	0.33	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.2	I	0.82	0.33	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-14 — Lab Sample ID: 320-76026-23

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-15 — Lab Sample ID: 320-76026-24

No Detections.

Client Sample ID: SS-16 — Lab Sample ID: 320-76026-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.92		0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.089	J	0.21	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-17 — Lab Sample ID: 320-76026-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.93		0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.11	J	0.21	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.059	J	0.21	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-18 — Lab Sample ID: 320-76026-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.052	J	0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.047	J	0.21	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.53	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-19 — Lab Sample ID: 320-76026-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.053	J	0.20	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.45	J	0.49	0.20	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SB1-15.7-16.3
Date Collected: 06/29/21 10:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-1
Matrix: Solid
Percent Solids: 72.3

Method: EPA 537(Mod) - 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	0.053	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.045	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.045	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.084	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorotridecanoic acid (PFTriA)	ND		0.25	0.064	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.068	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.039	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.63	0.25	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.5	0.49	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.5	0.46	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND	F1	0.25	0.034	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.31	0.14	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.25	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 02:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*116*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C4 PFHpA	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C5 PFNA	*69*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C2 PFDA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C2 PFUnA	*69*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C2 PFDoA	*60*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C2 PFTeDA	*66*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C3 PFBS	*126*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C4 PFOS	*75*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
d3-NMeFOSAA	*71*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
d5-NEtFOSAA	*65*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*
13C3 HFPO-DA	*104*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:42*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**27.7**		0.1	0.1	%			07/13/21 13:45	1
Percent Solids	**72.3**		0.1	0.1	%			07/13/21 13:45	1

Client Sample ID: SB1-27.3-28.0

Date Collected: 06/29/21 10:45
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-2

Matrix: Solid
Percent Solids: 86.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.089	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.069	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorohexanesulfonic acid (PFHxS)	**0.094**	**J**	0.21	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.52	0.21	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 11:33	07/14/21 03:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C4 PFHpA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C4 PFOA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C5 PFNA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C2 PFDA	*101*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C2 PFUnA	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C2 PFDoA	*97*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C3 PFBS	*104*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
18O2 PFHxS	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C4 PFOS	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
d5-NEtFOSAA	*99*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*
13C3 HFPO-DA	*86*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:10*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**13.4**		0.1	0.1	%			07/13/21 13:45	1
Percent Solids	**86.6**		0.1	0.1	%			07/13/21 13:45	1

Client Sample ID: SB2-31.7-32.3
Date Collected: 07/02/21 13:22
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-3
Matrix: Solid
Percent Solids: 83.5

Method: EPA 537(Mod) - 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	0.049	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.034	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.10	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.042	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.042	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.078	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.059	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.063	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorohexanesulfonic acid (PFHxS)	**0.052**	**J**	0.23	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	☼	07/12/21 11:33	07/14/21 03:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C5 PFNA	*79*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C2 PFUnA	*81*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C2 PFDoA	*74*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C3 PFBS	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
18O2 PFHxS	*71*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C4 PFOS	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
d3-NMeFOSAA	*67*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
d5-NEtFOSAA	*78*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*
13C3 HFPO-DA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:19*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.5**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**83.5**		0.1	0.1	%			07/14/21 15:42	1

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SB2-37.5-38.4

Date Collected: 07/02/21 14:30
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-4

Matrix: Solid
Percent Solids: 92.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.088	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.068	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.052	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.055	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.51	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 03:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C4 PFHpA	*95*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C4 PFOA	*97*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C5 PFNA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C2 PFDA	*96*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C2 PFUnA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C2 PFDoA	*99*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C3 PFBS	*98*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
d5-NEtFOSAA	*95*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*
13C3 HFPO-DA	*95*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:29*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.8**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**92.2**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SB3-0.0-0.8

Date Collected: 07/06/21 11:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-5

Matrix: Solid
Percent Solids: 67.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**3.9**		0.27	0.056	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluoroheptanoic acid (PFHpA)	**3.3**		0.27	0.039	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorooctanoic acid (PFOA)	**9.9**		0.27	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorononanoic acid (PFNA)	**15**		0.27	0.048	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorodecanoic acid (PFDA)	**0.18**	**J**	0.27	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluoroundecanoic acid (PFUnA)	ND		0.27	0.048	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorododecanoic acid (PFDoA)	ND		0.27	0.089	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorotridecanoic acid (PFTriA)	ND		0.27	0.068	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.27	0.072	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorobutanesulfonic acid (PFBS)	**0.078**	**J**	0.27	0.033	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Perfluorohexanesulfonic acid (PFHxS)	**4.8**		0.27	0.041	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.7	0.52	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.7	0.49	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.27	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.33	0.15	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.27	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.27	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 03:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*152*	*5+	*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C4 PFHpA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C5 PFNA	*37*	*5-	*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C2 PFDA	*72*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C2 PFUnA	*66*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C2 PFDoA	*42*	*5-	*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C2 PFTeDA	*57*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C3 PFBS	*171*	*5+	*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
18O2 PFHxS	*99*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C4 PFOS	*57*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
d3-NMeFOSAA	*56*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
d5-NEtFOSAA	*43*	*5-	*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*
13C3 HFPO-DA	*118*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:38*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**61**		6.7	2.7	ug/Kg	☼	07/12/21 11:33	07/15/21 22:26	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*74*		*50 - 150*	*07/12/21 11:33*	*07/15/21 22:26*	*10*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**32.7**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**67.3**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SB3-10.0-11.0
Date Collected: 07/06/21 12:27
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-6
Matrix: Solid
Percent Solids: 74.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.10**	**J**	0.24	0.050	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluoroheptanoic acid (PFHpA)	**0.090**	**J**	0.24	0.035	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.10	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.080	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.061	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.065	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorohexanesulfonic acid (PFHxS)	**0.14**	**J**	0.24	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.60	0.24	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.4	0.47	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.4	0.44	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.30	0.13	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 03:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C2 PFDA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C2 PFUnA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C2 PFDoA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C2 PFTeDA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C3 PFBS	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*
13C3 HFPO-DA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 03:48*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**25.2**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**74.8**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SB31-10.0-11.0
Date Collected: 07/06/21 12:17
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-7
Matrix: Solid
Percent Solids: 74.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.10**	**J I**	0.24	0.051	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluoroheptanoic acid (PFHpA)	**0.087**	**J**	0.24	0.035	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.10	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.044	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.044	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.081	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.062	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.065	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorohexanesulfonic acid (PFHxS)	**0.18**	**J**	0.24	0.038	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.61	0.24	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.4	0.47	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.4	0.45	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.033	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.30	0.13	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C5 PFNA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C2 PFDA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C2 PFUnA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C2 PFDoA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C2 PFTeDA	*74*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
18O2 PFHxS	*84*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C4 PFOS	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*
13C3 HFPO-DA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:16*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**25.1**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**74.9**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SB3-20.0-20.9
Date Collected: 07/06/21 12:38
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-8
Matrix: Solid
Percent Solids: 86.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.067**	**J**	0.22	0.046	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluoroheptanoic acid (PFHpA)	**0.043**	**J**	0.22	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.095	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.040	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.040	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.074	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.056	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.059	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorohexanesulfonic acid (PFHxS)	**0.084**	**J**	0.22	0.034	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.22	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.41	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.28	0.12	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.020	ug/Kg	☼	07/12/21 11:33	07/14/21 04:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C4 PFHpA	*95*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C5 PFNA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C2 PFDA	*99*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C2 PFUnA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C2 PFDoA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C2 PFTeDA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C3 PFBS	*101*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C4 PFOS	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
d5-NEtFOSAA	*98*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*
13C3 HFPO-DA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:25*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**13.5**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**86.5**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SB3-23.0-24.0
Date Collected: 07/06/21 16:55
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-9
Matrix: Solid
Percent Solids: 82.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.079**	**J**	0.22	0.046	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluoroheptanoic acid (PFHpA)	**0.070**	**J**	0.22	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.095	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.040	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.040	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.074	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.056	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.059	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorohexanesulfonic acid (PFHxS)	**0.14**	**J**	0.22	0.034	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.22	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.41	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.020	ug/Kg	☼	07/12/21 11:33	07/14/21 04:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C4 PFHpA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C2 PFDoA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C3 PFBS	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
18O2 PFHxS	*84*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C4 PFOS	*84*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:35*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.5**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**82.5**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-01
Date Collected: 07/07/21 10:40
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-10
Matrix: Solid
Percent Solids: 93.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.088	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.069	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.052	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.055	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.51	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 04:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*111*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C4 PFHpA	*75*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C5 PFNA	*55*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C2 PFDA	*77*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C2 PFUnA	*63*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C2 PFDoA	*55*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C2 PFTeDA	*64*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C3 PFBS	*112*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
18O2 PFHxS	*83*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C4 PFOS	*66*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
d3-NMeFOSAA	*57*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
d5-NEtFOSAA	*52*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.3**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**93.8**		0.1	0.1	%			07/14/21 15:42	1

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-02
Date Collected: 07/07/21 11:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-11
Matrix: Solid
Percent Solids: 94.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.089	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.069	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorohexanesulfonic acid (PFHxS)	**0.035**	**J**	0.21	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Perfluorooctanesulfonic acid (PFOS)	**0.44**	**J**	0.52	0.21	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 11:33	07/14/21 04:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*108*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C4 PFHpA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C5 PFNA	*66*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C2 PFUnA	*72*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C2 PFDoA	*58*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C2 PFTeDA	*67*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C3 PFBS	*110*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C4 PFOS	*77*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
d3-NMeFOSAA	*57*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
d5-NEtFOSAA	*56*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 04:53*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**5.9**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**94.1**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-03
Date Collected: 07/07/21 11:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-12
Matrix: Solid
Percent Solids: 91.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.088	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.068	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.052	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.055	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.026	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.51	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.028	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 05:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*106*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C5 PFNA	*68*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C2 PFDA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C2 PFUnA	*73*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C2 PFDoA	*64*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C2 PFTeDA	*68*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
18O2 PFHxS	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C4 PFOS	*76*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
d3-NMeFOSAA	*62*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
d5-NEtFOSAA	*60*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*
13C3 HFPO-DA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:03*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.5**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**91.5**		0.1	0.1	%			07/14/21 15:42	1

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-04
Date Collected: 07/07/21 11:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-13
Matrix: Solid
Percent Solids: 91.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.030	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.088	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.037	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.068	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.052	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.055	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorohexanesulfonic acid (PFHxS)	**0.064**	**J**	0.20	0.032	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Perfluorooctanesulfonic acid (PFOS)	**0.55**		0.51	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 05:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*110*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C4 PFHpA	*77*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C5 PFNA	*65*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C2 PFDA	*81*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C2 PFUnA	*73*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C2 PFDoA	*60*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C2 PFTeDA	*69*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C3 PFBS	*115*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C4 PFOS	*75*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
d3-NMeFOSAA	*60*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
d5-NEtFOSAA	*52*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:12*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.6**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**91.4**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-05
Date Collected: 07/07/21 11:40
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-14
Matrix: Solid
Percent Solids: 93.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.085	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.035	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.035	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.050	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.053	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.49	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*109*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C4 PFHpA	*77*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C4 PFOA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C5 PFNA	*72*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C2 PFUnA	*79*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C2 PFDoA	*71*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C2 PFTeDA	*74*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C3 PFBS	*108*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C4 PFOS	*75*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
d3-NMeFOSAA	*68*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
d5-NEtFOSAA	*63*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.2**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**93.8**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-06

Date Collected: 07/07/21 12:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-15

Matrix: Solid
Percent Solids: 93.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.085	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C5 PFNA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C2 PFDA	*97*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C2 PFUnA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C2 PFDoA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C2 PFTeDA	*95*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C3 PFBS	*100*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C4 PFOS	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
d3-NMeFOSAA	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.4**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**93.6**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-07

Date Collected: 07/07/21 12:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-16

Matrix: Solid
Percent Solids: 89.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.045	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.092	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.039	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.039	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.072	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.055	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.058	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.54	0.21	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.42	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.024	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C4 PFHpA	*81*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C5 PFNA	*74*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C2 PFDA	*85*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C2 PFUnA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C2 PFDoA	*77*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C2 PFTeDA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C3 PFBS	*98*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
18O2 PFHxS	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C4 PFOS	*80*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
d3-NMeFOSAA	*78*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
d5-NEtFOSAA	*83*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 05:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10.1**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**89.9**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-08
Date Collected: 07/07/21 12:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-17
Matrix: Solid
Percent Solids: 90.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.045	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.092	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.071	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.21	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.42	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 11:33	07/14/21 08:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*116*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C4 PFOA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C5 PFNA	*53*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C2 PFDA	*73*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C2 PFUnA	*62*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C2 PFDoA	*55*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C2 PFTeDA	*67*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C3 PFBS	*132*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
18O2 PFHxS	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C4 PFOS	*72*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
d3-NMeFOSAA	*56*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
d5-NEtFOSAA	*49*	*5-	*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*
13C3 HFPO-DA	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 08:58*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.8**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**90.2**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-09

Date Collected: 07/07/21 14:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-18

Matrix: Solid
Percent Solids: 93.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*112*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C4 PFHpA	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C5 PFNA	*69*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C2 PFDA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C2 PFUnA	*76*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C2 PFDoA	*67*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C2 PFTeDA	*72*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C3 PFBS	*113*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
18O2 PFHxS	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C4 PFOS	*82*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
d5-NEtFOSAA	*63*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*
13C3 HFPO-DA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 09:07*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.1**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**93.9**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-10
Date Collected: 07/07/21 15:45
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-19
Matrix: Solid
Percent Solids: 89.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.046	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.032	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.095	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.040	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluoroundecanoic acid (PFUnA)	ND	F1	0.22	0.040	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.074	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.056	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.060	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.028	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.034	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.22	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.41	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.030	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.28	0.12	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	F1	0.22	0.020	ug/Kg	☼	07/12/21 19:00	07/21/21 13:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*67*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C4 PFHpA	*67*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C4 PFOA	*77*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C5 PFNA	*74*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C2 PFUnA	*60*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C2 PFDoA	*60*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C2 PFTeDA	*62*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C3 PFBS	*95*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
18O2 PFHxS	*70*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C4 PFOS	*87*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
d3-NMeFOSAA	*57*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
d5-NEtFOSAA	*57*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*07/12/21 19:00*	*07/21/21 13:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10.8**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**89.2**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-11
Date Collected: 07/07/21 16:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-20
Matrix: Solid
Percent Solids: 86.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.044	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.090	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.070	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.52	0.21	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 19:00	07/16/21 02:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*67*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C4 PFHpA	*73*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C4 PFOA	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C5 PFNA	*75*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C2 PFDA	*73*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C2 PFUnA	*68*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C2 PFDoA	*77*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C3 PFBS	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
18O2 PFHxS	*64*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C4 PFOS	*65*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
d3-NMeFOSAA	*62*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
d5-NEtFOSAA	*71*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*
13C3 HFPO-DA	*68*		*50 - 150*	*07/12/21 19:00*	*07/16/21 02:08*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**13.8**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**86.2**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-12
Date Collected: 07/07/21 15:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-21
Matrix: Solid
Percent Solids: 82.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.045	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.031	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.093	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.039	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorodecanoic acid (PFDA)	**0.033**	**J**	0.22	0.024	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.039	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.072	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.055	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.058	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.027	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.034	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Perfluorooctanesulfonic acid (PFOS)	**0.74**		0.54	0.22	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.42	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.40	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.029	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.019	ug/Kg	☼	07/12/21 19:00	07/21/21 14:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*72*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C2 PFUnA	*83*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C2 PFDoA	*71*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C3 PFBS	*91*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
18O2 PFHxS	*78*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
d3-NMeFOSAA	*75*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
d5-NEtFOSAA	*74*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*
13C3 HFPO-DA	*77*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:12*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.0**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**82.0**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-13

Date Collected: 07/07/21 14:50
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-22

Matrix: Solid
Percent Solids: 60.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.33	0.069	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluoroheptanoic acid (PFHpA)	ND		0.33	0.047	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorooctanoic acid (PFOA)	ND		0.33	0.14	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorononanoic acid (PFNA)	ND		0.33	0.059	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorodecanoic acid (PFDA)	**0.077**	**J**	0.33	0.036	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.33	0.059	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.33	0.11	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorotridecanoic acid (PFTriA)	ND		0.33	0.083	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.33	0.088	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.33	0.041	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.33	0.051	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Perfluorooctanesulfonic acid (PFOS)	**1.2**	**I**	0.82	0.33	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		3.3	0.64	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		3.3	0.60	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.33	0.044	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.41	0.18	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.33	0.036	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.33	0.029	ug/Kg	☼	07/12/21 19:00	07/21/21 14:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*76*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C5 PFNA	*95*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C2 PFDA	*93*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C2 PFUnA	*87*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C3 PFBS	*93*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
18O2 PFHxS	*79*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C4 PFOS	*97*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
d3-NMeFOSAA	*70*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**39.8**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**60.2**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-14
Date Collected: 07/07/21 16:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-23
Matrix: Solid
Percent Solids: 89.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.045	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.031	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.091	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.071	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.21	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.029	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*71*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C4 PFHpA	*72*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C4 PFOA	*81*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C2 PFDA	*84*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C2 PFUnA	*67*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C2 PFDoA	*64*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C2 PFTeDA	*58*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C3 PFBS	*93*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
18O2 PFHxS	*71*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C4 PFOS	*98*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
d3-NMeFOSAA	*55*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
d5-NEtFOSAA	*54*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*
13C3 HFPO-DA	*78*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10.7**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**89.3**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-15
Date Collected: 07/07/21 16:25
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-24
Matrix: Solid
Percent Solids: 91.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.085	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.035	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.035	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.050	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.053	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.49	0.20	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*80*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C4 PFHpA	*86*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C5 PFNA	*95*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C2 PFDA	*93*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C2 PFUnA	*80*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C2 PFDoA	*72*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C2 PFTeDA	*65*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
18O2 PFHxS	*83*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C4 PFOS	*108*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
d3-NMeFOSAA	*68*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
d5-NEtFOSAA	*64*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*
13C3 HFPO-DA	*87*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:41*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.4**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**91.6**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-16

Date Collected: 07/08/21 09:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-25

Matrix: Solid
Percent Solids: 90.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.92**		0.21	0.044	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluoroheptanoic acid (PFHpA)	**0.089**	**J**	0.21	0.030	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.090	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.070	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.032	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.52	0.21	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 19:00	07/21/21 14:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C2 PFDA	*94*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C2 PFUnA	*80*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C3 PFBS	*87*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
18O2 PFHxS	*76*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C4 PFOS	*94*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
d3-NMeFOSAA	*78*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
d5-NEtFOSAA	*68*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*07/12/21 19:00*	*07/21/21 14:50*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.3**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**90.7**		0.1	0.1	%			07/14/21 15:42	1

Client Sample ID: SS-17
Date Collected: 07/08/21 09:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-26
Matrix: Solid
Percent Solids: 91.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.93**		0.21	0.044	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluoroheptanoic acid (PFHpA)	**0.11**	**J**	0.21	0.031	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.091	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.071	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorohexanesulfonic acid (PFHxS)	**0.059**	**J**	0.21	0.033	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.21	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C4 PFHpA	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C4 PFOA	*68*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C5 PFNA	*67*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C2 PFDA	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C2 PFUnA	*65*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C2 PFDoA	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C2 PFTeDA	*60*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C3 PFBS	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
18O2 PFHxS	*54*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C4 PFOS	*64*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
d3-NMeFOSAA	*60*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
d5-NEtFOSAA	*57*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*
13C3 HFPO-DA	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:21*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.3**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**91.7**		0.1	0.1	%			07/14/21 15:42	1

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-18

Date Collected: 07/08/21 09:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-27

Matrix: Solid
Percent Solids: 89.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.052**	**J**	0.21	0.044	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.090	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.070	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorohexanesulfonic acid (PFHxS)	**0.047**	**J**	0.21	0.033	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Perfluorooctanesulfonic acid (PFOS)	**0.24**	**J**	0.53	0.21	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*62*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C4 PFHpA	*66*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C4 PFOA	*66*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C5 PFNA	*69*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C2 PFDA	*64*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C2 PFUnA	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C2 PFDoA	*62*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C2 PFTeDA	*59*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C3 PFBS	*63*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
18O2 PFHxS	*53*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C4 PFOS	*60*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
d3-NMeFOSAA	*57*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
d5-NEtFOSAA	*59*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*
13C3 HFPO-DA	*60*		*50 - 150*	*07/12/21 19:00*	*07/16/21 03:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10.5**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**89.5**		0.1	0.1	%			07/14/21 15:42	1

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-19
Date Collected: 07/08/21 09:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-28
Matrix: Solid
Percent Solids: 92.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.085	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.050	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.053	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorohexanesulfonic acid (PFHxS)	**0.053**	**J**	0.20	0.031	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Perfluorooctanesulfonic acid (PFOS)	**0.45**	**J**	0.49	0.20	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/12/21 19:00	07/17/21 00:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C4 PFOA	*87*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C5 PFNA	*84*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C2 PFDA	*82*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C2 PFUnA	*73*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C2 PFDoA	*77*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C3 PFBS	*85*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
18O2 PFHxS	*80*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C4 PFOS	*80*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*07/12/21 19:00*	*07/17/21 00:27*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.9**		0.1	0.1	%			07/14/21 15:42	1
Percent Solids	**92.1**		0.1	0.1	%			07/14/21 15:42	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Method: EPA 537(Mod) - 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)
320-76026-1	SB1-15.7-16.3	116	94	93	69	85	69	60	66
320-76026-1 MS	SB1-15.7-16.3	118	89	94	70	89	82	67	76
320-76026-1 MSD	SB1-15.7-16.3	114	89	88	65	81	70	59	64
320-76026-2	SB1-27.3-28.0	92	90	92	89	101	94	97	101
320-76026-3	SB2-31.7-32.3	81	83	85	79	83	81	74	79
320-76026-4	SB2-37.5-38.4	90	95	97	91	96	93	99	93
320-76026-5	SB3-0.0-0.8	152 *5+	87	88	37 *5-	72	66	42 *5-	57
320-76026-5 - DL	SB3-0.0-0.8								
320-76026-6	SB3-10.0-11.0	90	83	88	83	92	91	87	82
320-76026-7	SB31-10.0-11.0	93	88	90	89	89	82	88	74
320-76026-8	SB3-20.0-20.9	91	95	95	93	99	92	93	91
320-76026-9	SB3-23.0-24.0	88	85	91	85	90	84	85	85
320-76026-10	SS-01	111	75	86	55	77	63	55	64
320-76026-11	SS-02	108	85	90	66	90	72	58	67
320-76026-12	SS-03	106	79	90	68	88	73	64	68
320-76026-13	SS-04	110	77	86	65	81	73	60	69
320-76026-14	SS-05	109	77	89	72	90	79	71	74
320-76026-15	SS-06	94	84	91	87	97	92	93	95
320-76026-16	SS-07	93	81	90	74	85	82	77	82
320-76026-17	SS-08	116	79	87	53	73	62	55	67
320-76026-18	SS-09	112	82	93	69	92	76	67	72
320-76026-19	SS-10	67	67	77	74	83	60	60	62
320-76026-19 MS	SS-10	72	70	75	85	83	74	64	62
320-76026-19 MSD	SS-10	67	62	74	79	78	67	57	59
320-76026-20	SS-11	67	73	72	75	73	68	77	71
320-76026-21	SS-12	72	79	85	88	90	83	71	79
320-76026-22	SS-13	76	84	88	95	93	87	81	84
320-76026-23	SS-14	71	72	81	85	84	67	64	58
320-76026-24	SS-15	80	86	90	95	93	80	72	65
320-76026-25	SS-16	79	79	91	97	94	80	81	75
320-76026-26	SS-17	63	72	68	67	63	65	63	60
320-76026-27	SS-18	62	66	66	69	64	63	62	59
320-76026-28	SS-19	83	88	87	84	82	73	77	80
LCS 320-505809/2-A	Lab Control Sample	100	99	98	102	96	92	100	90
LCS 320-505990/2-A	Lab Control Sample	59	62	63	61	62	65	65	66
MB 320-505809/1-A	Method Blank	90	93	92	91	91	89	90	94
MB 320-505990/1-A	Method Blank	65	72	74	72	72	68	73	69

		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)		
320-76026-1	SB1-15.7-16.3	126	93	75	71	65	104		
320-76026-1 MS	SB1-15.7-16.3	124	93	79	74	66	100		
320-76026-1 MSD	SB1-15.7-16.3	110	88	77	63	51	95		
320-76026-2	SB1-27.3-28.0	104	90	94	87	99	86		
320-76026-3	SB2-31.7-32.3	85	71	82	67	78	85		
320-76026-4	SB2-37.5-38.4	98	86	91	90	95	95		
320-76026-5	SB3-0.0-0.8	171 *5+	99	57	56	43 *5-	118		
320-76026-5 - DL	SB3-0.0-0.8			74					
320-76026-6	SB3-10.0-11.0	93	87	91	88	96	89		

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Solid

Prep Type: Total/NA

		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)		
320-76026-7	SB31-10.0-11.0	99	84	85	87	87	87		
320-76026-8	SB3-20.0-20.9	101	87	89	90	98	88		
320-76026-9	SB3-23.0-24.0	90	84	84	89	91	81		
320-76026-10	SS-01	112	83	66	57	52	82		
320-76026-11	SS-02	110	93	77	57	56	92		
320-76026-12	SS-03	99	82	76	62	60	90		
320-76026-13	SS-04	115	86	75	60	52	92		
320-76026-14	SS-05	108	85	75	68	63	92		
320-76026-15	SS-06	100	87	90	94	91	82		
320-76026-16	SS-07	98	82	80	78	83	82		
320-76026-17	SS-08	132	89	72	56	49 *5-	94		
320-76026-18	SS-09	113	90	82	61	63	91		
320-76026-19	SS-10	95	70	87	57	57	69		
320-76026-19 MS	SS-10	98	76	99	57	54	73		
320-76026-19 MSD	SS-10	87	71	92	61	53	61		
320-76026-20	SS-11	72	64	65	62	71	68		
320-76026-21	SS-12	91	78	88	75	74	77		
320-76026-22	SS-13	93	79	97	70	84	79		
320-76026-23	SS-14	93	71	98	55	54	78		
320-76026-24	SS-15	99	83	108	68	64	87		
320-76026-25	SS-16	87	76	94	78	68	73		
320-76026-26	SS-17	63	54	64	60	57	63		
320-76026-27	SS-18	63	53	60	57	59	60		
320-76026-28	SS-19	85	80	80	90	87	75		
LCS 320-505809/2-A	Lab Control Sample	109	95	98	94	98	95		
LCS 320-505990/2-A	Lab Control Sample	68	60	57	60	58	60		
MB 320-505809/1-A	Method Blank	105	87	91	87	92	88		
MB 320-505990/1-A	Method Blank	78	69	72	61	70	68		

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: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-505809/1-A
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 505809

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg		07/12/21 11:33	07/14/21 02:23	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C4 PFHpA	*93*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C4 PFOA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C5 PFNA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C2 PFUnA	*89*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C2 PFDoA	*90*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C2 PFTeDA	*94*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C3 PFBS	*105*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*
13C3 HFPO-DA	*88*		*50 - 150*	*07/12/21 11:33*	*07/14/21 02:23*	*1*

Lab Sample ID: LCS 320-505809/2-A
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 505809

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	1.91		ug/Kg		95	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.04		ug/Kg		102	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	1.95		ug/Kg		97	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.00		ug/Kg		100	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-505809/2-A
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 505809

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	2.00	2.02		ug/Kg		101	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.18		ug/Kg		109	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.04		ug/Kg		102	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	2.00		ug/Kg		100	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	2.25		ug/Kg		112	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.56		ug/Kg		88	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.88		ug/Kg		103	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.90		ug/Kg		102	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.17		ug/Kg		108	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.17		ug/Kg		108	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.92		ug/Kg		103	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	1.97		ug/Kg		99	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.85		ug/Kg		98	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.91		ug/Kg		102	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*100*		*50 - 150*
13C4 PFHpA	*99*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*102*		*50 - 150*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*92*		*50 - 150*
13C2 PFDoA	*100*		*50 - 150*
13C2 PFTeDA	*90*		*50 - 150*
13C3 PFBS	*109*		*50 - 150*
18O2 PFHxS	*95*		*50 - 150*
13C4 PFOS	*98*		*50 - 150*
d3-NMeFOSAA	*94*		*50 - 150*
d5-NEtFOSAA	*98*		*50 - 150*
13C3 HFPO-DA	*95*		*50 - 150*

Lab Sample ID: 320-76026-1 MS
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: SB1-15.7-16.3
Prep Type: Total/NA
Prep Batch: 505809

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND		2.60	2.50		ug/Kg	☼	96	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		2.60	2.59		ug/Kg	☼	100	71 - 131
Perfluorooctanoic acid (PFOA)	ND		2.60	2.48		ug/Kg	☼	95	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-1 MS
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: SB1-15.7-16.3
Prep Type: Total/NA
Prep Batch: 505809

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	ND		2.60	2.55		ug/Kg	☼	98	72 - 129
Perfluorodecanoic acid (PFDA)	ND		2.60	2.41		ug/Kg	☼	93	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND		2.60	3.24		ug/Kg	☼	125	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		2.60	2.78		ug/Kg	☼	107	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		2.60	3.19		ug/Kg	☼	122	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		2.60	2.57		ug/Kg	☼	99	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND		2.30	2.07		ug/Kg	☼	90	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	ND		2.37	2.25		ug/Kg	☼	95	67 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		2.42	2.52		ug/Kg	☼	104	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.60	3.11		ug/Kg	☼	119	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.60	3.14		ug/Kg	☼	121	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND	F1	2.43	3.52	F1	ug/Kg	☼	145	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.60	2.44		ug/Kg	☼	94	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.45	3.21		ug/Kg	☼	131	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.45	3.00		ug/Kg	☼	122	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*118*		*50 - 150*
13C4 PFHpA	*89*		*50 - 150*
13C4 PFOA	*94*		*50 - 150*
13C5 PFNA	*70*		*50 - 150*
13C2 PFDA	*89*		*50 - 150*
13C2 PFUnA	*82*		*50 - 150*
13C2 PFDoA	*67*		*50 - 150*
13C2 PFTeDA	*76*		*50 - 150*
13C3 PFBS	*124*		*50 - 150*
18O2 PFHxS	*93*		*50 - 150*
13C4 PFOS	*79*		*50 - 150*
d3-NMeFOSAA	*74*		*50 - 150*
d5-NEtFOSAA	*66*		*50 - 150*
13C3 HFPO-DA	*100*		*50 - 150*

Lab Sample ID: 320-76026-1 MSD
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: SB1-15.7-16.3
Prep Type: Total/NA
Prep Batch: 505809

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND		2.54	2.41		ug/Kg	☼	95	70 - 132	4	30
Perfluoroheptanoic acid (PFHpA)	ND		2.54	2.51		ug/Kg	☼	99	71 - 131	3	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-1 MSD
Matrix: Solid
Analysis Batch: 506420

Client Sample ID: SB1-15.7-16.3
Prep Type: Total/NA
Prep Batch: 505809

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	ND		2.54	2.46		ug/Kg	☼	97	69 - 133	1	30
Perfluorononanoic acid (PFNA)	ND		2.54	2.55		ug/Kg	☼	100	72 - 129	0	30
Perfluorodecanoic acid (PFDA)	ND		2.54	2.42		ug/Kg	☼	96	69 - 133	0	30
Perfluoroundecanoic acid (PFUnA)	ND		2.54	3.42		ug/Kg	☼	135	64 - 136	5	30
Perfluorododecanoic acid (PFDoA)	ND		2.54	2.58		ug/Kg	☼	102	69 - 135	7	30
Perfluorotridecanoic acid (PFTriA)	ND		2.54	3.11		ug/Kg	☼	123	66 - 139	2	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.54	2.90		ug/Kg	☼	114	69 - 133	12	30
Perfluorobutanesulfonic acid (PFBS)	ND		2.24	2.23		ug/Kg	☼	99	72 - 128	7	30
Perfluorohexanesulfonic acid (PFHxS)	ND		2.31	2.23		ug/Kg	☼	96	67 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	ND		2.35	2.51		ug/Kg	☼	107	68 - 136	0	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.54	3.14		ug/Kg	☼	124	63 - 144	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	F1	2.54	3.58	F1	ug/Kg	☼	141	61 - 139	13	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND	F1	2.36	3.30	F1	ug/Kg	☼	140	75 - 135	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.54	2.41		ug/Kg	☼	95	77 - 137	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.39	3.10		ug/Kg	☼	130	76 - 136	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.39	2.77		ug/Kg	☼	116	79 - 139	8	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*114*		*50 - 150*
13C4 PFHpA	*89*		*50 - 150*
13C4 PFOA	*88*		*50 - 150*
13C5 PFNA	*65*		*50 - 150*
13C2 PFDA	*81*		*50 - 150*
13C2 PFUnA	*70*		*50 - 150*
13C2 PFDoA	*59*		*50 - 150*
13C2 PFTeDA	*64*		*50 - 150*
13C3 PFBS	*110*		*50 - 150*
18O2 PFHxS	*88*		*50 - 150*
13C4 PFOS	*77*		*50 - 150*
d3-NMeFOSAA	*63*		*50 - 150*
d5-NEtFOSAA	*51*		*50 - 150*
13C3 HFPO-DA	*95*		*50 - 150*

Lab Sample ID: MB 320-505990/1-A
Matrix: Solid
Analysis Batch: 507184

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 505990

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg		07/12/21 19:00	07/16/21 01:22	1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-505990/1-A
Matrix: Solid
Analysis Batch: 507184

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 505990

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg		07/12/21 19:00	07/16/21 01:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*65*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C4 PFHpA	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C4 PFOA	*74*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C5 PFNA	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C2 PFDA	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C2 PFUnA	*68*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C2 PFDoA	*73*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C2 PFTeDA	*69*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C3 PFBS	*78*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
18O2 PFHxS	*69*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C4 PFOS	*72*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
d5-NEtFOSAA	*70*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*
13C3 HFPO-DA	*68*		*50 - 150*	*07/12/21 19:00*	*07/16/21 01:22*	*1*

Lab Sample ID: LCS 320-505990/2-A
Matrix: Solid
Analysis Batch: 507184

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 505990

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.29		ug/Kg		114	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.19		ug/Kg		110	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.13		ug/Kg		107	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.17		ug/Kg		109	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	2.18		ug/Kg		109	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-505990/2-A
Matrix: Solid
Analysis Batch: 507184

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 505990

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroundecanoic acid (PFUnA)	2.00	2.15		ug/Kg		107	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.21		ug/Kg		111	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	2.00		ug/Kg		100	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	2.05		ug/Kg		102	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.70		ug/Kg		96	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.92		ug/Kg		106	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.96		ug/Kg		106	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.24		ug/Kg		112	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.38		ug/Kg		119	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	2.04		ug/Kg		109	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.30		ug/Kg		115	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	2.09		ug/Kg		111	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	2.22		ug/Kg		118	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*59*		*50 - 150*
13C4 PFHpA	*62*		*50 - 150*
13C4 PFOA	*63*		*50 - 150*
13C5 PFNA	*61*		*50 - 150*
13C2 PFDA	*62*		*50 - 150*
13C2 PFUnA	*65*		*50 - 150*
13C2 PFDoA	*65*		*50 - 150*
13C2 PFTeDA	*66*		*50 - 150*
13C3 PFBS	*68*		*50 - 150*
18O2 PFHxS	*60*		*50 - 150*
13C4 PFOS	*57*		*50 - 150*
d3-NMeFOSAA	*60*		*50 - 150*
d5-NEtFOSAA	*58*		*50 - 150*
13C3 HFPO-DA	*60*		*50 - 150*

Lab Sample ID: 320-76026-19 MS
Matrix: Solid
Analysis Batch: 508826

Client Sample ID: SS-10
Prep Type: Total/NA
Prep Batch: 505990

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND		2.03	2.05		ug/Kg	☼	101	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		2.03	2.18		ug/Kg	☼	107	71 - 131
Perfluorooctanoic acid (PFOA)	ND		2.03	2.18		ug/Kg	☼	107	69 - 133
Perfluorononanoic acid (PFNA)	ND		2.03	2.12		ug/Kg	☼	104	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-19 MS
Matrix: Solid
Analysis Batch: 508826

Client Sample ID: SS-10
Prep Type: Total/NA
Prep Batch: 505990

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	ND		2.03	2.08		ug/Kg	☼	103	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND	F1	2.03	2.66		ug/Kg	☼	131	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		2.03	2.16		ug/Kg	☼	107	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		2.03	1.85		ug/Kg	☼	91	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		2.03	2.18		ug/Kg	☼	108	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND		1.79	1.67		ug/Kg	☼	93	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	ND		1.85	1.89		ug/Kg	☼	102	67 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		1.88	2.05	I	ug/Kg	☼	109	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.03	2.51		ug/Kg	☼	124	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.03	2.42		ug/Kg	☼	119	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.89	2.18		ug/Kg	☼	115	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.03	2.25		ug/Kg	☼	111	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.91	1.56		ug/Kg	☼	82	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	F1	1.91	1.49	F1	ug/Kg	☼	78	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*72*		*50 - 150*
13C4 PFHpA	*70*		*50 - 150*
13C4 PFOA	*75*		*50 - 150*
13C5 PFNA	*85*		*50 - 150*
13C2 PFDA	*83*		*50 - 150*
13C2 PFUnA	*74*		*50 - 150*
13C2 PFDoA	*64*		*50 - 150*
13C2 PFTeDA	*62*		*50 - 150*
13C3 PFBS	*98*		*50 - 150*
18O2 PFHxS	*76*		*50 - 150*
13C4 PFOS	*99*		*50 - 150*
d3-NMeFOSAA	*57*		*50 - 150*
d5-NEtFOSAA	*54*		*50 - 150*
13C3 HFPO-DA	*73*		*50 - 150*

Lab Sample ID: 320-76026-19 MSD
Matrix: Solid
Analysis Batch: 508826

Client Sample ID: SS-10
Prep Type: Total/NA
Prep Batch: 505990

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND		2.07	2.19		ug/Kg	☼	105	70 - 132	6	30
Perfluoroheptanoic acid (PFHpA)	ND		2.07	2.36		ug/Kg	☼	114	71 - 131	8	30
Perfluorooctanoic acid (PFOA)	ND		2.07	2.13		ug/Kg	☼	103	69 - 133	2	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-19 MSD
Matrix: Solid
Analysis Batch: 508826

Client Sample ID: SS-10
Prep Type: Total/NA
Prep Batch: 505990

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)	ND		2.07	2.07		ug/Kg	☼	100	72 - 129	2	30
Perfluorodecanoic acid (PFDA)	ND		2.07	2.41		ug/Kg	☼	116	69 - 133	15	30
Perfluoroundecanoic acid (PFUnA)	ND	F1	2.07	2.93	F1	ug/Kg	☼	141	64 - 136	10	30
Perfluorododecanoic acid (PFDoA)	ND		2.07	2.35		ug/Kg	☼	113	69 - 135	8	30
Perfluorotridecanoic acid (PFTriA)	ND		2.07	2.07		ug/Kg	☼	100	66 - 139	12	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.07	2.30		ug/Kg	☼	111	69 - 133	5	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.83	1.62		ug/Kg	☼	89	72 - 128	3	30
Perfluorohexanesulfonic acid (PFHxS)	ND		1.89	1.94		ug/Kg	☼	103	67 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	ND		1.92	1.93	I	ug/Kg	☼	100	68 - 136	6	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.07	2.58		ug/Kg	☼	124	63 - 144	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.07	2.47		ug/Kg	☼	119	61 - 139	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.93	2.14		ug/Kg	☼	111	75 - 135	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.07	2.53		ug/Kg	☼	122	77 - 137	11	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.95	1.54		ug/Kg	☼	79	76 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	F1	1.95	1.52	F1	ug/Kg	☼	78	79 - 139	2	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*67*		*50 - 150*
13C4 PFHpA	*62*		*50 - 150*
13C4 PFOA	*74*		*50 - 150*
13C5 PFNA	*79*		*50 - 150*
13C2 PFDA	*78*		*50 - 150*
13C2 PFUnA	*67*		*50 - 150*
13C2 PFDoA	*57*		*50 - 150*
13C2 PFTeDA	*59*		*50 - 150*
13C3 PFBS	*87*		*50 - 150*
18O2 PFHxS	*71*		*50 - 150*
13C4 PFOS	*92*		*50 - 150*
d3-NMeFOSAA	*61*		*50 - 150*
d5-NEtFOSAA	*53*		*50 - 150*
13C3 HFPO-DA	*61*		*50 - 150*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76026-10 DU
Matrix: Solid
Analysis Batch: 506701

Client Sample ID: SS-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	6.3			5.3		%				16	20
Percent Solids	93.8			94.7		%				1	20

LCMS

Prep Batch: 505809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-1	SB1-15.7-16.3	Total/NA	Solid	SHAKE	
320-76026-2	SB1-27.3-28.0	Total/NA	Solid	SHAKE	
320-76026-3	SB2-31.7-32.3	Total/NA	Solid	SHAKE	
320-76026-4	SB2-37.5-38.4	Total/NA	Solid	SHAKE	
320-76026-5 - DL	SB3-0.0-0.8	Total/NA	Solid	SHAKE	
320-76026-5	SB3-0.0-0.8	Total/NA	Solid	SHAKE	
320-76026-6	SB3-10.0-11.0	Total/NA	Solid	SHAKE	
320-76026-7	SB31-10.0-11.0	Total/NA	Solid	SHAKE	
320-76026-8	SB3-20.0-20.9	Total/NA	Solid	SHAKE	
320-76026-9	SB3-23.0-24.0	Total/NA	Solid	SHAKE	
320-76026-10	SS-01	Total/NA	Solid	SHAKE	
320-76026-11	SS-02	Total/NA	Solid	SHAKE	
320-76026-12	SS-03	Total/NA	Solid	SHAKE	
320-76026-13	SS-04	Total/NA	Solid	SHAKE	
320-76026-14	SS-05	Total/NA	Solid	SHAKE	
320-76026-15	SS-06	Total/NA	Solid	SHAKE	
320-76026-16	SS-07	Total/NA	Solid	SHAKE	
320-76026-17	SS-08	Total/NA	Solid	SHAKE	
320-76026-18	SS-09	Total/NA	Solid	SHAKE	
MB 320-505809/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-505809/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76026-1 MS	SB1-15.7-16.3	Total/NA	Solid	SHAKE	
320-76026-1 MSD	SB1-15.7-16.3	Total/NA	Solid	SHAKE	

Prep Batch: 505990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-19	SS-10	Total/NA	Solid	SHAKE	
320-76026-20	SS-11	Total/NA	Solid	SHAKE	
320-76026-21	SS-12	Total/NA	Solid	SHAKE	
320-76026-22	SS-13	Total/NA	Solid	SHAKE	
320-76026-23	SS-14	Total/NA	Solid	SHAKE	
320-76026-24	SS-15	Total/NA	Solid	SHAKE	
320-76026-25	SS-16	Total/NA	Solid	SHAKE	
320-76026-26	SS-17	Total/NA	Solid	SHAKE	
320-76026-27	SS-18	Total/NA	Solid	SHAKE	
320-76026-28	SS-19	Total/NA	Solid	SHAKE	
MB 320-505990/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-505990/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76026-19 MS	SS-10	Total/NA	Solid	SHAKE	
320-76026-19 MSD	SS-10	Total/NA	Solid	SHAKE	

Analysis Batch: 506420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-1	SB1-15.7-16.3	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-2	SB1-27.3-28.0	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-3	SB2-31.7-32.3	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-4	SB2-37.5-38.4	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-5	SB3-0.0-0.8	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-6	SB3-10.0-11.0	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-7	SB31-10.0-11.0	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-8	SB3-20.0-20.9	Total/NA	Solid	EPA 537(Mod)	505809

LCMS (Continued)

Analysis Batch: 506420 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-9	SB3-23.0-24.0	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-10	SS-01	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-11	SS-02	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-12	SS-03	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-13	SS-04	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-14	SS-05	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-15	SS-06	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-16	SS-07	Total/NA	Solid	EPA 537(Mod)	505809
MB 320-505809/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	505809
LCS 320-505809/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-1 MS	SB1-15.7-16.3	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-1 MSD	SB1-15.7-16.3	Total/NA	Solid	EPA 537(Mod)	505809

Analysis Batch: 506475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-17	SS-08	Total/NA	Solid	EPA 537(Mod)	505809
320-76026-18	SS-09	Total/NA	Solid	EPA 537(Mod)	505809

Analysis Batch: 507032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-5 - DL	SB3-0.0-0.8	Total/NA	Solid	EPA 537(Mod)	505809

Analysis Batch: 507184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-20	SS-11	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-26	SS-17	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-27	SS-18	Total/NA	Solid	EPA 537(Mod)	505990
MB 320-505990/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	505990
LCS 320-505990/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	505990

Analysis Batch: 507522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-28	SS-19	Total/NA	Solid	EPA 537(Mod)	505990

Analysis Batch: 508826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-19	SS-10	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-21	SS-12	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-22	SS-13	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-23	SS-14	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-24	SS-15	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-25	SS-16	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-19 MS	SS-10	Total/NA	Solid	EPA 537(Mod)	505990
320-76026-19 MSD	SS-10	Total/NA	Solid	EPA 537(Mod)	505990

General Chemistry

Analysis Batch: 506179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-1	SB1-15.7-16.3	Total/NA	Solid	D 2216	
320-76026-2	SB1-27.3-28.0	Total/NA	Solid	D 2216	

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

General Chemistry

Analysis Batch: 506700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-3	SB2-31.7-32.3	Total/NA	Solid	D 2216	
320-76026-4	SB2-37.5-38.4	Total/NA	Solid	D 2216	
320-76026-5	SB3-0.0-0.8	Total/NA	Solid	D 2216	
320-76026-6	SB3-10.0-11.0	Total/NA	Solid	D 2216	
320-76026-7	SB31-10.0-11.0	Total/NA	Solid	D 2216	
320-76026-8	SB3-20.0-20.9	Total/NA	Solid	D 2216	
320-76026-9	SB3-23.0-24.0	Total/NA	Solid	D 2216	

Analysis Batch: 506701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76026-10	SS-01	Total/NA	Solid	D 2216	
320-76026-11	SS-02	Total/NA	Solid	D 2216	
320-76026-12	SS-03	Total/NA	Solid	D 2216	
320-76026-13	SS-04	Total/NA	Solid	D 2216	
320-76026-14	SS-05	Total/NA	Solid	D 2216	
320-76026-15	SS-06	Total/NA	Solid	D 2216	
320-76026-16	SS-07	Total/NA	Solid	D 2216	
320-76026-17	SS-08	Total/NA	Solid	D 2216	
320-76026-18	SS-09	Total/NA	Solid	D 2216	
320-76026-19	SS-10	Total/NA	Solid	D 2216	
320-76026-20	SS-11	Total/NA	Solid	D 2216	
320-76026-21	SS-12	Total/NA	Solid	D 2216	
320-76026-22	SS-13	Total/NA	Solid	D 2216	
320-76026-23	SS-14	Total/NA	Solid	D 2216	
320-76026-24	SS-15	Total/NA	Solid	D 2216	
320-76026-25	SS-16	Total/NA	Solid	D 2216	
320-76026-26	SS-17	Total/NA	Solid	D 2216	
320-76026-27	SS-18	Total/NA	Solid	D 2216	
320-76026-28	SS-19	Total/NA	Solid	D 2216	
320-76026-10 DU	SS-01	Total/NA	Solid	D 2216	

Client Sample ID: SB1-15.7-16.3
Lab Sample ID: 320-76026-1
Date Collected: 06/29/21 10:15
Matrix: Solid
Date Received: 07/09/21 13:12

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			506179	07/13/21 13:45	JCB	TAL SAC

Client Sample ID: SB1-15.7-16.3
Lab Sample ID: 320-76026-1
Date Collected: 06/29/21 10:15
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 72.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.50 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 02:42	K1S	TAL SAC

Client Sample ID: SB1-27.3-28.0
Lab Sample ID: 320-76026-2
Date Collected: 06/29/21 10:45
Matrix: Solid
Date Received: 07/09/21 13:12

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			506179	07/13/21 13:45	JCB	TAL SAC

Client Sample ID: SB1-27.3-28.0
Lab Sample ID: 320-76026-2
Date Collected: 06/29/21 10:45
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.59 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 03:10	K1S	TAL SAC

Client Sample ID: SB2-31.7-32.3
Lab Sample ID: 320-76026-3
Date Collected: 07/02/21 13:22
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB2-31.7-32.3
Lab Sample ID: 320-76026-3
Date Collected: 07/02/21 13:22
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 83.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.15 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 03:19	K1S	TAL SAC

Client Sample ID: SB2-37.5-38.4
Lab Sample ID: 320-76026-4
Date Collected: 07/02/21 14:30
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB2-37.5-38.4

Lab Sample ID: 320-76026-4
Date Collected: 07/02/21 14:30
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.31 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 03:29	K1S	TAL SAC

Client Sample ID: SB3-0.0-0.8

Lab Sample ID: 320-76026-5
Date Collected: 07/06/21 11:10
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB3-0.0-0.8

Lab Sample ID: 320-76026-5
Date Collected: 07/06/21 11:10
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 67.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.58 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 03:38	K1S	TAL SAC
Total/NA	Prep	SHAKE	DL		5.58 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			507032	07/15/21 22:26	S1M	TAL SAC

Client Sample ID: SB3-10.0-11.0

Lab Sample ID: 320-76026-6
Date Collected: 07/06/21 12:27
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB3-10.0-11.0

Lab Sample ID: 320-76026-6
Date Collected: 07/06/21 12:27
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 74.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.59 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 03:48	K1S	TAL SAC

Client Sample ID: SB31-10.0-11.0

Lab Sample ID: 320-76026-7
Date Collected: 07/06/21 12:17
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SB31-10.0-11.0
Lab Sample ID: 320-76026-7
Date Collected: 07/06/21 12:17
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 74.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.51 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 04:16	K1S	TAL SAC

Client Sample ID: SB3-20.0-20.9
Lab Sample ID: 320-76026-8
Date Collected: 07/06/21 12:38
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB3-20.0-20.9
Lab Sample ID: 320-76026-8
Date Collected: 07/06/21 12:38
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.25 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 04:25	K1S	TAL SAC

Client Sample ID: SB3-23.0-24.0
Lab Sample ID: 320-76026-9
Date Collected: 07/06/21 16:55
Matrix: Solid
Date Received: 07/09/21 13:12

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			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB3-23.0-24.0
Lab Sample ID: 320-76026-9
Date Collected: 07/06/21 16:55
Matrix: Solid
Date Received: 07/09/21 13:12
Percent Solids: 82.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.51 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 04:35	K1S	TAL SAC

Client Sample ID: SS-01
Lab Sample ID: 320-76026-10
Date Collected: 07/07/21 10:40
Matrix: Solid
Date Received: 07/09/21 13:12

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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-01
Date Collected: 07/07/21 10:40
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-10
Matrix: Solid
Percent Solids: 93.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.21 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 04:44	K1S	TAL SAC

Client Sample ID: SS-02
Date Collected: 07/07/21 11:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-11
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-02
Date Collected: 07/07/21 11:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-11
Matrix: Solid
Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.15 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 04:53	K1S	TAL SAC

Client Sample ID: SS-03
Date Collected: 07/07/21 11:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-12
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-03
Date Collected: 07/07/21 11:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-12
Matrix: Solid
Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.35 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 05:03	K1S	TAL SAC

Client Sample ID: SS-04
Date Collected: 07/07/21 11:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-13
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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-04
Date Collected: 07/07/21 11:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-13
Matrix: Solid
Percent Solids: 91.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.37 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 05:12	K1S	TAL SAC

Client Sample ID: SS-05
Date Collected: 07/07/21 11:40
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-14
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-05
Date Collected: 07/07/21 11:40
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-14
Matrix: Solid
Percent Solids: 93.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.41 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 05:22	K1S	TAL SAC

Client Sample ID: SS-06
Date Collected: 07/07/21 12:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-15
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-06
Date Collected: 07/07/21 12:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-15
Matrix: Solid
Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.39 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 05:31	K1S	TAL SAC

Client Sample ID: SS-07
Date Collected: 07/07/21 12:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-16
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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-07
Date Collected: 07/07/21 12:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-16
Matrix: Solid
Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.19 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 05:40	K1S	TAL SAC

Client Sample ID: SS-08
Date Collected: 07/07/21 12:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-17
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-08
Date Collected: 07/07/21 12:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-17
Matrix: Solid
Percent Solids: 90.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.21 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506475	07/14/21 08:58	S1M	TAL SAC

Client Sample ID: SS-09
Date Collected: 07/07/21 14:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-18
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-09
Date Collected: 07/07/21 14:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-18
Matrix: Solid
Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.31 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			506475	07/14/21 09:07	S1M	TAL SAC

Client Sample ID: SS-10
Date Collected: 07/07/21 15:45
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-19
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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-10
Date Collected: 07/07/21 15:45
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-19
Matrix: Solid
Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508826	07/21/21 13:44	D1R	TAL SAC

Client Sample ID: SS-11
Date Collected: 07/07/21 16:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-20
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-11
Date Collected: 07/07/21 16:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-20
Matrix: Solid
Percent Solids: 86.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.53 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507184	07/16/21 02:08	S1M	TAL SAC

Client Sample ID: SS-12
Date Collected: 07/07/21 15:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-21
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-12
Date Collected: 07/07/21 15:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-21
Matrix: Solid
Percent Solids: 82.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.64 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508826	07/21/21 14:12	D1R	TAL SAC

Client Sample ID: SS-13
Date Collected: 07/07/21 14:50
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-22
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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-13
Date Collected: 07/07/21 14:50
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-22
Matrix: Solid
Percent Solids: 60.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.08 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508826	07/21/21 14:22	D1R	TAL SAC

Client Sample ID: SS-14
Date Collected: 07/07/21 16:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-23
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-14
Date Collected: 07/07/21 16:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-23
Matrix: Solid
Percent Solids: 89.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.28 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508826	07/21/21 14:31	D1R	TAL SAC

Client Sample ID: SS-15
Date Collected: 07/07/21 16:25
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-24
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-15
Date Collected: 07/07/21 16:25
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-24
Matrix: Solid
Percent Solids: 91.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.54 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508826	07/21/21 14:41	D1R	TAL SAC

Client Sample ID: SS-16
Date Collected: 07/08/21 09:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-25
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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-16
Date Collected: 07/08/21 09:10
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-25
Matrix: Solid
Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.28 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508826	07/21/21 14:50	D1R	TAL SAC

Client Sample ID: SS-17
Date Collected: 07/08/21 09:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-26
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-17
Date Collected: 07/08/21 09:00
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-26
Matrix: Solid
Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.17 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507184	07/16/21 03:21	S1M	TAL SAC

Client Sample ID: SS-18
Date Collected: 07/08/21 09:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-27
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			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-18
Date Collected: 07/08/21 09:15
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-27
Matrix: Solid
Percent Solids: 89.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.32 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507184	07/16/21 03:31	S1M	TAL SAC

Client Sample ID: SS-19
Date Collected: 07/08/21 09:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-28
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			506701	07/14/21 15:42	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Client Sample ID: SS-19

Date Collected: 07/08/21 09:35
Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-28

Matrix: Solid
Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.50 g	10.0 mL	505990	07/12/21 19:00	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507522	07/17/21 00:27	RS1	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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 Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76026-1	SB1-15.7-16.3	Solid	06/29/21 10:15	07/09/21 13:12
320-76026-2	SB1-27.3-28.0	Solid	06/29/21 10:45	07/09/21 13:12
320-76026-3	SB2-31.7-32.3	Solid	07/02/21 13:22	07/09/21 13:12
320-76026-4	SB2-37.5-38.4	Solid	07/02/21 14:30	07/09/21 13:12
320-76026-5	SB3-0.0-0.8	Solid	07/06/21 11:10	07/09/21 13:12
320-76026-6	SB3-10.0-11.0	Solid	07/06/21 12:27	07/09/21 13:12
320-76026-7	SB31-10.0-11.0	Solid	07/06/21 12:17	07/09/21 13:12
320-76026-8	SB3-20.0-20.9	Solid	07/06/21 12:38	07/09/21 13:12
320-76026-9	SB3-23.0-24.0	Solid	07/06/21 16:55	07/09/21 13:12
320-76026-10	SS-01	Solid	07/07/21 10:40	07/09/21 13:12
320-76026-11	SS-02	Solid	07/07/21 11:00	07/09/21 13:12
320-76026-12	SS-03	Solid	07/07/21 11:15	07/09/21 13:12
320-76026-13	SS-04	Solid	07/07/21 11:35	07/09/21 13:12
320-76026-14	SS-05	Solid	07/07/21 11:40	07/09/21 13:12
320-76026-15	SS-06	Solid	07/07/21 12:00	07/09/21 13:12
320-76026-16	SS-07	Solid	07/07/21 12:15	07/09/21 13:12
320-76026-17	SS-08	Solid	07/07/21 12:35	07/09/21 13:12
320-76026-18	SS-09	Solid	07/07/21 14:15	07/09/21 13:12
320-76026-19	SS-10	Solid	07/07/21 15:45	07/09/21 13:12
320-76026-20	SS-11	Solid	07/07/21 16:00	07/09/21 13:12
320-76026-21	SS-12	Solid	07/07/21 15:00	07/09/21 13:12
320-76026-22	SS-13	Solid	07/07/21 14:50	07/09/21 13:12
320-76026-23	SS-14	Solid	07/07/21 16:10	07/09/21 13:12
320-76026-24	SS-15	Solid	07/07/21 16:25	07/09/21 13:12
320-76026-25	SS-16	Solid	07/08/21 09:10	07/09/21 13:12
320-76026-26	SS-17	Solid	07/08/21 09:00	07/09/21 13:12
320-76026-27	SS-18	Solid	07/08/21 09:15	07/09/21 13:12
320-76026-28	SS-19	Solid	07/08/21 09:35	07/09/21 13:12

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Laboratory: Test America
Attn: David Althacker

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

320-76026 Chain of Custody

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB1-15.7-16.3		1015	6/29/21	X	1	soil
SB1-27.3-28.0		1045	↓	X	1	↓
SB2-31.7-32.3		1322	7/2/21	X	1	
SB2-37.5-38.4		1430	7/2/21	X	1	
SB3-0.0-0.8		1110	7/6/21	X	1	
SB3-10.0-11.0		1227	↓	X	1	
SB31-10.0-11.0		1217		X	1	
SB3-20.0-20.9		1238		X	1	
SB3-23.0-24.0		1655	↓	X	1	
SS[redacted]-01		1040	7/7/21	X	1	

Project Information

Number: 102581-009
Name: Marcy Nadeau
Contact: Dillingham
Ongoing Project? Yes [X] No [ ]
Sampler: MDN, DHF, VTY

Sample Receipt

Total No. of Containers: 28
COC Seals/Intact? Y/N/NA:
Received Good Cond./Cold:
Temp:
Delivery Method: goldstreak

Notes:

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1430	Signature: [signature] Time: 13:12	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/8/21	Printed Name: Pazova Cathy Yang Date: 7/9/21	Printed Name: Date:
Company: Shannon & Wilson	Company: ETA SAC	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.8

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Acklucker

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	MSA Number: TBD
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SS-02		1100	7/7/21	X	1	soil
SS-03		1115	7/7/21	X	1	
SS-04		1135		X	1	
SS-05		1140		X	1	
SS-06		1200		X	1	
SS-07		1215		X	1	
SS-08		1235		X	1	
SS-09		1415		X	1	
SS-10		1545		X	1	
SS-11		1600		X	1	

Project Information	Sample Receipt	Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Number: 102581-009	Total No. of Containers: 28	Signature: [signature] Time: 1430	Signature: [signature] Time: 13:12	Signature: Time:
Name: Dillingham	COC Seals/Intact? Y/N/NA	Printed Name: Veselina Yakimova Date: 7/8/21	Printed Name: Pazova Cathy Yang Date: 7/9/21	Printed Name: Date:
Contact: Mardy Nadel	Received Good Cond./Cold	Company: Shannon & Wilson	Company: ETA Sac	Company:
Ongoing Project? Yes [X] No [ ]	Temp:			
Sampler: MDN, DHF, VTY	Delivery Method: goldstreak			

Notes:	Received By: 1.	Received By: 2.	Received By: 3.
	Signature: Time:	Signature: Time:	Signature: Time:
	Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
	Company:	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.8°C

No.

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Laboratory Test America
Attn: David Acclucker

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	MSA Number: TBD
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SS-12		1500	7/7/21	X	1	soil C
SS-13		1450	↓	X	1	↓
SS-14		1610	↓	X	1	↓
SS-15		1625	↓	X	1	↓
SS-16		0910	7/8/21	X	1	↓
SS-17		0900	↓	X	1	↓
SS-18		0915	↓	X	1	↓
SS-19		0935	↓	X	1	↓

Project Information	Sample Receipt
Number: 102581-009	Total No. of Containers: 28
Name: Marcy Nadel	COC Seals/Intact? Y/N/NA
Contact: Dillingham	Received Good Cond./Cold
Ongoing Project? Yes [X] No [ ]	Temp.
Sampler: MAN, DHF, VTY	Delivery Method: goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1430	Signature: Pam Cathys Time: 13:12	Signature: Time:
Printed Name: Veselina Jakimova Date: 7/8/21	Printed Name: Pazova Cathy Yang Date: 7/9/21	Printed Name: Date:
Company: Shannon & Wilson	Company: ETA Sac	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.8°C

No.

7/22/2021

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76026-1

Login Number: 76026
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, 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.	True	102581009
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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 11, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

TestAmerica

Laboratory Report Number:

320-76026-1

Laboratory Report Date:

July 22, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76026-1

Laboratory Report Date:

July 22, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

Samples were received at 3.8°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

PFAS soil samples do not require preservation beyond the temperature requirements.

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July 22, 2021

CS Site Name:

Dillingham DOT&PF

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☒ N/A☐ Comments:

No discrepancies were documented.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

Dillingham DOT&PF

The case narrative indicated:
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: *SB3-0.0-0.8*. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: *SB3-0.0-0.8*. 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.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: *SS-08*. 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 sample(s).

Method EPA 537(Mod): Results for sample *SB3-0.0-0.8* were reported from the analysis of a diluted extract due to high concentration and matrix interference of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Method EPA 537(Mod): Internal standard (ISTD) response for the following samples was outside control limits: *SB3-0.0-0.8*. The samples were re-analyzed with concurring results, and the original set of data has been reported. The internal standard is not used to quantitate target analytes; therefore, there is no adverse impact to the data.

Method EPA 537(Mod): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for several analytes of preparation batch 320-505809 and analytical batch 320-506420 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method EPA 537(Mod): The matrix spike (MS) recoveries for DONA of preparation batch 320-505990 and analytical batch 320-508826 were outside control limits. Sample matrix interference is suspected.

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CS Site Name:

Dillingham DOT&PF

Method EPA 537(Mod): The matrix spike duplicate (MSD) recoveries for DONA and Perfluoroundecanoic acid (PFUnA) of preparation batch 320-505990 and analytical batch 320-508826 were outside control limits. Sample matrix interference is suspected.

Method SHAKE: The following samples were yellow after extraction/final volume: *SS-10*, *SS-14*, (320-76026-A-19 MS) and (320-76026-A-19 MSD).

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Samples were re-analyzed, where necessary.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Transition mass ratios were outside QA/QC limits; associated samples may be biased high. Samples *SB31-10.0-11.0* (PFHxA) and *SS-13* (PFOS) are affected. Due to this uncertainty, the analyte results in the aforementioned samples are considered estimates with no direction of bias and have been flagged 'J' in the analytical database.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

Dillingham DOT&PF

e. Data quality or usability affected?

The data quality/usability is not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples are affected; see above.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☐ No☒ N/A☐ Comments:

An LCS was reported per 20 samples.

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ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

Only LCSs were reported; laboratory accuracy can be determined with the MS/MSD samples.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy was demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

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Laboratory Report Date:

July 22, 2021

CS Site Name:

Dillingham DOT&PF

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

MS and/or MSD percent recovery for NEtFOSSA and 9Cl-PF3ONS were above the laboratory limits for parent sample *SB1-15.7-16.3*.

The MSD percent recovery for PFUnA was above the laboratory limits for parent sample *SS-10*.

The MS/MSD recoveries for ADONA were below the laboratory control limits for parent sample *SS-10.*

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

Dillingham DOT&PF

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

The NEtFOSAA and 9Cl-PF3ONS analytes were not detected in the parent sample *SB1-15.7-16.3*; therefore, the results are considered unaffected, and no qualifications are required.

PFUnA was not detected in the parent sample *SS-10*; therefore, the result is considered unaffected, and no qualifications are required.

ADONA was not detected in the parent sample *SS-10*; therefore, the results are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

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July 22, 2021

CS Site Name:

Dillingham DOT&PF

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

Percent recoveries in project sample *SB3-0.0-0.8* were above laboratory limits for 13C2 PFHxA and 13C3 PFBS and below laboratory limits for 13C5 PFNA, 13C2 PFDoA, and d5-NEtFOSAA. Due to these IDA recovery failures, the associated analytes PFHxA, PFNA, and PFBS detected results are considered estimated with no direction of bias and have been flagged 'J' in the analytical database and the non-detect results for PFDoA and NEtFOSAA are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

Percent recovery in project sample *SS-08* were below laboratory limits for d5-NEtFOSAA. Due to this recovery failure the associated analyte, NEtFOSAA, result is considered estimated with no direction of bias and has been flagged 'UJ' in the analytical database.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

320-76026-1

Laboratory Report Date:

July 22, 2021

CS Site Name:

Dillingham DOT&PF

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *SB3-10.0-11.0/ SB31-10.0-11.0, SS-04/SS-05,* and *SS-16/SS-17* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 50% for all analytes, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

320-76026-1

Laboratory Report Date:

July 22, 2021

CS Site Name:

Dillingham DOT&PF

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76143-1
Client Project/Site: DLG

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
7/23/2021 11:11:52 AM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Job ID: 320-76143-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Receipt
The samples were received on 7/13/2021 3:45 PM. 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 1.5º C.

Receipt Exceptions

The following sample(s) was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): Sample 22 was received but not listed on the COC. Sample container had ID: SS-Grid-A3, date 7/8/21 and time 1905. SS-Grid-A3 (320-76143-22)

LCMS
Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: SS-Grid-A1 (320-76143-1), SS-Grid-B2 (320-76143-3), SS-Grid-B3 (320-76143-4), SS-Grid-C1 (320-76143-5), SS-Grid-C2 (320-76143-6), SB4-0.5-1.2 (320-76143-8), (MB 320-506768/1-A), (320-76143-A-1-B MS) and (320-76143-A-1-C MSD). 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.

Method EPA 537(Mod): The matrix spike / matrix spike duplicate (MS/MS) precision for preparation batch 320-506768 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analytes was outside of the established ratio limits. The qualitative identification of the analytes has some degree of uncertainty, and the reported values may have some high bias. However, analyst judgment was used to positively identify the analytes.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: SS-Grid-A1 (320-76143-1), SS-Grid-B3 (320-76143-4), SS-Grid-C2 (320-76143-6), (320-76143-A-1-B MS) and (320-76143-A-1-C MSD). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: SS-25 (320-76143-19) and SS-26 (320-76143-20). 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 sample.

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 SHAKE: The following samples were yellow after final volume/extraction: SS-20 (320-76143-14), SS-25 (320-76143-19) and SS-27 (320-76143-21).

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-A1 — Lab Sample ID: 320-76143-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.084	J	0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.042	J	0.21	0.026	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.44		0.21	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.0	F1	0.52	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-Grid-A2 — Lab Sample ID: 320-76143-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.16	J	0.19	0.040	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.045	J	0.19	0.024	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.9		0.19	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15		0.47	0.19	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-Grid-B2 — Lab Sample ID: 320-76143-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.16	J	0.21	0.043	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.063	J	0.21	0.023	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.090	J	0.21	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.15	J	0.21	0.069	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.061	J	0.21	0.026	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.77		0.21	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.4		0.51	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-Grid-B3 — Lab Sample ID: 320-76143-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.35		0.20	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.048	J	0.20	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.065	J	0.20	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.29		0.20	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9		0.50	0.20	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-Grid-C1 — Lab Sample ID: 320-76143-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.30		0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.032	J	0.21	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.051	J	0.21	0.037	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.14	J	0.21	0.069	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.072	J	0.21	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.079	J	0.21	0.026	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.2		0.21	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	12		0.52	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-Grid-C2 — Lab Sample ID: 320-76143-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.12	J I	0.20	0.041	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.037	J I	0.20	0.024	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.44		0.20	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.7		0.49	0.20	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: SS-Grid-C3 — Lab Sample ID: 320-76143-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.12	J	0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.058	J	0.21	0.023	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.087	J	0.21	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.11	J	0.21	0.070	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.35		0.21	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		0.52	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB4-0.5-1.2 — Lab Sample ID: 320-76143-8

No Detections.

Client Sample ID: SB4-15.5-17.0 — Lab Sample ID: 320-76143-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.045	J	0.21	0.043	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB4-20.0-21.5 — Lab Sample ID: 320-76143-10

No Detections.

Client Sample ID: SB4-27.8-28.5 — Lab Sample ID: 320-76143-11

No Detections.

Client Sample ID: SB5-35.0-35.5 — Lab Sample ID: 320-76143-12

No Detections.

Client Sample ID: SB5-40.0-41.5 — Lab Sample ID: 320-76143-13

No Detections.

Client Sample ID: SS-20 — Lab Sample ID: 320-76143-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.30	J I	0.71	0.28	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-21 — Lab Sample ID: 320-76143-15

No Detections.

Client Sample ID: SS-22 — Lab Sample ID: 320-76143-16

No Detections.

Client Sample ID: SS-23 — Lab Sample ID: 320-76143-17

No Detections.

Client Sample ID: SS-24 — Lab Sample ID: 320-76143-18

No Detections.

Client Sample ID: SS-25 — Lab Sample ID: 320-76143-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.22	J	1.1	0.16	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.47	J	1.1	0.20	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.7	J	2.7	1.1	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-26 — Lab Sample ID: 320-76143-20

No Detections.

Client Sample ID: SS-27 — Lab Sample ID: 320-76143-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.32	J I	2.1	0.30	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SS-Grid-A3 — Lab Sample ID: 320-76143-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	0.19	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.0		0.48	0.19	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-A1

Date Collected: 07/08/21 18:55
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-1

Matrix: Solid
Percent Solids: 93.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.084**	**J**	0.21	0.044	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.090	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.070	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorobutanesulfonic acid (PFBS)	**0.042**	**J**	0.21	0.026	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorohexanesulfonic acid (PFHxS)	**0.44**		0.21	0.032	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Perfluorooctanesulfonic acid (PFOS)	**3.0**	**F1**	0.52	0.21	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 18:46	07/16/21 09:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*53*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C4 PFHpA	*59*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C4 PFOA	*54*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C5 PFNA	*59*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C2 PFDA	*58*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C2 PFUnA	*54*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C2 PFDoA	*52*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C2 PFTeDA	*50*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C3 PFBS	*55*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
18O2 PFHxS	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C4 PFOS	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
d3-NMeFOSAA	*47*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
d5-NEtFOSAA	*45*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*
13C3 HFPO-DA	*54*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:19*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.5**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**93.5**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-Grid-A2

Date Collected: 07/08/21 19:00
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-2

Matrix: Solid
Percent Solids: 94.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.16**	**J**	0.19	0.040	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.027	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.081	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.034	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.021	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.034	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.063	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.048	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.051	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorobutanesulfonic acid (PFBS)	**0.045**	**J**	0.19	0.024	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorohexanesulfonic acid (PFHxS)	**1.9**		0.19	0.029	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Perfluorooctanesulfonic acid (PFOS)	**15**		0.47	0.19	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.37	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.35	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.025	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.10	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.021	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.017	ug/Kg	☼	07/14/21 18:46	07/16/21 09:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*73*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C4 PFHpA	*78*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C5 PFNA	*78*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C2 PFDA	*82*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C2 PFUnA	*80*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C2 PFDoA	*77*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C3 PFBS	*66*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
18O2 PFHxS	*64*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C4 PFOS	*65*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
d5-NEtFOSAA	*75*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*
13C3 HFPO-DA	*72*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:46*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**5.4**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**94.6**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-Grid-B2
Date Collected: 07/08/21 19:20
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-3
Matrix: Solid
Percent Solids: 91.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.16**	**J**	0.21	0.043	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.089	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.037	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorodecanoic acid (PFDA)	**0.063**	**J**	0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluoroundecanoic acid (PFUnA)	**0.090**	**J**	0.21	0.037	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorododecanoic acid (PFDoA)	**0.15**	**J**	0.21	0.069	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.052	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorobutanesulfonic acid (PFBS)	**0.061**	**J**	0.21	0.026	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorohexanesulfonic acid (PFHxS)	**0.77**		0.21	0.032	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Perfluorooctanesulfonic acid (PFOS)	**6.4**		0.51	0.21	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 18:46	07/16/21 09:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*42*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C4 PFHpA	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C4 PFOA	*46*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C5 PFNA	*46*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C2 PFDA	*46*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C2 PFUnA	*41*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C2 PFDoA	*39*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C2 PFTeDA	*38*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C3 PFBS	*47*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
18O2 PFHxS	*47*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C4 PFOS	*46*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
d3-NMeFOSAA	*36*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
d5-NEtFOSAA	*35*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*
13C3 HFPO-DA	*45*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:55*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.0**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**91.0**		0.1	0.1	%			07/15/21 10:52	1

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-B3

Date Collected: 07/08/21 19:25
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-4

Matrix: Solid
Percent Solids: 93.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.35**		0.20	0.042	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluoroheptanoic acid (PFHpA)	**0.048**	**J**	0.20	0.029	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluoroundecanoic acid (PFUnA)	**0.065**	**J**	0.20	0.036	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorohexanesulfonic acid (PFHxS)	**0.29**		0.20	0.031	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Perfluorooctanesulfonic acid (PFOS)	**2.9**		0.50	0.20	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/14/21 18:46	07/16/21 10:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*59*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C4 PFHpA	*59*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C4 PFOA	*58*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C5 PFNA	*65*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C2 PFDA	*67*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C2 PFUnA	*59*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C2 PFDoA	*60*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C2 PFTeDA	*58*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C3 PFBS	*61*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
18O2 PFHxS	*52*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C4 PFOS	*61*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
d3-NMeFOSAA	*60*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
d5-NEtFOSAA	*55*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*
13C3 HFPO-DA	*57*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:04*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.4**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**93.6**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-Grid-C1
Date Collected: 07/08/21 19:30
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-5
Matrix: Solid
Percent Solids: 91.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.30**		0.21	0.044	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluoroheptanoic acid (PFHpA)	**0.032**	**J**	0.21	0.030	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.089	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.037	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluoroundecanoic acid (PFUnA)	**0.051**	**J**	0.21	0.037	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorododecanoic acid (PFDoA)	**0.14**	**J**	0.21	0.069	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorotetradecanoic acid (PFTeA)	**0.072**	**J**	0.21	0.056	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorobutanesulfonic acid (PFBS)	**0.079**	**J**	0.21	0.026	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorohexanesulfonic acid (PFHxS)	**1.2**		0.21	0.032	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Perfluorooctanesulfonic acid (PFOS)	**12**		0.52	0.21	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 18:46	07/16/21 10:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*50*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C4 PFHpA	*55*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C4 PFOA	*54*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C5 PFNA	*55*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C2 PFDA	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C2 PFUnA	*47*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C2 PFDoA	*44*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C2 PFTeDA	*40*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C3 PFBS	*50*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
18O2 PFHxS	*46*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C4 PFOS	*48*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
d3-NMeFOSAA	*44*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
d5-NEtFOSAA	*42*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*
13C3 HFPO-DA	*48*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:14*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.5**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**91.5**		0.1	0.1	%			07/15/21 10:52	1

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-C2
Date Collected: 07/08/21 19:35
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-6
Matrix: Solid
Percent Solids: 93.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.12**	**J I**	0.20	0.041	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.028	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.084	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.035	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.035	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.050	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.053	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorobutanesulfonic acid (PFBS)	**0.037**	**J I**	0.20	0.024	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorohexanesulfonic acid (PFHxS)	**0.44**		0.20	0.030	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Perfluorooctanesulfonic acid (PFOS)	**3.7**		0.49	0.20	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.026	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.11	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/14/21 18:46	07/16/21 10:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C4 PFHpA	*58*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C4 PFOA	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C5 PFNA	*58*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C2 PFDA	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C2 PFUnA	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C2 PFDoA	*48*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C2 PFTeDA	*47*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C3 PFBS	*53*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
18O2 PFHxS	*52*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C4 PFOS	*50*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
d3-NMeFOSAA	*52*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
d5-NEtFOSAA	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*
13C3 HFPO-DA	*49*	**5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 10:23*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.8**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**93.2**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-Grid-C3

Date Collected: 07/08/21 19:40
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-7

Matrix: Solid
Percent Solids: 91.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.12**	**J**	0.21	0.044	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.090	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorodecanoic acid (PFDA)	**0.058**	**J**	0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluoroundecanoic acid (PFUnA)	**0.087**	**J**	0.21	0.038	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorododecanoic acid (PFDoA)	**0.11**	**J**	0.21	0.070	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorohexanesulfonic acid (PFHxS)	**0.35**		0.21	0.032	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Perfluorooctanesulfonic acid (PFOS)	**2.6**		0.52	0.21	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 18:46	07/16/21 10:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*65*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C4 PFHpA	*65*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C4 PFOA	*65*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C5 PFNA	*68*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C2 PFDA	*63*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C2 PFUnA	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C2 PFDoA	*62*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C2 PFTeDA	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C3 PFBS	*64*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
18O2 PFHxS	*55*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C4 PFOS	*64*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
d5-NEtFOSAA	*56*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*
13C3 HFPO-DA	*59*		*50 - 150*	*07/14/21 18:46*	*07/16/21 10:51*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.6**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**91.4**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SB4-0.5-1.2

Date Collected: 07/08/21 17:38
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-8

Matrix: Solid
Percent Solids: 74.4

Method: EPA 537(Mod) - 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	0.056	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluoroheptanoic acid (PFHpA)	ND		0.27	0.039	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorooctanoic acid (PFOA)	ND		0.27	0.12	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorononanoic acid (PFNA)	ND		0.27	0.048	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorodecanoic acid (PFDA)	ND		0.27	0.029	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluoroundecanoic acid (PFUnA)	ND		0.27	0.048	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorododecanoic acid (PFDoA)	ND		0.27	0.090	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorotridecanoic acid (PFTriA)	ND		0.27	0.068	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.27	0.072	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.27	0.033	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.27	0.042	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.67	0.27	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.7	0.52	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.7	0.50	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.27	0.036	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.33	0.15	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.27	0.029	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.27	0.024	ug/Kg	☼	07/14/21 18:46	07/16/21 11:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*37*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C4 PFHpA	*46*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C4 PFOA	*43*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C5 PFNA	*47*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C2 PFDA	*45*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C2 PFUnA	*41*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C2 PFDoA	*48*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C2 PFTeDA	*45*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C3 PFBS	*45*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
18O2 PFHxS	*43*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C4 PFOS	*46*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
d3-NMeFOSAA	*33*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
d5-NEtFOSAA	*38*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*
13C3 HFPO-DA	*41*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 11:00*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**25.6**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**74.4**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SB4-15.5-17.0
Date Collected: 07/08/21 17:51
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-9
Matrix: Solid
Percent Solids: 96.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.045**	**J**	0.21	0.043	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.089	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.037	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.037	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.069	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.056	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.032	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.52	0.21	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 21:24	07/18/21 02:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C2 PFUnA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C2 PFDoA	*83*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C3 PFBS	*92*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C4 PFOS	*96*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
d5-NEtFOSAA	*101*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:51*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**3.6**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**96.4**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SB4-20.0-21.5

Date Collected: 07/08/21 18:10
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-10

Matrix: Solid
Percent Solids: 90.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.044	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.091	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.071	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.21	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.029	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 21:24	07/18/21 03:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C2 PFDA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C2 PFUnA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C2 PFDoA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
18O2 PFHxS	*92*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C4 PFOS	*100*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
d5-NEtFOSAA	*100*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*
13C3 HFPO-DA	*76*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:00*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.3**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**90.7**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SB4-27.8-28.5

Date Collected: 07/08/21 18:31
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-11

Matrix: Solid
Percent Solids: 88.1

Method: EPA 537(Mod) - 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	0.047	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.033	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.097	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.041	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.025	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.041	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.076	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.058	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.061	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.028	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.035	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.57	0.23	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.44	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.42	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.28	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.025	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.020	ug/Kg	☼	07/14/21 21:24	07/18/21 03:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C5 PFNA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C2 PFDA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C2 PFUnA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C2 PFDoA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C2 PFTeDA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C3 PFBS	*93*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C4 PFOS	*95*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
d3-NMeFOSAA	*92*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:09*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**11.9**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**88.1**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SB5-35.0-35.5

Date Collected: 07/10/21 18:33
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-12

Matrix: Solid
Percent Solids: 79.2

Method: EPA 537(Mod) - 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	0.048	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.033	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.099	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.041	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.025	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.041	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.077	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.059	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.062	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.036	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.025	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	☼	07/14/21 21:24	07/18/21 03:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C4 PFHpA	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C4 PFOA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C2 PFUnA	*83*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C2 PFDoA	*86*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C2 PFTeDA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C3 PFBS	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
18O2 PFHxS	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C4 PFOS	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:18*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**20.8**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**79.2**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SB5-40.0-41.5
Date Collected: 07/10/21 19:08
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-13
Matrix: Solid
Percent Solids: 90.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.044	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.090	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.070	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.053	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.032	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.52	0.21	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 21:24	07/18/21 03:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C4 PFOA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C2 PFDA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C2 PFUnA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C2 PFDoA	*106*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C2 PFTeDA	*96*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C3 PFBS	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C4 PFOS	*93*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
d3-NMeFOSAA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:27*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.3**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**90.7**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-20
Date Collected: 07/11/21 13:30
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-14
Matrix: Solid
Percent Solids: 62.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.28	0.060	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluoroheptanoic acid (PFHpA)	ND		0.28	0.041	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorooctanoic acid (PFOA)	ND		0.28	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorononanoic acid (PFNA)	ND		0.28	0.051	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorodecanoic acid (PFDA)	ND		0.28	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluoroundecanoic acid (PFUnA)	ND		0.28	0.051	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorododecanoic acid (PFDoA)	ND		0.28	0.095	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorotridecanoic acid (PFTriA)	ND		0.28	0.072	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.28	0.077	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.28	0.035	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.28	0.044	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Perfluorooctanesulfonic acid (PFOS)	**0.30**	**J I**	0.71	0.28	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.8	0.55	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.8	0.53	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.28	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.35	0.16	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.28	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.28	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C4 PFHpA	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C4 PFOA	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C5 PFNA	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C2 PFDA	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C2 PFUnA	*76*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C2 PFDoA	*73*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C2 PFTeDA	*78*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C3 PFBS	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
18O2 PFHxS	*75*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C4 PFOS	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
d3-NMeFOSAA	*69*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
d5-NEtFOSAA	*73*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*
13C3 HFPO-DA	*72*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:36*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**37.5**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**62.5**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-21
Date Collected: 07/11/21 13:42
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-15
Matrix: Solid
Percent Solids: 91.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.043	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.030	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.088	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.037	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.037	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.069	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.052	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.055	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.032	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.51	0.21	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.028	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.11	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.018	ug/Kg	☼	07/14/21 21:24	07/18/21 03:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C2 PFDA	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C2 PFUnA	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C2 PFTeDA	*92*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C3 PFBS	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
18O2 PFHxS	*84*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C4 PFOS	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
d3-NMeFOSAA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*
13C3 HFPO-DA	*83*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:45*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.5**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**91.5**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-22
Date Collected: 07/11/21 13:37
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-16
Matrix: Solid
Percent Solids: 93.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.044	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.091	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.071	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.057	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.21	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.029	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.023	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*71*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C4 PFHpA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C2 PFDA	*96*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C2 PFUnA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C2 PFDoA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C2 PFTeDA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
18O2 PFHxS	*84*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C4 PFOS	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
d3-NMeFOSAA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*
13C3 HFPO-DA	*67*		*50 - 150*	*07/14/21 21:24*	*07/18/21 03:55*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.7**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**93.3**		0.1	0.1	%			07/15/21 10:52	1

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-23
Date Collected: 07/11/21 13:55
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-17
Matrix: Solid
Percent Solids: 92.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.045	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.092	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.039	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.039	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.072	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.055	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.058	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.027	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.033	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.54	0.22	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.42	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.40	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.029	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.019	ug/Kg	☼	07/14/21 21:24	07/18/21 04:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C2 PFUnA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C2 PFDoA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C2 PFTeDA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C3 PFBS	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
18O2 PFHxS	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
d3-NMeFOSAA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
d5-NEtFOSAA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*
13C3 HFPO-DA	*76*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.2**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**92.8**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-24
Date Collected: 07/11/21 13:45
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-18
Matrix: Solid
Percent Solids: 93.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/14/21 21:24	07/18/21 04:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C4 PFHpA	*86*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C4 PFOA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C2 PFUnA	*78*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C2 PFDoA	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C2 PFTeDA	*99*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
18O2 PFHxS	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C4 PFOS	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
d5-NEtFOSAA	*98*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:31*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.4**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**93.6**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-25
Date Collected: 07/11/21 16:00
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-19
Matrix: Solid
Percent Solids: 17.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.1	0.23	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluoroheptanoic acid (PFHpA)	**0.22**	**J**	1.1	0.16	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorooctanoic acid (PFOA)	ND		1.1	0.47	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorononanoic acid (PFNA)	**0.47**	**J**	1.1	0.20	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorodecanoic acid (PFDA)	ND		1.1	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.1	0.20	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorododecanoic acid (PFDoA)	ND		1.1	0.36	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorotridecanoic acid (PFTriA)	ND		1.1	0.28	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.1	0.29	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.1	0.14	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.1	0.17	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Perfluorooctanesulfonic acid (PFOS)	**1.7**	**J**	2.7	1.1	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		11	2.1	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		11	2.0	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.1	0.15	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.4	0.60	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.1	0.12	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.1	0.098	ug/Kg	☼	07/14/21 21:24	07/18/21 04:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*68*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C4 PFHpA	*61*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C4 PFOA	*67*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C5 PFNA	*56*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C2 PFDA	*62*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C2 PFUnA	*54*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C2 PFDoA	*54*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C2 PFTeDA	*60*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C3 PFBS	*75*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
18O2 PFHxS	*64*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C4 PFOS	*75*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
d3-NMeFOSAA	*43*	**5-*	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
d5-NEtFOSAA	*47*	**5-*	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*
13C3 HFPO-DA	*65*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**82.2**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**17.8**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-26
Date Collected: 07/11/21 16:07
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-20
Matrix: Solid
Percent Solids: 11.6

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.5	0.32	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluoroheptanoic acid (PFHpA)	ND		1.5	0.22	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorooctanoic acid (PFOA)	ND		1.5	0.66	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorononanoic acid (PFNA)	ND		1.5	0.28	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorodecanoic acid (PFDA)	ND		1.5	0.17	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.28	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.51	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorotridecanoic acid (PFTriA)	ND		1.5	0.39	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.5	0.41	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.5	0.19	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.5	0.24	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.8	1.5	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		15	3.0	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		15	2.8	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.5	0.21	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.85	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.5	0.17	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.5	0.14	ug/Kg	☼	07/14/21 21:24	07/18/21 04:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*44*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C4 PFHpA	*46*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C4 PFOA	*49*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C5 PFNA	*45*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C2 PFDA	*49*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C2 PFUnA	*41*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C2 PFDoA	*45*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C2 PFTeDA	*42*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C3 PFBS	*53*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
18O2 PFHxS	*51*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C4 PFOS	*50*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
d3-NMeFOSAA	*42*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
d5-NEtFOSAA	*39*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*
13C3 HFPO-DA	*44*	*5-	*50 - 150*	*07/14/21 21:24*	*07/18/21 04:49*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**88.4**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**11.6**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-27
Date Collected: 07/11/21 16:15
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-21
Matrix: Solid
Percent Solids: 8.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.1	0.44	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluoroheptanoic acid (PFHpA)	**0.32**	**J I**	2.1	0.30	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorooctanoic acid (PFOA)	ND		2.1	0.90	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.38	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.23	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	0.38	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.70	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorotridecanoic acid (PFTriA)	ND		2.1	0.53	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.56	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.26	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.1	0.32	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.2	2.1	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		21	4.1	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		21	3.9	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.1	0.28	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.6	1.1	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.1	0.23	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.1	0.19	ug/Kg	☼	07/14/21 21:24	07/18/21 04:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*65*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C4 PFHpA	*63*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C4 PFOA	*69*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C5 PFNA	*62*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C2 PFDA	*64*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C2 PFUnA	*57*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C2 PFDoA	*55*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C2 PFTeDA	*66*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C3 PFBS	*76*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
18O2 PFHxS	*70*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C4 PFOS	*74*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
d5-NEtFOSAA	*52*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*
13C3 HFPO-DA	*60*		*50 - 150*	*07/14/21 21:24*	*07/18/21 04:58*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**91.5**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**8.5**		0.1	0.1	%			07/15/21 10:52	1

Client Sample ID: SS-Grid-A3
Date Collected: 07/08/21 19:05
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-22
Matrix: Solid
Percent Solids: 95.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.040	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.028	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.082	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.034	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.021	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.034	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.064	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.049	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.052	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19	0.024	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorohexanesulfonic acid (PFHxS)	**0.10**	**J**	0.19	0.030	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Perfluorooctanesulfonic acid (PFOS)	**1.0**		0.48	0.19	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.37	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.35	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.11	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.021	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.017	ug/Kg	☼	07/14/21 21:24	07/18/21 05:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C4 PFHpA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C5 PFNA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C2 PFUnA	*82*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C2 PFTeDA	*88*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
18O2 PFHxS	*89*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C4 PFOS	*94*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
d3-NMeFOSAA	*97*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*
13C3 HFPO-DA	*72*		*50 - 150*	*07/14/21 21:24*	*07/18/21 05:08*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**4.9**		0.1	0.1	%			07/15/21 10:52	1
Percent Solids	**95.1**		0.1	0.1	%			07/15/21 10:52	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-76143-1	SS-Grid-A1	53	59	54	59	58	54	52	50
320-76143-1 MS	SS-Grid-A1	58	70	60	67	65	66	60	54
320-76143-1 MSD	SS-Grid-A1	62	69	60	68	66	61	57	52
320-76143-2	SS-Grid-A2	73	78	85	78	82	80	77	75
320-76143-3	SS-Grid-B2	42 *5-	51	46 *5-	46 *5-	46 *5-	41 *5-	39 *5-	38 *5-
320-76143-4	SS-Grid-B3	59	59	58	65	67	59	60	58
320-76143-5	SS-Grid-C1	50	55	54	55	56	47 *5-	44 *5-	40 *5-
320-76143-6	SS-Grid-C2	51	58	56	58	56	51	48 *5-	47 *5-
320-76143-7	SS-Grid-C3	65	65	65	68	63	56	62	56
320-76143-8	SB4-0.5-1.2	37 *5-	46 *5-	43 *5-	47 *5-	45 *5-	41 *5-	48 *5-	45 *5-
320-76143-9	SB4-15.5-17.0	81	89	91	88	90	91	83	101
320-76143-10	SB4-20.0-21.5	78	89	88	90	89	87	99	98
320-76143-11	SB4-27.8-28.5	87	88	90	99	94	87	90	91
320-76143-12	SB5-35.0-35.5	74	81	89	88	83	83	86	90
320-76143-13	SB5-40.0-41.5	82	89	94	88	87	94	106	96
320-76143-14	SS-20	74	85	80	81	79	76	73	78
320-76143-15	SS-21	82	88	90	90	85	85	81	92
320-76143-16	SS-22	71	90	88	97	96	89	88	89
320-76143-17	SS-23	79	89	86	90	91	89	99	99
320-76143-18	SS-24	78	86	87	90	91	78	94	99
320-76143-19	SS-25	68	61	67	56	62	54	54	60
320-76143-20	SS-26	44 *5-	46 *5-	49 *5-	45 *5-	49 *5-	41 *5-	45 *5-	42 *5-
320-76143-21	SS-27	65	63	69	62	64	57	55	66
320-76143-22	SS-Grid-A3	78	87	90	87	91	82	81	88
320-76143-22 MS	SS-Grid-A3	79	91	93	99	94	96	101	97
320-76143-22 MSD	SS-Grid-A3	80	93	89	91	83	88	89	99
LCS 320-506768/2-A	Lab Control Sample	72	90	81	86	90	86	83	92
LCS 320-506776/2-A	Lab Control Sample	74	77	82	84	85	80	83	85
MB 320-506768/1-A	Method Blank	47 *5-	60	51	55	57	63	60	61
MB 320-506776/1-A	Method Blank	74	79	82	79	71	71	78	85

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-76143-1	SS-Grid-A1	55	51	56	47 *5-	45 *5-	54		
320-76143-1 MS	SS-Grid-A1	64	54	59	55	52	61		
320-76143-1 MSD	SS-Grid-A1	65	56	57	51	49 *5-	65		
320-76143-2	SS-Grid-A2	66	64	65	73	75	72		
320-76143-3	SS-Grid-B2	47 *5-	47 *5-	46 *5-	36 *5-	35 *5-	45 *5-		
320-76143-4	SS-Grid-B3	61	52	61	60	55	57		
320-76143-5	SS-Grid-C1	50	46 *5-	48 *5-	44 *5-	42 *5-	48 *5-		
320-76143-6	SS-Grid-C2	53	52	50	52	51	49 *5-		
320-76143-7	SS-Grid-C3	64	55	64	61	56	59		
320-76143-8	SB4-0.5-1.2	45 *5-	43 *5-	46 *5-	33 *5-	38 *5-	41 *5-		
320-76143-9	SB4-15.5-17.0	92	93	96	88	101	79		
320-76143-10	SB4-20.0-21.5	99	92	100	90	100	76		
320-76143-11	SB4-27.8-28.5	93	87	95	92	97	81		
320-76143-12	SB5-35.0-35.5	81	79	85	84	94	75		
320-76143-13	SB5-40.0-41.5	94	87	93	99	96	80		
320-76143-14	SS-20	85	75	80	69	73	72		

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Job ID: 320-76143-1
Project/Site: DLG

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Solid
Prep Type: Total/NA

		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)		
320-76143-15	SS-21	89	84	90	91	94	83		
320-76143-16	SS-22	80	84	79	94	97	67		
320-76143-17	SS-23	79	80	91	94	99	76		
320-76143-18	SS-24	80	81	85	89	98	73		
320-76143-19	SS-25	75	64	75	43 *5-	47 *5-	65		
320-76143-20	SS-26	53	51	50	42 *5-	39 *5-	44 *5-		
320-76143-21	SS-27	76	70	74	61	52	60		
320-76143-22	SS-Grid-A3	80	89	94	97	96	72		
320-76143-22 MS	SS-Grid-A3	86	82	94	108	108	73		
320-76143-22 MSD	SS-Grid-A3	87	90	97	100	104	72		
LCS 320-506768/2-A	Lab Control Sample	85	81	87	82	88	77		
LCS 320-506776/2-A	Lab Control Sample	85	80	84	78	89	67		
MB 320-506768/1-A	Method Blank	54	45 *5-	51	52	53	52		
MB 320-506776/1-A	Method Blank	75	73	79	80	87	65		

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: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-506768/1-A
Matrix: Solid
Analysis Batch: 507207

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506768

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg		07/14/21 18:46	07/16/21 09:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg		07/14/21 18:46	07/16/21 09:01	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*47*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C4 PFHpA	*60*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C4 PFOA	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C5 PFNA	*55*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C2 PFDA	*57*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C2 PFUnA	*63*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C2 PFDoA	*60*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C2 PFTeDA	*61*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C3 PFBS	*54*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
18O2 PFHxS	*45*	*5-*	*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C4 PFOS	*51*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
d3-NMeFOSAA	*52*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
d5-NEtFOSAA	*53*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*
13C3 HFPO-DA	*52*		*50 - 150*	*07/14/21 18:46*	*07/16/21 09:01*	*1*

Lab Sample ID: LCS 320-506768/2-A
Matrix: Solid
Analysis Batch: 507750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.22		ug/Kg		111	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.25		ug/Kg		112	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.27		ug/Kg		113	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.07		ug/Kg		103	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-506768/2-A
Matrix: Solid
Analysis Batch: 507750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506768

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	2.00	1.81		ug/Kg		91	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.08		ug/Kg		104	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.08		ug/Kg		104	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	2.08		ug/Kg		104	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	2.04		ug/Kg		102	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.76		ug/Kg		99	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.94		ug/Kg		107	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.92		ug/Kg		103	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.12		ug/Kg		106	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.17		ug/Kg		108	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.77		ug/Kg		95	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.28		ug/Kg		114	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.64		ug/Kg		87	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.84		ug/Kg		98	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*72*		*50 - 150*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*81*		*50 - 150*
13C5 PFNA	*86*		*50 - 150*
13C2 PFDA	*90*		*50 - 150*
13C2 PFUnA	*86*		*50 - 150*
13C2 PFDoA	*83*		*50 - 150*
13C2 PFTeDA	*92*		*50 - 150*
13C3 PFBS	*85*		*50 - 150*
18O2 PFHxS	*81*		*50 - 150*
13C4 PFOS	*87*		*50 - 150*
d3-NMeFOSAA	*82*		*50 - 150*
d5-NEtFOSAA	*88*		*50 - 150*
13C3 HFPO-DA	*77*		*50 - 150*

Lab Sample ID: 320-76143-1 MS
Matrix: Solid
Analysis Batch: 507207

Client Sample ID: SS-Grid-A1
Prep Type: Total/NA
Prep Batch: 506768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	0.084	J	2.12	2.61		ug/Kg	☼	119	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		2.12	2.18		ug/Kg	☼	103	71 - 131
Perfluorooctanoic acid (PFOA)	ND		2.12	2.50		ug/Kg	☼	118	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143-1 MS
Matrix: Solid
Analysis Batch: 507207

Client Sample ID: SS-Grid-A1
Prep Type: Total/NA
Prep Batch: 506768

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	ND		2.12	2.23		ug/Kg	☼	105	72 - 129
Perfluorodecanoic acid (PFDA)	ND		2.12	2.15		ug/Kg	☼	102	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND		2.12	2.49		ug/Kg	☼	118	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		2.12	2.27		ug/Kg	☼	107	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		2.12	1.97		ug/Kg	☼	93	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		2.12	2.56		ug/Kg	☼	121	69 - 133
Perfluorobutanesulfonic acid (PFBS)	0.042	J	1.87	1.93		ug/Kg	☼	101	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	0.44		1.93	2.61		ug/Kg	☼	113	67 - 130
Perfluorooctanesulfonic acid (PFOS)	3.0	F1	1.96	5.19		ug/Kg	☼	111	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.12	2.59		ug/Kg	☼	122	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.12	2.60		ug/Kg	☼	123	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.97	2.10		ug/Kg	☼	106	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.12	2.12		ug/Kg	☼	100	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.99	1.76		ug/Kg	☼	88	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.99	2.18		ug/Kg	☼	110	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*58*		*50 - 150*
13C4 PFHpA	*70*		*50 - 150*
13C4 PFOA	*60*		*50 - 150*
13C5 PFNA	*67*		*50 - 150*
13C2 PFDA	*65*		*50 - 150*
13C2 PFUnA	*66*		*50 - 150*
13C2 PFDoA	*60*		*50 - 150*
13C2 PFTeDA	*54*		*50 - 150*
13C3 PFBS	*64*		*50 - 150*
18O2 PFHxS	*54*		*50 - 150*
13C4 PFOS	*59*		*50 - 150*
d3-NMeFOSAA	*55*		*50 - 150*
d5-NEtFOSAA	*52*		*50 - 150*
13C3 HFPO-DA	*61*		*50 - 150*

Lab Sample ID: 320-76143-1 MSD
Matrix: Solid
Analysis Batch: 507207

Client Sample ID: SS-Grid-A1
Prep Type: Total/NA
Prep Batch: 506768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	0.084	J	2.06	2.31		ug/Kg	☼	108	70 - 132	12	30
Perfluoroheptanoic acid (PFHpA)	ND		2.06	2.09		ug/Kg	☼	101	71 - 131	5	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143-1 MSD
Matrix: Solid
Analysis Batch: 507207

Client Sample ID: SS-Grid-A1
Prep Type: Total/NA
Prep Batch: 506768

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	ND		2.06	2.26		ug/Kg	☼	110	69 - 133	10	30
Perfluorononanoic acid (PFNA)	ND		2.06	2.10		ug/Kg	☼	102	72 - 129	6	30
Perfluorodecanoic acid (PFDA)	ND		2.06	1.90		ug/Kg	☼	92	69 - 133	12	30
Perfluoroundecanoic acid (PFUnA)	ND		2.06	2.57		ug/Kg	☼	125	64 - 136	3	30
Perfluorododecanoic acid (PFDoA)	ND		2.06	2.06		ug/Kg	☼	100	69 - 135	10	30
Perfluorotridecanoic acid (PFTriA)	ND		2.06	2.00		ug/Kg	☼	97	66 - 139	1	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.06	2.23		ug/Kg	☼	108	69 - 133	14	30
Perfluorobutanesulfonic acid (PFBS)	0.042	J	1.82	1.90		ug/Kg	☼	102	72 - 128	2	30
Perfluorohexanesulfonic acid (PFHxS)	0.44		1.87	2.73		ug/Kg	☼	122	67 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	3.0	F1	1.91	6.90	F1	ug/Kg	☼	203	68 - 136	28	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.06	2.56		ug/Kg	☼	124	63 - 144	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.06	2.59		ug/Kg	☼	126	61 - 139	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.92	2.22		ug/Kg	☼	116	75 - 135	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.06	2.11		ug/Kg	☼	102	77 - 137	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.94	1.62		ug/Kg	☼	84	76 - 136	8	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.94	2.13		ug/Kg	☼	110	79 - 139	2	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*62*		*50 - 150*
13C4 PFHpA	*69*		*50 - 150*
13C4 PFOA	*60*		*50 - 150*
13C5 PFNA	*68*		*50 - 150*
13C2 PFDA	*66*		*50 - 150*
13C2 PFUnA	*61*		*50 - 150*
13C2 PFDoA	*57*		*50 - 150*
13C2 PFTeDA	*52*		*50 - 150*
13C3 PFBS	*65*		*50 - 150*
18O2 PFHxS	*56*		*50 - 150*
13C4 PFOS	*57*		*50 - 150*
d3-NMeFOSAA	*51*		*50 - 150*
d5-NEtFOSAA	*49*	*5-	*50 - 150*
13C3 HFPO-DA	*65*		*50 - 150*

Lab Sample ID: MB 320-506776/1-A
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506776

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg		07/14/21 21:24	07/18/21 02:32	1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-506776/1-A
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506776

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg		07/14/21 21:24	07/18/21 02:32	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C4 PFOA	*82*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C5 PFNA	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C2 PFDA	*71*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C2 PFUnA	*71*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C2 PFDoA	*78*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C3 PFBS	*75*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
18O2 PFHxS	*73*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C4 PFOS	*79*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*
13C3 HFPO-DA	*65*		*50 - 150*	*07/14/21 21:24*	*07/18/21 02:32*	*1*

Lab Sample ID: LCS 320-506776/2-A
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506776

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	1.97		ug/Kg		98	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.03		ug/Kg		101	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.11		ug/Kg		106	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.00		ug/Kg		100	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	1.90		ug/Kg		95	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-506776/2-A
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506776

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroundecanoic acid (PFUnA)	2.00	1.92		ug/Kg		96	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.90		ug/Kg		95	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	1.87		ug/Kg		94	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	2.27		ug/Kg		114	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.67		ug/Kg		94	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.95		ug/Kg		107	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.72		ug/Kg		93	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.22		ug/Kg		111	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.14		ug/Kg		107	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.71		ug/Kg		92	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.13		ug/Kg		106	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.66		ug/Kg		88	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.88		ug/Kg		100	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*74*		*50 - 150*
13C4 PFHpA	*77*		*50 - 150*
13C4 PFOA	*82*		*50 - 150*
13C5 PFNA	*84*		*50 - 150*
13C2 PFDA	*85*		*50 - 150*
13C2 PFUnA	*80*		*50 - 150*
13C2 PFDoA	*83*		*50 - 150*
13C2 PFTeDA	*85*		*50 - 150*
13C3 PFBS	*85*		*50 - 150*
18O2 PFHxS	*80*		*50 - 150*
13C4 PFOS	*84*		*50 - 150*
d3-NMeFOSAA	*78*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
13C3 HFPO-DA	*67*		*50 - 150*

Lab Sample ID: 320-76143-22 MS
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: SS-Grid-A3
Prep Type: Total/NA
Prep Batch: 506776

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND		2.10	2.18		ug/Kg	☼	104	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		2.10	2.03		ug/Kg	☼	97	71 - 131
Perfluorooctanoic acid (PFOA)	ND		2.10	2.08		ug/Kg	☼	99	69 - 133
Perfluorononanoic acid (PFNA)	ND		2.10	1.99		ug/Kg	☼	95	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143-22 MS
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: SS-Grid-A3
Prep Type: Total/NA
Prep Batch: 506776

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	ND		2.10	1.97		ug/Kg	☼	94	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND		2.10	2.20		ug/Kg	☼	105	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		2.10	1.92		ug/Kg	☼	91	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		2.10	1.77		ug/Kg	☼	84	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		2.10	2.22		ug/Kg	☼	105	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND		1.86	1.83		ug/Kg	☼	98	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	1.91	2.06		ug/Kg	☼	102	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.0		1.95	2.86		ug/Kg	☼	93	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.10	2.39		ug/Kg	☼	114	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.10	2.17		ug/Kg	☼	103	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.96	1.67		ug/Kg	☼	85	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.10	2.19		ug/Kg	☼	104	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.98	1.71		ug/Kg	☼	86	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.98	1.78		ug/Kg	☼	90	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*79*		*50 - 150*
13C4 PFHpA	*91*		*50 - 150*
13C4 PFOA	*93*		*50 - 150*
13C5 PFNA	*99*		*50 - 150*
13C2 PFDA	*94*		*50 - 150*
13C2 PFUnA	*96*		*50 - 150*
13C2 PFDoA	*101*		*50 - 150*
13C2 PFTeDA	*97*		*50 - 150*
13C3 PFBS	*86*		*50 - 150*
18O2 PFHxS	*82*		*50 - 150*
13C4 PFOS	*94*		*50 - 150*
d3-NMeFOSAA	*108*		*50 - 150*
d5-NEtFOSAA	*108*		*50 - 150*
13C3 HFPO-DA	*73*		*50 - 150*

Lab Sample ID: 320-76143-22 MSD
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: SS-Grid-A3
Prep Type: Total/NA
Prep Batch: 506776

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND		2.03	2.18		ug/Kg	☼	108	70 - 132	0	30
Perfluoroheptanoic acid (PFHpA)	ND		2.03	2.02		ug/Kg	☼	100	71 - 131	1	30
Perfluorooctanoic acid (PFOA)	ND		2.03	2.12		ug/Kg	☼	105	69 - 133	2	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143-22 MSD
Matrix: Solid
Analysis Batch: 507715

Client Sample ID: SS-Grid-A3
Prep Type: Total/NA
Prep Batch: 506776

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)	ND		2.03	2.12		ug/Kg	☼	105	72 - 129	6	30
Perfluorodecanoic acid (PFDA)	ND		2.03	2.04		ug/Kg	☼	101	69 - 133	3	30
Perfluoroundecanoic acid (PFUnA)	ND		2.03	2.45		ug/Kg	☼	121	64 - 136	11	30
Perfluorododecanoic acid (PFDoA)	ND		2.03	2.14		ug/Kg	☼	106	69 - 135	11	30
Perfluorotridecanoic acid (PFTriA)	ND		2.03	1.98		ug/Kg	☼	98	66 - 139	11	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.03	2.29		ug/Kg	☼	113	69 - 133	3	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.79	1.67		ug/Kg	☼	93	72 - 128	9	30
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	1.84	1.97		ug/Kg	☼	101	67 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	1.0		1.88	2.67		ug/Kg	☼	87	68 - 136	7	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.03	2.42		ug/Kg	☼	119	63 - 144	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.03	2.21		ug/Kg	☼	109	61 - 139	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.89	1.52		ug/Kg	☼	81	75 - 135	10	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.03	2.24		ug/Kg	☼	111	77 - 137	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.91	1.57		ug/Kg	☼	82	76 - 136	9	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.91	1.83		ug/Kg	☼	96	79 - 139	3	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*80*		*50 - 150*
13C4 PFHpA	*93*		*50 - 150*
13C4 PFOA	*89*		*50 - 150*
13C5 PFNA	*91*		*50 - 150*
13C2 PFDA	*83*		*50 - 150*
13C2 PFUnA	*88*		*50 - 150*
13C2 PFDoA	*89*		*50 - 150*
13C2 PFTeDA	*99*		*50 - 150*
13C3 PFBS	*87*		*50 - 150*
18O2 PFHxS	*90*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
d3-NMeFOSAA	*100*		*50 - 150*
d5-NEtFOSAA	*104*		*50 - 150*
13C3 HFPO-DA	*72*		*50 - 150*

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76143-8 DU
Matrix: Solid
Analysis Batch: 506863

Client Sample ID: SB4-0.5-1.2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	25.6			27.4		%				7	20
Percent Solids	74.4			72.6		%				2	20

Lab Sample ID: 320-76143-12 DU
Matrix: Solid
Analysis Batch: 506864

Client Sample ID: SB5-35.0-35.5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	20.8			19.7		%				5	20
Percent Solids	79.2			80.3		%				1	20

LCMS

Prep Batch: 506768

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-1	SS-Grid-A1	Total/NA	Solid	SHAKE	
320-76143-2	SS-Grid-A2	Total/NA	Solid	SHAKE	
320-76143-3	SS-Grid-B2	Total/NA	Solid	SHAKE	
320-76143-4	SS-Grid-B3	Total/NA	Solid	SHAKE	
320-76143-5	SS-Grid-C1	Total/NA	Solid	SHAKE	
320-76143-6	SS-Grid-C2	Total/NA	Solid	SHAKE	
320-76143-7	SS-Grid-C3	Total/NA	Solid	SHAKE	
320-76143-8	SB4-0.5-1.2	Total/NA	Solid	SHAKE	
MB 320-506768/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-506768/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76143-1 MS	SS-Grid-A1	Total/NA	Solid	SHAKE	
320-76143-1 MSD	SS-Grid-A1	Total/NA	Solid	SHAKE	

Prep Batch: 506776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-9	SB4-15.5-17.0	Total/NA	Solid	SHAKE	
320-76143-10	SB4-20.0-21.5	Total/NA	Solid	SHAKE	
320-76143-11	SB4-27.8-28.5	Total/NA	Solid	SHAKE	
320-76143-12	SB5-35.0-35.5	Total/NA	Solid	SHAKE	
320-76143-13	SB5-40.0-41.5	Total/NA	Solid	SHAKE	
320-76143-14	SS-20	Total/NA	Solid	SHAKE	
320-76143-15	SS-21	Total/NA	Solid	SHAKE	
320-76143-16	SS-22	Total/NA	Solid	SHAKE	
320-76143-17	SS-23	Total/NA	Solid	SHAKE	
320-76143-18	SS-24	Total/NA	Solid	SHAKE	
320-76143-19	SS-25	Total/NA	Solid	SHAKE	
320-76143-20	SS-26	Total/NA	Solid	SHAKE	
320-76143-21	SS-27	Total/NA	Solid	SHAKE	
320-76143-22	SS-Grid-A3	Total/NA	Solid	SHAKE	
MB 320-506776/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-506776/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76143-22 MS	SS-Grid-A3	Total/NA	Solid	SHAKE	
320-76143-22 MSD	SS-Grid-A3	Total/NA	Solid	SHAKE	

Analysis Batch: 507207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-1	SS-Grid-A1	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-2	SS-Grid-A2	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-3	SS-Grid-B2	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-4	SS-Grid-B3	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-5	SS-Grid-C1	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-6	SS-Grid-C2	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-7	SS-Grid-C3	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-8	SB4-0.5-1.2	Total/NA	Solid	EPA 537(Mod)	506768
MB 320-506768/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-1 MS	SS-Grid-A1	Total/NA	Solid	EPA 537(Mod)	506768
320-76143-1 MSD	SS-Grid-A1	Total/NA	Solid	EPA 537(Mod)	506768

Analysis Batch: 507715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-9	SB4-15.5-17.0	Total/NA	Solid	EPA 537(Mod)	506776

LCMS (Continued)

Analysis Batch: 507715 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-10	SB4-20.0-21.5	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-11	SB4-27.8-28.5	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-12	SB5-35.0-35.5	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-13	SB5-40.0-41.5	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-14	SS-20	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-15	SS-21	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-16	SS-22	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-17	SS-23	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-18	SS-24	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-19	SS-25	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-20	SS-26	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-21	SS-27	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-22	SS-Grid-A3	Total/NA	Solid	EPA 537(Mod)	506776
MB 320-506776/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	506776
LCS 320-506776/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-22 MS	SS-Grid-A3	Total/NA	Solid	EPA 537(Mod)	506776
320-76143-22 MSD	SS-Grid-A3	Total/NA	Solid	EPA 537(Mod)	506776

Analysis Batch: 507750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-506768/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	506768

General Chemistry

Analysis Batch: 506863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-1	SS-Grid-A1	Total/NA	Solid	D 2216	
320-76143-2	SS-Grid-A2	Total/NA	Solid	D 2216	
320-76143-3	SS-Grid-B2	Total/NA	Solid	D 2216	
320-76143-4	SS-Grid-B3	Total/NA	Solid	D 2216	
320-76143-5	SS-Grid-C1	Total/NA	Solid	D 2216	
320-76143-6	SS-Grid-C2	Total/NA	Solid	D 2216	
320-76143-7	SS-Grid-C3	Total/NA	Solid	D 2216	
320-76143-8	SB4-0.5-1.2	Total/NA	Solid	D 2216	
320-76143-9	SB4-15.5-17.0	Total/NA	Solid	D 2216	
320-76143-10	SB4-20.0-21.5	Total/NA	Solid	D 2216	
320-76143-11	SB4-27.8-28.5	Total/NA	Solid	D 2216	
320-76143-8 DU	SB4-0.5-1.2	Total/NA	Solid	D 2216	

Analysis Batch: 506864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-12	SB5-35.0-35.5	Total/NA	Solid	D 2216	
320-76143-13	SB5-40.0-41.5	Total/NA	Solid	D 2216	
320-76143-14	SS-20	Total/NA	Solid	D 2216	
320-76143-15	SS-21	Total/NA	Solid	D 2216	
320-76143-16	SS-22	Total/NA	Solid	D 2216	
320-76143-17	SS-23	Total/NA	Solid	D 2216	
320-76143-18	SS-24	Total/NA	Solid	D 2216	
320-76143-19	SS-25	Total/NA	Solid	D 2216	
320-76143-20	SS-26	Total/NA	Solid	D 2216	
320-76143-21	SS-27	Total/NA	Solid	D 2216	

General Chemistry (Continued)

Analysis Batch: 506864 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76143-22	SS-Grid-A3	Total/NA	Solid	D 2216	
320-76143-12 DU	SB5-35.0-35.5	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-A1
Date Collected: 07/08/21 18:55
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-1
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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-Grid-A1
Date Collected: 07/08/21 18:55
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-1
Matrix: Solid
Percent Solids: 93.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.11 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 09:19	D1R	TAL SAC

Client Sample ID: SS-Grid-A2
Date Collected: 07/08/21 19:00
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-2
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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-Grid-A2
Date Collected: 07/08/21 19:00
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-2
Matrix: Solid
Percent Solids: 94.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.61 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 09:46	D1R	TAL SAC

Client Sample ID: SS-Grid-B2
Date Collected: 07/08/21 19:20
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-3
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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-Grid-B2
Date Collected: 07/08/21 19:20
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-3
Matrix: Solid
Percent Solids: 91.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.34 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 09:55	D1R	TAL SAC

Client Sample ID: SS-Grid-B3
Date Collected: 07/08/21 19:25
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-4
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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-Grid-B3

Lab Sample ID: 320-76143-4
Date Collected: 07/08/21 19:25
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.31 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 10:04	D1R	TAL SAC

Client Sample ID: SS-Grid-C1

Lab Sample ID: 320-76143-5
Date Collected: 07/08/21 19:30
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-Grid-C1

Lab Sample ID: 320-76143-5
Date Collected: 07/08/21 19:30
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.27 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 10:14	D1R	TAL SAC

Client Sample ID: SS-Grid-C2

Lab Sample ID: 320-76143-6
Date Collected: 07/08/21 19:35
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-Grid-C2

Lab Sample ID: 320-76143-6
Date Collected: 07/08/21 19:35
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.48 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 10:23	D1R	TAL SAC

Client Sample ID: SS-Grid-C3

Lab Sample ID: 320-76143-7
Date Collected: 07/08/21 19:40
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-C3
Lab Sample ID: 320-76143-7
Date Collected: 07/08/21 19:40
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 91.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.23 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 10:51	D1R	TAL SAC

Client Sample ID: SB4-0.5-1.2
Lab Sample ID: 320-76143-8
Date Collected: 07/08/21 17:38
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SB4-0.5-1.2
Lab Sample ID: 320-76143-8
Date Collected: 07/08/21 17:38
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 74.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	10.0 mL	506768	07/14/21 18:46	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507207	07/16/21 11:00	D1R	TAL SAC

Client Sample ID: SB4-15.5-17.0
Lab Sample ID: 320-76143-9
Date Collected: 07/08/21 17:51
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SB4-15.5-17.0
Lab Sample ID: 320-76143-9
Date Collected: 07/08/21 17:51
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.03 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 02:51	RS1	TAL SAC

Client Sample ID: SB4-20.0-21.5
Lab Sample ID: 320-76143-10
Date Collected: 07/08/21 18:10
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SB4-20.0-21.5
Lab Sample ID: 320-76143-10
Date Collected: 07/08/21 18:10
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.22 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:00	RS1	TAL SAC

Client Sample ID: SB4-27.8-28.5
Lab Sample ID: 320-76143-11
Date Collected: 07/08/21 18:31
Matrix: Solid
Date Received: 07/13/21 15:45

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			506863	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SB4-27.8-28.5
Lab Sample ID: 320-76143-11
Date Collected: 07/08/21 18:31
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 88.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.02 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:09	RS1	TAL SAC

Client Sample ID: SB5-35.0-35.5
Lab Sample ID: 320-76143-12
Date Collected: 07/10/21 18:33
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SB5-35.0-35.5
Lab Sample ID: 320-76143-12
Date Collected: 07/10/21 18:33
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.48 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:18	RS1	TAL SAC

Client Sample ID: SB5-40.0-41.5
Lab Sample ID: 320-76143-13
Date Collected: 07/10/21 19:08
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SB5-40.0-41.5

Lab Sample ID: 320-76143-13
Date Collected: 07/10/21 19:08
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 90.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.26 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:27	RS1	TAL SAC

Client Sample ID: SS-20

Lab Sample ID: 320-76143-14
Date Collected: 07/11/21 13:30
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-20

Lab Sample ID: 320-76143-14
Date Collected: 07/11/21 13:30
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 62.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.64 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:36	RS1	TAL SAC

Client Sample ID: SS-21

Lab Sample ID: 320-76143-15
Date Collected: 07/11/21 13:42
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-21

Lab Sample ID: 320-76143-15
Date Collected: 07/11/21 13:42
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 91.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.33 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:45	RS1	TAL SAC

Client Sample ID: SS-22

Lab Sample ID: 320-76143-16
Date Collected: 07/11/21 13:37
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-22
Lab Sample ID: 320-76143-16
Date Collected: 07/11/21 13:37
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 03:55	RS1	TAL SAC

Client Sample ID: SS-23
Lab Sample ID: 320-76143-17
Date Collected: 07/11/21 13:55
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-23
Lab Sample ID: 320-76143-17
Date Collected: 07/11/21 13:55
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 92.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.01 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 04:22	RS1	TAL SAC

Client Sample ID: SS-24
Lab Sample ID: 320-76143-18
Date Collected: 07/11/21 13:45
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-24
Lab Sample ID: 320-76143-18
Date Collected: 07/11/21 13:45
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 93.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.35 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 04:31	RS1	TAL SAC

Client Sample ID: SS-25
Lab Sample ID: 320-76143-19
Date Collected: 07/11/21 16:00
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-25
Lab Sample ID: 320-76143-19

Date Collected: 07/11/21 16:00
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 17.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.16 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 04:40	RS1	TAL SAC

Client Sample ID: SS-26
Lab Sample ID: 320-76143-20

Date Collected: 07/11/21 16:07
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-26
Lab Sample ID: 320-76143-20

Date Collected: 07/11/21 16:07
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 11.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.63 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 04:49	RS1	TAL SAC

Client Sample ID: SS-27
Lab Sample ID: 320-76143-21

Date Collected: 07/11/21 16:15
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Client Sample ID: SS-27
Lab Sample ID: 320-76143-21

Date Collected: 07/11/21 16:15
Matrix: Solid
Date Received: 07/13/21 15:45
Percent Solids: 8.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.62 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 04:58	RS1	TAL SAC

Client Sample ID: SS-Grid-A3
Lab Sample ID: 320-76143-22

Date Collected: 07/08/21 19:05
Matrix: Solid
Date Received: 07/13/21 15:45

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			506864	07/15/21 10:52	KDB	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Client Sample ID: SS-Grid-A3

Date Collected: 07/08/21 19:05
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-22

Matrix: Solid
Percent Solids: 95.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.49 g	10.0 mL	506776	07/14/21 21:24	FX	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507715	07/18/21 05:08	RS1	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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 Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76143-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76143-1	SS-Grid-A1	Solid	07/08/21 18:55	07/13/21 15:45
320-76143-2	SS-Grid-A2	Solid	07/08/21 19:00	07/13/21 15:45
320-76143-3	SS-Grid-B2	Solid	07/08/21 19:20	07/13/21 15:45
320-76143-4	SS-Grid-B3	Solid	07/08/21 19:25	07/13/21 15:45
320-76143-5	SS-Grid-C1	Solid	07/08/21 19:30	07/13/21 15:45
320-76143-6	SS-Grid-C2	Solid	07/08/21 19:35	07/13/21 15:45
320-76143-7	SS-Grid-C3	Solid	07/08/21 19:40	07/13/21 15:45
320-76143-8	SB4-0.5-1.2	Solid	07/08/21 17:38	07/13/21 15:45
320-76143-9	SB4-15.5-17.0	Solid	07/08/21 17:51	07/13/21 15:45
320-76143-10	SB4-20.0-21.5	Solid	07/08/21 18:10	07/13/21 15:45
320-76143-11	SB4-27.8-28.5	Solid	07/08/21 18:31	07/13/21 15:45
320-76143-12	SB5-35.0-35.5	Solid	07/10/21 18:33	07/13/21 15:45
320-76143-13	SB5-40.0-41.5	Solid	07/10/21 19:08	07/13/21 15:45
320-76143-14	SS-20	Solid	07/11/21 13:30	07/13/21 15:45
320-76143-15	SS-21	Solid	07/11/21 13:42	07/13/21 15:45
320-76143-16	SS-22	Solid	07/11/21 13:37	07/13/21 15:45
320-76143-17	SS-23	Solid	07/11/21 13:55	07/13/21 15:45
320-76143-18	SS-24	Solid	07/11/21 13:45	07/13/21 15:45
320-76143-19	SS-25	Solid	07/11/21 16:00	07/13/21 15:45
320-76143-20	SS-26	Solid	07/11/21 16:07	07/13/21 15:45
320-76143-21	SS-27	Solid	07/11/21 16:15	07/13/21 15:45
320-76143-22	SS-Grid-A3	Solid	07/08/21 19:05	07/13/21 15:45

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Acklucker

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS + 180	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SS-Grid-A1		1855	7/8/21	X	1	soil
SS-Grid-A2		1900		X	1	
SS-Grid-B2		1920		X	1	
SS-Grid-B3		1925		X	1	
SS-Grid-C1		1930		X	1	
SS-Grid-C2		1935		X	1	
SS-Grid-C3		1940		X	1	
SB4-0.5-1.2		1738		X	1	
SB4-15.5-17.0		1751		X	1	
SB4-20.0-21.5		1810		X	1	

320-76143 Chain of Custody

Project Information	
Number:	102581-008
Name:	DLG
Contact:	HDN
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTT, PHF, HDN

Sample Receipt	
Total No. of Containers:	21
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Notes:

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1830	Signature: Time:	Signature: Time:
Printed Name: Veselina Jakimova Date: 7/11/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time:	Signature: Time:	Signature: Time:
Printed Name: [illegible] Date: 7/13/21	Printed Name: Date:	Printed Name: Date:
Company: [illegible]	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

15C

No.

7/23/2021

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CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Acklucker

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB4-27.8-28.5		1831	7/8/21	X	1	soil
SB5-35.0-35.5		1833	7/10/21	X	1	
SB5-40.0-41.5		1908	7/10/21	X	1	
SS-20		1330	7/11/21	X	1	/ saturated
SS-21		1342		X	1	
SS-22		1337		X	1	
SS-23		1355		X	1	
SS-24		1345		X	1	
SS-25		1600		X	1	/ organics
SS-26		1607		X	1	/ organics

Project Information	
Number:	102581-009
Name:	DLG
Contact:	Marcy Nadeau
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY, DHF

Sample Receipt	
Total No. of Containers:	21
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Notes:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1650	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/11/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time:	Signature: Time:	Signature: Time:
Printed Name: David Ha Date: 7/13/21	Printed Name: Date:	Printed Name: Date:
Company: ENV	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

1-5°C

No.

CHAIN-OF-CUSTODY RECORD

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2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
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Laboratory Test America
Attn: David Acklucker

Turn Around Time:	Quote No:	MSA Number: TBD	J-Flags:
[X] Normal [ ] Rush			[X] Yes [ ] No
Please Specify			

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SS-27		1615	7/1/21	X	1	soil/organics-saturated

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	21
Name:	DLG	COC Seals/Intact? Y/N/NA	
Contact:	Marcy Vadel	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	VTY	Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: VTJ Time: 1830	Signature: Time:	Signature: Time:
Printed Name: Veselina Yatsinova Date: 7/1/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Extra Sample ID: SS-Grid-A3, Date 7/8/21 Time 1905 So 7/13/21 1.5°C

No.

7/23/2021

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76143-1

Login Number: 76143
List Number: 1
Creator: Her, David A

List Source: Eurofins TestAmerica, 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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 11, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

TestAmerica

Laboratory Report Number:

320-76143-1

Laboratory Report Date:

July 23, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76143-1

Laboratory Report Date:

July 23, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   Samples were received at 1.5°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

   PFAS soil samples do not require preservation beyond the temperature requirements.

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☒ No☐ N/A☐ Comments:

The following sample was submitted for analysis; however, it was not listed on the Chain-of-Custody (COC): Sample 22 was received but not listed on the COC. Sample container had ID: SS- Grid-A3, date 7/8/21 and time 1905. SS-Grid-A3 (320-76143-22)

e. Data quality or usability affected?

Comments:

SS-Grid-A3 was analyzed as intended. Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The case narrative indicated:
Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: *SS-Grid-A1, SS-Grid-B2, SS-Grid-B3, SS-Grid-C1, SS-Grid-C2, SB4-0.5-1.2*, (MB 320-506768/1-A), (320-76143-A-1-B MS) and (320-76143-A-1-C MSD). 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.

Method EPA 537(Mod): The matrix spike / matrix spike duplicate (MS/MS) precision for preparation batch 320-506768 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected.

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analytes was outside of the established ratio limits. The qualitative identification of the analytes has some degree of uncertainty, and the reported values may have some high bias. However, analyst judgment was used to positively identify the analytes.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: *SS-Grid-A1, SS-Grid-B3, SS-Grid-C2,* (320-76143-A-1-B MS) and (320-76143-A-1-C MSD). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: *SS-25* and *SS-26*. 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 sample.

Method SHAKE: The following samples were yellow after final volume/extraction: *SS-20, SS-25* and *SS-27*.

c. Were all corrective actions documented?

Yes☐ No☒ N/A☐ Comments:

Corrective actions were not documented.

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d. What is the effect on data quality/usability according to the case narrative?

Comments:

Transition mass ratios were outside QA/QC limits; associated samples may be biased high. Samples *SS-Grid-C2* (PFHxA and PFBS), *SS-20* (PFOS), and *SS-27* (PFHpA) are affected. Due to this uncertainty, the analyte results in the aforementioned samples are considered estimated with no direction of bias and have been flagged 'J' in the analytical database.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

The data quality/usability is not affected.

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6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples are affected; see above.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☐ No☒ N/A☐ Comments:

An LCS was reported per 20 samples.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

Only LCSs were reported; laboratory accuracy can be determined with the MS/MSD samples.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy was demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

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ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

The MSD percent recovery for PFOS was above the laboratory limits for parent sample *SS-Grid-A1*.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

PFOS was detected in the parent sample *SS-Grid-A1* at a high concentration relatively high compared to the spike added. Therefore, the results are not considered affected and no qualifications are required.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

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ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

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Percent recoveries in project sample *SS-Grid-A1* were below laboratory limits for d3-NMeFOSAA and d5-NEtFOSAA. Due to these IDA recovery failures, the associated analyte results for NMeFOSAA and NEtFOSAA are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

Percent recoveries in project sample *SS-Grid-B2* were below laboratory limits for all isotopes except 13C4 PFHpA. Due to these IDA recovery failures and the associated analytes PFOA, PFNA, PFTriA, PFTeA, NMeFOSAA, NEtFOSAA, HFPO-DA, ADONA, 9Cl-PF3ONS, and 11Cl-PF3OUdS are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database. PFHxA, PFDA, PFUnA, PFDoA, PFBS, PFHxS, and PFOS results are considered estimated with no direction of bias and have been flagged 'J' in the analytical database.

Percent recoveries in project sample *SS-Grid-C1* were below laboratory limits for isotopes 13C2 PFUnA, 13C2 PFDoA, 13C2 PFTeDA, 18O2 PFHxS, 13C4 PFOS, d3-NMeFOSAA, d-5NEtFOSAA, and 13C3 HFPO-DA. Due to these IDA recovery failures the associated analyte results for PFUnA, PFDoA, PFTeA, PFHxS, and PFOS are considered estimated with no direction of bias and have been flagged 'J' in the analytical database. Analytes ADONA, 9Cl-PF3ONS, 11Cl-PF3OUdS, NMeFOSAA, NEtFOSAA, and HFPO-DA were not detected in the sample and are considered estimated with no direction of bias and flagged 'UJ' in the analytical database.

Percent recoveries in project sample *SS-Grid-C2* were below laboratory limits for isotopes 13C2 PFDoA, 13C2 PFTeDA, and 13C3 HFPO-DA. Due to these IDA recovery failures the associated analyte results PFDoA, PFTeA, and HFPO-DA are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

Percent recoveries in project sample *SB4-0.5-1.2* were below laboratory limits for all isotopes. Due to these IDA recovery failures the associated PFAS analytes are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

Percent recoveries in project sample *SS-25* were below laboratory limits for isotopes d3-NMeFOSAA and d5-NEtFOSAA. Due to these IDA recovery failures the associated analyte results for NMeFOSAA and NEtFOSSA are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

Percent recoveries in project samples *SS-26* were below laboratory limits for all isotopes except 13C3 PFBS, 18O2 PFHxS, and 13C4 PFOS. Due to these IDA recovery failures the associated analyte results for PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTrDA, PFTeA, NMeFOSAA, NEtFOSAA, and HFPO-DA are considered estimated with no direction of bias and have been flagged 'UJ' in the analytical database.

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IDA failures were also reported for some QC samples that did not affect the results.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

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f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pair *SS-23/SS-24* was submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate sample was within the recommended DQO of 50% for all analytes where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

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ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers.

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ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76144-1
Client Project/Site: DLG
Revision: 1

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
7/29/2021 2:36:46 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

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

Job ID: 320-76144-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Revision 7-29-2021: This reort has been revised to update sample ID.

Receipt
The samples were received on 7/13/2021 3:45 PM. 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 1.5º C.

LCMS
Method 537.1 DW: Internal standard (ISTD) response for the following sample was outside control limits: 191300 (320-76144-5). The sample was re-extracted and ISTD response was outside control limits. The original set of data have been reported.

Method 537.1 DW: Surrogate recovery for the following sample was outside control limits: 191300 (320-76144-5). Re-extraction and re-analysis was performed and the surrogate recovery was within control limits. However, re-extraction could not be reported due to quality control issues in the method blank (MB), laboratory control sample (LCS), and laboratory control duplicate (LCSD) samples.

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for Perfluorooctanesulfonic acid (PFOS) was outside of the established ratio limit. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte: (CCVL 320-507585/2). The percent difference of PFOS was within control limits.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-506784.

Method 537.1 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-506939.

Method 537.1 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-507405.

Method 537.1 DW: The following samples 191700 (320-76144-3) and 191300 (320-76144-5) in preparation batch 320-507405 were yellow/orange with a thin layer of sediment at the bottom of the bottle prior to extraction.

Method 537.1 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-509333.

Method 537.1 DW: The following samples 191300 (320-76144-5) in preparation batch 320-509333 were light yellow with a thin layer of sediment at the bottom of the bottle prior to extraction.

Method 537.1 DW: The following samples 191300 (320-76144-5) in preparation batch 320-509333 were yellow at final volume.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: EB-Grid — Lab Sample ID: 320-76144-1

No Detections.

Client Sample ID: 191750 — Lab Sample ID: 320-76144-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	14		1.9	0.46	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.9	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	0.86	J	1.9	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	14		1.9	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	34		1.9	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.8		1.9	0.46	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191700 — Lab Sample ID: 320-76144-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	100		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	23		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	20		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorononanoic acid (PFNA)	2.2		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	29		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	110		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	38		1.9	0.47	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 200320 — Lab Sample ID: 320-76144-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.8		1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.89	J	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16		1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		1.8	0.46	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 191300 — Lab Sample ID: 320-76144-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	77	*3	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	38	*3	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	46	*3	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorononanoic acid (PFNA)	9.3	*3	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorodecanoic acid (PFDA)	13	*3	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.77	J *3	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	14		1.9	0.48	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	24		1.9	0.48	ng/L	1		537.1 DW	Total/NA

Client Sample ID: 200340 — Lab Sample ID: 320-76144-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.9		1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.0	J	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.5	J	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.2		1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.1		1.8	0.46	ng/L	1		537.1 DW	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: 200440

Lab Sample ID: 320-76144-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	4.1		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.2	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.4	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.9		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.9		1.9	0.47	ng/L	1		537.1 DW	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: EB-Grid

Date Collected: 07/08/21 20:00
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-1

Matrix: Water

Method: EPA 537(Mod) - 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	0.52	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		07/15/21 04:30	07/17/21 15:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		07/15/21 04:30	07/17/21 15:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/15/21 04:30	07/17/21 15:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/15/21 04:30	07/17/21 15:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/15/21 04:30	07/17/21 15:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/15/21 04:30	07/17/21 15:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/15/21 04:30	07/17/21 15:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/15/21 04:30	07/17/21 15:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C4 PFHpA	*95*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C4 PFOA	*103*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C2 PFDA	*103*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C2 PFUnA	*98*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C2 PFDoA	*97*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
18O2 PFHxS	*97*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C4 PFOS	*99*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
d3-NMeFOSAA	*92*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
d5-NEtFOSAA	*104*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*
13C3 HFPO-DA	*85*		*50 - 150*	*07/15/21 04:30*	*07/17/21 15:31*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: 191750
Date Collected: 07/09/21 12:22
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-2
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**14**		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluoroheptanoic acid (PFHpA)	**1.3**	**J**	1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorooctanoic acid (PFOA)	**0.86**	**J**	1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorobutanesulfonic acid (PFBS)	**14**		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorohexanesulfonic acid (PFHxS)	**34**		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Perfluorooctanesulfonic acid (PFOS)	**3.8**		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:10*	*1*
13C2 PFDA	*83*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:10*	*1*
d5-NEtFOSAA	*81*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:10*	*1*
13C3 HFPO-DA	*85*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:10*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: 191700
Date Collected: 07/09/21 18:06
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-3
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**100**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluoroheptanoic acid (PFHpA)	**23**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorooctanoic acid (PFOA)	**20**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorononanoic acid (PFNA)	**2.2**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorobutanesulfonic acid (PFBS)	**29**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorohexanesulfonic acid (PFHxS)	**110**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Perfluorooctanesulfonic acid (PFOS)	**38**		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*128*		*70 - 130*	*07/16/21 12:55*	*07/20/21 12:43*	*1*
13C2 PFDA	*118*		*70 - 130*	*07/16/21 12:55*	*07/20/21 12:43*	*1*
d5-NEtFOSAA	*91*		*70 - 130*	*07/16/21 12:55*	*07/20/21 12:43*	*1*
13C3 HFPO-DA	*124*		*70 - 130*	*07/16/21 12:55*	*07/20/21 12:43*	*1*

Client Sample ID: 200320
Date Collected: 07/09/21 17:02
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-4
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**3.8**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluoroheptanoic acid (PFHpA)	**0.89**	**J**	1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorooctanoic acid (PFOA)	**2.0**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorobutanesulfonic acid (PFBS)	**1.6**	**J**	1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorohexanesulfonic acid (PFHxS)	**16**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Perfluorooctanesulfonic acid (PFOS)	**11**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:17*	*1*
13C2 PFDA	*83*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:17*	*1*
d5-NEtFOSAA	*80*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:17*	*1*
13C3 HFPO-DA	*84*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:17*	*1*

Client Sample ID: 191300
Date Collected: 07/09/21 14:27
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-5
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**77**	***3**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluoroheptanoic acid (PFHpA)	**38**	***3**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorooctanoic acid (PFOA)	**46**	***3**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorononanoic acid (PFNA)	**9.3**	***3**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorodecanoic acid (PFDA)	**13**	***3**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluoroundecanoic acid (PFUnA)	**0.77**	**J *3**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorododecanoic acid (PFDoA)	ND	*3	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorotridecanoic acid (PFTriA)	ND	*3	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorotetradecanoic acid (PFTeA)	ND	*3	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorohexanesulfonic acid (PFHxS)	**14**		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Perfluorooctanesulfonic acid (PFOS)	**24**		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*3	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	*3	1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*133*	*S1+ *3*	*70 - 130*	*07/16/21 12:55*	*07/20/21 12:51*	*1*
13C2 PFDA	*122*	**3*	*70 - 130*	*07/16/21 12:55*	*07/20/21 12:51*	*1*
d5-NEtFOSAA	*96*		*70 - 130*	*07/16/21 12:55*	*07/20/21 12:51*	*1*
13C3 HFPO-DA	*122*	**3*	*70 - 130*	*07/16/21 12:55*	*07/20/21 12:51*	*1*

Client Sample ID: 200340
Date Collected: 07/09/21 11:49
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-6
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**3.9**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluoroheptanoic acid (PFHpA)	**1.0**	**J**	1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorooctanoic acid (PFOA)	**2.0**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorobutanesulfonic acid (PFBS)	**1.5**	**J**	1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorohexanesulfonic acid (PFHxS)	**9.2**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Perfluorooctanesulfonic acid (PFOS)	**4.1**		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:25*	*1*
13C2 PFDA	*82*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:25*	*1*
d5-NEtFOSAA	*77*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:25*	*1*
13C3 HFPO-DA	*80*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:25*	*1*

Client Sample ID: 200440
Date Collected: 07/09/21 11:39
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-7
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**4.1**		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluoroheptanoic acid (PFHpA)	**1.2**	**J**	1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorooctanoic acid (PFOA)	**1.4**	**J**	1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorobutanesulfonic acid (PFBS)	**1.4**	**J**	1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorohexanesulfonic acid (PFHxS)	**8.9**		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Perfluorooctanesulfonic acid (PFOS)	**3.9**		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:33*	*1*
13C2 PFDA	*90*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:33*	*1*
d5-NEtFOSAA	*81*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:33*	*1*
13C3 HFPO-DA	*85*		*70 - 130*	*07/15/21 12:46*	*07/16/21 15:33*	*1*

Surrogate Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)	HFPODA (70-130)
320-76144-2	191750	88	83	81	85
320-76144-3	191700	128	118	91	124
320-76144-4	200320	86	83	80	84
320-76144-5	191300	133 S1+ *3	122 *3	96	122 *3
320-76144-6	200340	84	82	77	80
320-76144-7	200440	88	90	81	85
LCS 320-507405/2-A	Lab Control Sample	130	119	113	124
LCSD 320-507405/3-A	Lab Control Sample Dup	126	121	116	121
LLCS 320-506939/2-A	Lab Control Sample	76	82	78	73
LLCSD 320-506939/3-A	Lab Control Sample Dup	76	83	78	74
MB 320-506939/1-A	Method Blank	81	88	79	77
MB 320-507405/1-A	Method Blank	123	114	113	119

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Method: EPA 537(Mod) - 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)
320-76144-1	EB-Grid	95	95	103	97	103	98	97	101
LCS 320-506784/2-A	Lab Control Sample	91	93	100	96	98	91	92	95
LCSD 320-506784/3-A	Lab Control Sample Dup	85	93	93	87	84	95	91	95
MB 320-506784/1-A	Method Blank	99	107	100	97	105	100	100	104

		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)		
320-76144-1	EB-Grid	99	97	99	92	104	85		
LCS 320-506784/2-A	Lab Control Sample	107	100	97	92	95	93		
LCSD 320-506784/3-A	Lab Control Sample Dup	104	92	93	87	92	82		
MB 320-506784/1-A	Method Blank	108	97	101	102	104	94		

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: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-506939/1-A
Matrix: Water
Analysis Batch: 507396

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506939

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*70 - 130*	*07/15/21 12:46*	*07/16/21 14:47*	*1*
13C2 PFDA	*88*		*70 - 130*	*07/15/21 12:46*	*07/16/21 14:47*	*1*
d5-NEtFOSAA	*79*		*70 - 130*	*07/15/21 12:46*	*07/16/21 14:47*	*1*
13C3 HFPO-DA	*77*		*70 - 130*	*07/15/21 12:46*	*07/16/21 14:47*	*1*

Lab Sample ID: LLCS 320-506939/2-A
Matrix: Water
Analysis Batch: 507396

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506939

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	4.00	2.91		ng/L		73	50 - 150
Perfluoroheptanoic acid (PFHpA)	4.00	3.25		ng/L		81	50 - 150
Perfluorooctanoic acid (PFOA)	4.00	3.48		ng/L		87	50 - 150
Perfluorononanoic acid (PFNA)	4.00	3.03		ng/L		76	50 - 150
Perfluorodecanoic acid (PFDA)	4.00	3.24		ng/L		81	50 - 150
Perfluoroundecanoic acid (PFUnA)	4.00	3.17		ng/L		79	50 - 150
Perfluorododecanoic acid (PFDoA)	4.00	3.03		ng/L		76	50 - 150
Perfluorotridecanoic acid (PFTriA)	4.00	3.04		ng/L		76	50 - 150
Perfluorotetradecanoic acid (PFTeA)	4.00	2.87		ng/L		72	50 - 150
Perfluorobutanesulfonic acid (PFBS)	3.54	1.99	J	ng/L		56	50 - 150

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 320-506939/2-A
Matrix: Water
Analysis Batch: 507396

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506939

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanesulfonic acid (PFHxS)	3.64	2.53		ng/L		70	50 - 150
Perfluorooctanesulfonic acid (PFOS)	3.71	2.55		ng/L		69	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	2.88		ng/L		72	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	2.91		ng/L		73	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	3.73	2.59		ng/L		69	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	3.77	2.46		ng/L		65	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	4.00	2.81		ng/L		70	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.77	3.10		ng/L		82	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*76*		*70 - 130*
13C2 PFDA	*82*		*70 - 130*
d5-NEtFOSAA	*78*		*70 - 130*
13C3 HFPO-DA	*73*		*70 - 130*

Lab Sample ID: LLCSD 320-506939/3-A
Matrix: Water
Analysis Batch: 507396

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 506939

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	4.00	3.08		ng/L		77	50 - 150	5	50
Perfluoroheptanoic acid (PFHpA)	4.00	3.47		ng/L		87	50 - 150	7	50
Perfluorooctanoic acid (PFOA)	4.00	3.43		ng/L		86	50 - 150	2	50
Perfluorononanoic acid (PFNA)	4.00	3.07		ng/L		77	50 - 150	1	50
Perfluorodecanoic acid (PFDA)	4.00	3.18		ng/L		79	50 - 150	2	50
Perfluoroundecanoic acid (PFUnA)	4.00	3.15		ng/L		79	50 - 150	0.5	50
Perfluorododecanoic acid (PFDoA)	4.00	3.02		ng/L		76	50 - 150	0.07	50
Perfluorotridecanoic acid (PFTriA)	4.00	2.90		ng/L		72	50 - 150	5	50
Perfluorotetradecanoic acid (PFTeA)	4.00	2.81		ng/L		70	50 - 150	2	50
Perfluorobutanesulfonic acid (PFBS)	3.54	2.06		ng/L		58	50 - 150	3	50
Perfluorohexanesulfonic acid (PFHxS)	3.64	2.59		ng/L		71	50 - 150	2	50
Perfluorooctanesulfonic acid (PFOS)	3.71	2.46		ng/L		66	50 - 150	4	50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	2.76		ng/L		69	50 - 150	4	50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	2.73		ng/L		68	50 - 150	6	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	3.73	2.43		ng/L		65	50 - 150	6	50

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCSD 320-506939/3-A
Matrix: Water
Analysis Batch: 507396

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 506939

Analyte			Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF			3.77	2.46		ng/L		65	50 - 150	0.1	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			4.00	2.92		ng/L		73	50 - 150	4	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			3.77	3.27		ng/L		87	50 - 150	5	50

Surrogate	*LLCSD %Recovery*	*LLCSD Qualifier*	*Limits*
13C2 PFHxA	*76*		*70 - 130*
13C2 PFDA	*83*		*70 - 130*
d5-NEtFOSAA	*78*		*70 - 130*
13C3 HFPO-DA	*74*		*70 - 130*

Lab Sample ID: MB 320-507405/1-A
Matrix: Water
Analysis Batch: 507696

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 507405

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*123*		*70 - 130*	*07/16/21 12:55*	*07/17/21 13:34*	*1*
13C2 PFDA	*114*		*70 - 130*	*07/16/21 12:55*	*07/17/21 13:34*	*1*
d5-NEtFOSAA	*113*		*70 - 130*	*07/16/21 12:55*	*07/17/21 13:34*	*1*
13C3 HFPO-DA	*119*		*70 - 130*	*07/16/21 12:55*	*07/17/21 13:34*	*1*

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCS 320-507405/2-A
Matrix: Water
Analysis Batch: 508420

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 507405

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	80.0	99.2		ng/L		124	70 - 130
Perfluoroheptanoic acid (PFHpA)	80.0	101		ng/L		126	70 - 130
Perfluorooctanoic acid (PFOA)	80.0	94.0		ng/L		118	70 - 130
Perfluorononanoic acid (PFNA)	80.0	94.5		ng/L		118	70 - 130
Perfluorodecanoic acid (PFDA)	80.0	91.7		ng/L		115	70 - 130
Perfluoroundecanoic acid (PFUnA)	80.0	89.4		ng/L		112	70 - 130
Perfluorododecanoic acid (PFDoA)	80.0	88.4		ng/L		110	70 - 130
Perfluorotridecanoic acid (PFTriA)	80.0	92.6		ng/L		116	70 - 130
Perfluorotetradecanoic acid (PFTeA)	80.0	101		ng/L		126	70 - 130
Perfluorobutanesulfonic acid (PFBS)	70.7	75.3		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	72.8	77.7		ng/L		107	70 - 130
Perfluorooctanesulfonic acid (PFOS)	74.2	79.0		ng/L		106	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	80.0	83.6		ng/L		105	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	80.0	83.7		ng/L		105	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	74.6	87.7		ng/L		118	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	75.4	81.1		ng/L		108	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	80.0	96.4		ng/L		120	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	75.4	93.6		ng/L		124	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*130*		*70 - 130*
13C2 PFDA	*119*		*70 - 130*
d5-NEtFOSAA	*113*		*70 - 130*
13C3 HFPO-DA	*124*		*70 - 130*

Lab Sample ID: LCSD 320-507405/3-A
Matrix: Water
Analysis Batch: 507696

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 507405

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	80.0	90.7		ng/L		113	70 - 130	9	30
Perfluoroheptanoic acid (PFHpA)	80.0	101		ng/L		126	70 - 130	0	30
Perfluorooctanoic acid (PFOA)	80.0	99.3		ng/L		124	70 - 130	5	30
Perfluorononanoic acid (PFNA)	80.0	92.3		ng/L		115	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	80.0	93.8		ng/L		117	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	80.0	88.8		ng/L		111	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	80.0	90.7		ng/L		113	70 - 130	3	30

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LCSD 320-507405/3-A
Matrix: Water
Analysis Batch: 507696

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 507405

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotridecanoic acid (PFTriA)			80.0	95.9		ng/L		120	70 - 130	4	30
Perfluorotetradecanoic acid (PFTeA)			80.0	98.3		ng/L		123	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)			70.7	71.5		ng/L		101	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)			72.8	76.5		ng/L		105	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)			74.2	72.8		ng/L		98	70 - 130	8	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			80.0	82.6		ng/L		103	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			80.0	84.8		ng/L		106	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O			74.6	78.2		ng/L		105	70 - 130	11	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF			75.4	77.0		ng/L		102	70 - 130	5	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			80.0	89.7		ng/L		112	70 - 130	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			75.4	95.7		ng/L		127	70 - 130	2	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*126*		*70 - 130*
13C2 PFDA	*121*		*70 - 130*
d5-NEtFOSAA	*116*		*70 - 130*
13C3 HFPO-DA	*121*		*70 - 130*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-506784/1-A
Matrix: Water
Analysis Batch: 507628

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506784

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/15/21 04:30	07/17/21 14:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/15/21 04:30	07/17/21 14:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/15/21 04:30	07/17/21 14:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/15/21 04:30	07/17/21 14:34	1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-506784/1-A
Matrix: Water
Analysis Batch: 507628

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 506784

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		07/15/21 04:30	07/17/21 14:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		07/15/21 04:30	07/17/21 14:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.32	ng/L		07/15/21 04:30	07/17/21 14:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		07/15/21 04:30	07/17/21 14:34	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*99*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C4 PFHpA	*107*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C4 PFOA	*100*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C2 PFDA	*105*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C2 PFUnA	*100*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C2 PFDoA	*100*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C2 PFTeDA	*104*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C3 PFBS	*108*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
18O2 PFHxS	*97*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C4 PFOS	*101*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
d3-NMeFOSAA	*102*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
d5-NEtFOSAA	*104*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*
13C3 HFPO-DA	*94*		*50 - 150*	*07/15/21 04:30*	*07/17/21 14:34*	*1*

Lab Sample ID: LCS 320-506784/2-A
Matrix: Water
Analysis Batch: 507628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	39.9		ng/L		100	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	37.1		ng/L		93	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	36.4		ng/L		91	71 - 133
Perfluorononanoic acid (PFNA)	40.0	37.6		ng/L		94	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	33.9		ng/L		85	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	42.1		ng/L		105	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	39.3		ng/L		98	72 - 134
Perfluorotridecanoic acid (PFTriA)	40.0	39.3		ng/L		98	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	36.6		ng/L		91	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	28.8		ng/L		81	72 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.3		ng/L		89	68 - 131
Perfluorooctanesulfonic acid (PFOS)	37.1	36.0		ng/L		97	65 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	39.3		ng/L		98	65 - 136

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-506784/2-A
Matrix: Water
Analysis Batch: 507628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 506784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.4		ng/L		99	61 - 135
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	37.3	34.0		ng/L		91	77 - 137
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	34.0		ng/L		85	72 - 132
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	37.7	36.4		ng/L		97	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	35.2		ng/L		93	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*91*		*50 - 150*
13C4 PFHpA	*93*		*50 - 150*
13C4 PFOA	*100*		*50 - 150*
13C5 PFNA	*96*		*50 - 150*
13C2 PFDA	*98*		*50 - 150*
13C2 PFUnA	*91*		*50 - 150*
13C2 PFDoA	*92*		*50 - 150*
13C2 PFTeDA	*95*		*50 - 150*
13C3 PFBS	*107*		*50 - 150*
18O2 PFHxS	*100*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
d3-NMeFOSAA	*92*		*50 - 150*
d5-NEtFOSAA	*95*		*50 - 150*
13C3 HFPO-DA	*93*		*50 - 150*

Lab Sample ID: LCSD 320-506784/3-A
Matrix: Water
Analysis Batch: 507628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 506784

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	40.0	39.1		ng/L		98	72 - 129	2	30
Perfluoroheptanoic acid (PFHpA)	40.0	38.0		ng/L		95	72 - 130	2	30
Perfluorooctanoic acid (PFOA)	40.0	37.4		ng/L		93	71 - 133	3	30
Perfluorononanoic acid (PFNA)	40.0	40.1		ng/L		100	69 - 130	6	30
Perfluorodecanoic acid (PFDA)	40.0	37.4		ng/L		93	71 - 129	10	30
Perfluoroundecanoic acid (PFUnA)	40.0	39.7		ng/L		99	69 - 133	6	30
Perfluorododecanoic acid (PFDoA)	40.0	37.2		ng/L		93	72 - 134	6	30
Perfluorotridecanoic acid (PFTriA)	40.0	37.4		ng/L		94	65 - 144	5	30
Perfluorotetradecanoic acid (PFTeA)	40.0	35.5		ng/L		89	71 - 132	3	30
Perfluorobutanesulfonic acid (PFBS)	35.4	29.8		ng/L		84	72 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.4		ng/L		92	68 - 131	3	30
Perfluorooctanesulfonic acid (PFOS)	37.1	33.0		ng/L		89	65 - 140	9	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-506784/3-A
Matrix: Water
Analysis Batch: 507628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 506784

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	41.9		ng/L		105	65 - 136	6	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	37.6		ng/L		94	61 - 135	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	33.8		ng/L		91	77 - 137	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	37.4		ng/L		94	72 - 132	10	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	37.1		ng/L		98	76 - 136	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	35.3		ng/L		94	81 - 141	0	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*85*		*50 - 150*
13C4 PFHpA	*93*		*50 - 150*
13C4 PFOA	*93*		*50 - 150*
13C5 PFNA	*87*		*50 - 150*
13C2 PFDA	*84*		*50 - 150*
13C2 PFUnA	*95*		*50 - 150*
13C2 PFDoA	*91*		*50 - 150*
13C2 PFTeDA	*95*		*50 - 150*
13C3 PFBS	*104*		*50 - 150*
18O2 PFHxS	*92*		*50 - 150*
13C4 PFOS	*93*		*50 - 150*
d3-NMeFOSAA	*87*		*50 - 150*
d5-NEtFOSAA	*92*		*50 - 150*
13C3 HFPO-DA	*82*		*50 - 150*

LCMS

Prep Batch: 506784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76144-1	EB-Grid	Total/NA	Water	3535	
MB 320-506784/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-506784/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-506784/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 506939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76144-2	191750	Total/NA	Water	537.1 DW	
320-76144-4	200320	Total/NA	Water	537.1 DW	
320-76144-6	200340	Total/NA	Water	537.1 DW	
320-76144-7	200440	Total/NA	Water	537.1 DW	
MB 320-506939/1-A	Method Blank	Total/NA	Water	537.1 DW	
LLCS 320-506939/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCSD 320-506939/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	

Analysis Batch: 507396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76144-2	191750	Total/NA	Water	537.1 DW	506939
320-76144-4	200320	Total/NA	Water	537.1 DW	506939
320-76144-6	200340	Total/NA	Water	537.1 DW	506939
320-76144-7	200440	Total/NA	Water	537.1 DW	506939
MB 320-506939/1-A	Method Blank	Total/NA	Water	537.1 DW	506939
LLCS 320-506939/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	506939
LLCSD 320-506939/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	506939

Prep Batch: 507405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76144-3	191700	Total/NA	Water	537.1 DW	
320-76144-5	191300	Total/NA	Water	537.1 DW	
MB 320-507405/1-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 320-507405/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 320-507405/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	

Analysis Batch: 507628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76144-1	EB-Grid	Total/NA	Water	EPA 537(Mod)	506784
MB 320-506784/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	506784
LCS 320-506784/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	506784
LCSD 320-506784/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	506784

Analysis Batch: 507696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-507405/1-A	Method Blank	Total/NA	Water	537.1 DW	507405
LCSD 320-507405/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	507405

Analysis Batch: 508420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76144-3	191700	Total/NA	Water	537.1 DW	507405
320-76144-5	191300	Total/NA	Water	537.1 DW	507405
LCS 320-507405/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	507405

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: EB-Grid
Lab Sample ID: 320-76144-1
Date Collected: 07/08/21 20:00
Matrix: Water
Date Received: 07/13/21 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			277.9 mL	10.0 mL	506784	07/15/21 04:30	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			507628	07/17/21 15:31	K1S	TAL SAC

Client Sample ID: 191750
Lab Sample ID: 320-76144-2
Date Collected: 07/09/21 12:22
Matrix: Water
Date Received: 07/13/21 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			269 mL	1.0 mL	506939	07/15/21 12:46	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			507396	07/16/21 15:10	D1R	TAL SAC

Client Sample ID: 191700
Lab Sample ID: 320-76144-3
Date Collected: 07/09/21 18:06
Matrix: Water
Date Received: 07/13/21 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			266.5 mL	1.0 mL	507405	07/16/21 12:55	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			508420	07/20/21 12:43	D1R	TAL SAC

Client Sample ID: 200320
Lab Sample ID: 320-76144-4
Date Collected: 07/09/21 17:02
Matrix: Water
Date Received: 07/13/21 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			273.5 mL	1.0 mL	506939	07/15/21 12:46	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			507396	07/16/21 15:17	D1R	TAL SAC

Client Sample ID: 191300
Lab Sample ID: 320-76144-5
Date Collected: 07/09/21 14:27
Matrix: Water
Date Received: 07/13/21 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			262.5 mL	1.0 mL	507405	07/16/21 12:55	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			508420	07/20/21 12:51	D1R	TAL SAC

Client Sample ID: 200340
Lab Sample ID: 320-76144-6
Date Collected: 07/09/21 11:49
Matrix: Water
Date Received: 07/13/21 15:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			272.6 mL	1.0 mL	506939	07/15/21 12:46	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			507396	07/16/21 15:25	D1R	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Client Sample ID: 200440
Date Collected: 07/09/21 11:39
Date Received: 07/13/21 15:45

Lab Sample ID: 320-76144-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			265.7 mL	1.0 mL	506939	07/15/21 12:46	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			507396	07/16/21 15:33	D1R	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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
537.1 DW	537.1 DW	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF
537.1 DW	537.1 DW	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1 DW	537.1 DW	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O
537.1 DW	537.1 DW	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)
537.1 DW	537.1 DW	Water	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537.1 DW	537.1 DW	Water	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537.1 DW	537.1 DW	Water	Perfluorobutanesulfonic acid (PFBS)
537.1 DW	537.1 DW	Water	Perfluorodecanoic acid (PFDA)
537.1 DW	537.1 DW	Water	Perfluorododecanoic acid (PFDoA)
537.1 DW	537.1 DW	Water	Perfluoroheptanoic acid (PFHpA)
537.1 DW	537.1 DW	Water	Perfluorohexanesulfonic acid (PFHxS)
537.1 DW	537.1 DW	Water	Perfluorohexanoic acid (PFHxA)
537.1 DW	537.1 DW	Water	Perfluorononanoic acid (PFNA)
537.1 DW	537.1 DW	Water	Perfluorooctanesulfonic acid (PFOS)
537.1 DW	537.1 DW	Water	Perfluorooctanoic acid (PFOA)
537.1 DW	537.1 DW	Water	Perfluorotetradecanoic acid (PFTeA)
537.1 DW	537.1 DW	Water	Perfluorotridecanoic acid (PFTriA)
537.1 DW	537.1 DW	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Method	Method Description	Protocol	Laboratory
537.1 DW	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG

Job ID: 320-76144-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76144-1	EB-Grid	Water	07/08/21 20:00	07/13/21 15:45
320-76144-2	191750	Water	07/09/21 12:22	07/13/21 15:45
320-76144-3	191700	Water	07/09/21 18:06	07/13/21 15:45
320-76144-4	200320	Water	07/09/21 17:02	07/13/21 15:45
320-76144-5	191300	Water	07/09/21 14:27	07/13/21 15:45
320-76144-6	200340	Water	07/09/21 11:49	07/13/21 15:45
320-76144-7	200440	Water	07/09/21 11:39	07/13/21 15:45

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Page 1 of 1

Laboratory Attn: Test America David Aeschacher

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	DRO x 8015	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
EB-Grd		2000	7/8/21	X	2	water
191750		1222	7/9/21	X	2	water + Trizma
191700		1806		X	2	
200320		1702		X	2	
191300		1427		X	2	
200340		1149		X	2	
200440		1139		X	2	

320-76144 Chain of Custody

Project Information	
Number:	102581-007
Name:	DLG
Contact:	Marcy Nadel
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY

Sample Receipt	
Total No. of Containers:	14
COC Seals/Intact? Y/N/NA	
Received Good Cond /Cold	
Temp:	
Delivery Method:	goldstreak

Notes:

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: DLG Time: 1630	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/11/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1545	Signature: Time:	Signature: Time:
Printed Name: David H Date: 7/13/21	Printed Name: Date:	Printed Name: Date:
Company: TA	Company:	Company:

1545 1.5°c

No.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76144-1

Login Number: 76144
List Number: 1
Creator: Her, David A

List Source: Eurofins TestAmerica, 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	

Laboratory Data Review Checklist

Completed By:

Veselina Yakimova

Title:

Geologist

Date:

July 29, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins TestAmerica, Sacramento

Laboratory Report Number:

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   The ADEC certified the TestAmerica/Eurofins Laboratories West Sacramento, CA location for the analysis of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) on February 6, 2018. These compounds were included in the ADEC's Contaminated Sites Laboratory Approval 17-020.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Analyses were performed by TestAmerica Laboratories, Inc. in West Sacramento, CA.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   The temperature blank was measured within the acceptable temperature range of 0 °C to 6 °C upon arrival at the laboratory. The temperature of the sample cooler upon receipt was 1.5°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

   Analysis of PFAS in drinking water by EPA Method 537.1 requires preservation with Trizma. The samples were appropriately preserved.

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

There were no discrepancies noted in this work order.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Internal standard (ISTD) response for sample *191300* was outside control limits. The sample was re-extracted and ISTD response was outside control limits. The original set of data have been reported.

Surrogate recovery for sample *191300* was outside control limits. Re-extraction and re-analysis was performed and the surrogate recovery was within control limits. However, re-extraction could not be reported due to quality control issues in the method blank (MB), laboratory control sample (LCS), and laboratory control duplicate (LCSD) samples..

The "I" qualifier means the transition mass ratio for Perfluorooctanesulfonic acid (PFOS) was outside of the established ratio limit. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte PFOS. The percent difference of PFOS was within control limits.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batches 320-506784, 320-506939, 320-507405, and 320-509333.

Samples *191700* and *191300* were yellow/orange with a thin layer of sediment at the bottom of the bottle prior to extraction.

Sample *191300* was yellow at final volume.

The case narrative further notes the report was revised to update one sample name.

c. Were all corrective actions documented?

Yes☐ No☒ N/A☐ Comments:

Sample *EB-Grid* was logged incorrectly upon receipt as *EB-Grind*. The revised report includes the correct sample name.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The laboratory applied “*3” qualifier to identify results affected by the ISTD failure and “S1” qualifier to the results affected by the surrogate recovery failure. Sample results with the *3 qualifier are considered estimated, flagged with a “J” in the analytical table.

Our assessment of the additional QC failures is addressed below.

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

The samples were analyzed within 14 of collection, meeting the 14-day hold time for extraction and 40-day hold time for analysis required by Method 537.1.

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

This work order does not include soil samples.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

The LOQ, equivalent to the TestAmerica Reporting Limit (RL), is less than the applicable DEC regulatory limits for PFOS and PFOA.

e. Data quality or usability affected?

The data quality and/or usability are not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Target PFAS analytes were not detected in the method blank sample.

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; no PFAS analytes were detected in the method blank sample.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; therefore, qualification is not required.

v. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

320-76144-1 Rev1

Laboratory Report Date:

July 29, 2021

CS Site Name:

Dillingham DOT&PF PFAS

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None; method accuracy and precision were demonstrated to be within acceptable limits.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Sufficient volume was not available to complete an MS/MSD for the project sample set. Method accuracy and precision were evaluated using the LCS/LCSD samples.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

See section 6.b.iii for assessment of method accuracy.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

See section 6.b.iv for assessment of method precision.

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Dillingham DOT&PF PFAS

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

MS/MSD samples were not reported with this work order.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification is not required; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

Method 537.1 uses IDAs, which entails spiking samples with isotopically labed compounds for certain target analytes to assess recovery.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The recovery of the 13C2 PFHxA surrogate in the sample 191300 exceeds laboratory control limits.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

The associated result for PFHxA is flagged “J” in the analytical table.

iv. Data quality or usability affected?

Comments:

The data quality and/or usability are affected. See above.

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e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not considered volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; a trip blank was not submitted with this work order.

v. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Field duplicate pair *200340* / *200440* was submitted with this work order.

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CS Site Name:

Dillingham DOT&PF PFAS

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability are not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

These samples were not collected with reusable equipment; therefore, there is no practical potential for equipment based cross-contamination.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank sample was not collected or required.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment-blank sample was not collected.

iii. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

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Laboratory Report Date:

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Dillingham DOT&PF PFAS

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

The PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnA, PFDoA, PFTriA, PFTeA HFPO-DA, and ADONA results are flagged "J" due to an internal standard response outside of the laboratory control limits.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76363-1
Client Project/Site: DLG PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
8/2/2021 2:42:29 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

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

Job ID: 320-76363-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-76363-1

Receipt
The samples were received on 7/16/2021 11:30 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 2.2º C.

LCMS
Method 537.1 DW: Surrogate recovery for the following sample was outside control limit for 13C2 PFHxA: 200140 (320-76363-1). Re-analysis was performed past hold time with surrogate recovery within control limits, both sets of data are reported.

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limit. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: SW-01 (320-76363-2), SW-03 (320-76363-5) and SW-08 (320-76363-11). 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 sample.

Method EPA 537(Mod): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: SW-04 (320-76363-6). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method EPA 537(Mod): Results for samples SW-02 (320-76363-3), SW-102 (320-76363-4), SW-03 (320-76363-5), SW-04 (320-76363-6), SW-104 (320-76363-7) and SW-07 (320-76363-10) were reported from the analysis of a diluted extract due to sample matrix and high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-508071.

Method 3535: The following samples were yellow prior to extraction: SW-02 (320-76363-3) and SW-102 (320-76363-4).
preparation batch 320-508071.

Method 3535: The following samples were red-brown in color and contain a thin layer of sediment at the bottom of the bottle prior to extraction: SW-01 (320-76363-2), SW-03 (320-76363-5) and SW-08 (320-76363-11).
preparation batch 320-508071.

Method 3535: The following samples contain a thin layer of sediments at the bottom of the bottle prior to extraction: SW-04 (320-76363-6), SW-104 (320-76363-7), SW-05 (320-76363-8), SW-06 (320-76363-9), SW-07 (320-76363-10) and SW-09 (320-76363-12).
preparation batch 320-508071.

Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: SW-01 (320-76363-2), SW-03 (320-76363-5), SW-104 (320-76363-7) and SW-08 (320-76363-11).
preparation batch 320-508071.

Method 537.1 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-508443.

Method 537.1 DW: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-510711.

Job ID: 320-76363-1 (Continued)

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

Method 537.1 DW: The following sample 200140 (320-76363-1) in preparation batch 320-510711 was re-prepared outside of preparation holding time due to high percent recovery for 13C2 PFHxA.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: 200140 — Lab Sample ID: 320-76363-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.57	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA)	0.77	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS)	28		1.9	0.47	ng/L	1		537.1 DW	Total/NA
Perfluorohexanoic acid (PFHxA) - RE	0.60	J H	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.89	J H	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS) - RE	0.91	J H	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - RE	18	H	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	29	H	1.8	0.46	ng/L	1		537.1 DW	Total/NA

Client Sample ID: SW-01 — Lab Sample ID: 320-76363-2

No Detections.

Client Sample ID: SW-02 — Lab Sample ID: 320-76363-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	41		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	20		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	35		1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	5.4		1.8	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	5.0		1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.0	J	1.8	0.99	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	3.1		1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.85	J	1.8	0.65	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	13		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	160		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	380		9.0	2.4	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: SW-102 — Lab Sample ID: 320-76363-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	43		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	20		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	30		1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	5.5		1.8	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	5.2		1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	13		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	160		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	380		8.9	2.4	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: SW-03 — Lab Sample ID: 320-76363-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	20		1.8	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.6		1.8	0.78	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	16		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: SW-03 (Continued) — Lab Sample ID: 320-76363-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	140		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	450		9.2	2.5	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: SW-04 — Lab Sample ID: 320-76363-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	84		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	15		1.8	0.78	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	2.8		1.8	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	12		1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	480		9.1	2.6	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: SW-104 — Lab Sample ID: 320-76363-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	86		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	15		1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	3.0		1.8	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	1.0	J	1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13		1.8	0.48	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	520		9.0	2.6	ng/L	5		EPA 537(Mod)	Total/NA

Client Sample ID: SW-05 — Lab Sample ID: 320-76363-8

No Detections.

Client Sample ID: SW-06 — Lab Sample ID: 320-76363-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	7.1		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.0		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.0		1.8	0.75	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	1.5	J	1.8	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.96	J	1.8	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12		1.8	0.50	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15		1.8	0.48	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: SW-07 — Lab Sample ID: 320-76363-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	23		1.8	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.0		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	7.7		1.8	0.78	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.94	J	1.8	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	10		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	110		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	450		9.2	2.5	ng/L	5		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-08 — Lab Sample ID: 320-76363-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	5.0		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.6	J	1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.81	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.6		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.8		1.8	0.48	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: SW-09 — Lab Sample ID: 320-76363-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	24		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.2		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	9.7		1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	1.6	J I	1.8	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.4		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	24		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	23		1.8	0.48	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EB-SED — Lab Sample ID: 320-76363-13

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: 200140
Date Collected: 07/12/21 12:40
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-1
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.57**	**J**	1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorooctanoic acid (PFOA)	**0.77**	**J**	1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorohexanesulfonic acid (PFHxS)	**16**		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Perfluorooctanesulfonic acid (PFOS)	**28**		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*131*	*S1+*	*70 - 130*	*07/20/21 13:03*	*07/23/21 20:52*	*1*
13C2 PFDA	*123*		*70 - 130*	*07/20/21 13:03*	*07/23/21 20:52*	*1*
d5-NEtFOSAA	*114*		*70 - 130*	*07/20/21 13:03*	*07/23/21 20:52*	*1*
13C3 HFPO-DA	*123*		*70 - 130*	*07/20/21 13:03*	*07/23/21 20:52*	*1*

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.60**	**J H**	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorooctanoic acid (PFOA)	**0.89**	**J H**	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorononanoic acid (PFNA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorodecanoic acid (PFDA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorotridecanoic acid (PFTriA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorobutanesulfonic acid (PFBS)	**0.91**	**J H**	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorohexanesulfonic acid (PFHxS)	**18**	**H**	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorooctanesulfonic acid (PFOS)	**29**	**H**	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: 200140
Date Collected: 07/12/21 12:40
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-1
Matrix: Water

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*111*		*70 - 130*	*07/27/21 13:06*	*08/01/21 16:29*	*1*
13C2 PFDA	*110*		*70 - 130*	*07/27/21 13:06*	*08/01/21 16:29*	*1*
d5-NEtFOSAA	*107*		*70 - 130*	*07/27/21 13:06*	*08/01/21 16:29*	*1*
13C3 HFPO-DA	*109*		*70 - 130*	*07/27/21 13:06*	*08/01/21 16:29*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-01

Date Collected: 07/13/21 14:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-2

Matrix: Water

Method: EPA 537(Mod) - 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	0.52	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 18:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 18:28	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 18:28	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 18:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 18:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 18:28	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 18:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 18:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*30*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C4 PFHpA	*25*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C4 PFOA	*28*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C5 PFNA	*28*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C2 PFDA	*37*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C2 PFUnA	*35*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C2 PFDoA	*35*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C2 PFTeDA	*23*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C3 PFBS	*23*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
18O2 PFHxS	*29*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C4 PFOS	*34*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
d3-NMeFOSAA	*27*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
d5-NEtFOSAA	*32*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*
13C3 HFPO-DA	*26*	*5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:28*	*1*

Client Sample ID: SW-02
Date Collected: 07/13/21 16:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-3
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**41**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluoroheptanoic acid (PFHpA)	**20**		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorooctanoic acid (PFOA)	**35**		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorononanoic acid (PFNA)	**5.4**		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorodecanoic acid (PFDA)	**5.0**		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluoroundecanoic acid (PFUnA)	**1.0**	**J**	1.8	0.99	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorododecanoic acid (PFDoA)	**3.1**		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorotetradecanoic acid (PFTeA)	**0.85**	**J**	1.8	0.65	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorobutanesulfonic acid (PFBS)	**13**		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 18:38	1
Perfluorohexanesulfonic acid (PFHxS)	**160**		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 18:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 18:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 18:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 18:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 18:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 18:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 18:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*105*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C4 PFHpA	*73*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C4 PFOA	*97*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C5 PFNA	*82*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C2 PFDA	*138*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C2 PFUnA	*121*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C2 PFDoA	*119*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C4 PFOS	*112*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*
13C3 HFPO-DA	*85*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:38*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**380**		9.0	2.4	ng/L		07/19/21 13:06	07/21/21 12:19	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*94*		*50 - 150*	*07/19/21 13:06*	*07/21/21 12:19*	*5*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-102
Date Collected: 07/13/21 16:40
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-4
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**43**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluoroheptanoic acid (PFHpA)	**20**		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorooctanoic acid (PFOA)	**30**		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorononanoic acid (PFNA)	**5.5**		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorodecanoic acid (PFDA)	**5.2**		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorobutanesulfonic acid (PFBS)	**13**		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 18:47	1
Perfluorohexanesulfonic acid (PFHxS)	**160**		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 18:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 18:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 18:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 18:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 18:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 18:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 18:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*106*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C4 PFHpA	*71*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C4 PFOA	*105*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C5 PFNA	*89*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C2 PFDA	*120*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C2 PFUnA	*122*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C2 PFDoA	*120*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C2 PFTeDA	*115*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C3 PFBS	*84*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
18O2 PFHxS	*96*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C4 PFOS	*114*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
d3-NMeFOSAA	*92*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
d5-NEtFOSAA	*101*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*
13C3 HFPO-DA	*90*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:47*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**380**		8.9	2.4	ng/L		07/19/21 13:06	07/21/21 12:29	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*88*		*50 - 150*	*07/19/21 13:06*	*07/21/21 12:29*	*5*

Client Sample ID: SW-03
Date Collected: 07/13/21 18:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-5
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**20**		1.8	0.53	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluoroheptanoic acid (PFHpA)	**3.8**		1.8	0.23	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorooctanoic acid (PFOA)	**4.6**		1.8	0.78	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorobutanesulfonic acid (PFBS)	**16**		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 18:57	1
Perfluorohexanesulfonic acid (PFHxS)	**140**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 18:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/19/21 13:06	07/20/21 18:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/19/21 13:06	07/20/21 18:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 18:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		07/19/21 13:06	07/20/21 18:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 18:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		07/19/21 13:06	07/20/21 18:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*64*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C4 PFHpA	*44*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C4 PFOA	*60*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C5 PFNA	*50*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C2 PFDA	*78*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C2 PFUnA	*70*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C2 PFDoA	*66*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C2 PFTeDA	*38*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C3 PFBS	*51*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
18O2 PFHxS	*58*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C4 PFOS	*69*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
d3-NMeFOSAA	*54*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
d5-NEtFOSAA	*60*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*
13C3 HFPO-DA	*53*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:57*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**450**		9.2	2.5	ng/L		07/19/21 13:06	07/21/21 12:38	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*61*		*50 - 150*	*07/19/21 13:06*	*07/21/21 12:38*	*5*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-04
Date Collected: 07/14/21 09:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-6
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**84**		1.8	0.23	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorooctanoic acid (PFOA)	**15**		1.8	0.78	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorononanoic acid (PFNA)	**2.8**		1.8	0.25	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 19:06	1
Perfluorooctanesulfonic acid (PFOS)	**12**		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 19:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/19/21 13:06	07/20/21 19:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/19/21 13:06	07/20/21 19:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 19:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		07/19/21 13:06	07/20/21 19:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 19:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 19:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*102*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C5 PFNA	*96*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C2 PFDA	*152*	*5+	*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C2 PFUnA	*142*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C2 PFDoA	*136*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C2 PFTeDA	*125*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C3 PFBS	*114*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
18O2 PFHxS	*124*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C4 PFOS	*133*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
d3-NMeFOSAA	*110*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
d5-NEtFOSAA	*134*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*
13C3 HFPO-DA	*118*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:06*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**480**		9.1	2.6	ng/L		07/19/21 13:06	07/21/21 12:47	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*104*		*50 - 150*	*07/19/21 13:06*	*07/21/21 12:47*	*5*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-104
Date Collected: 07/14/21 09:10
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-7
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**86**		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorooctanoic acid (PFOA)	**15**		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorononanoic acid (PFNA)	**3.0**		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorodecanoic acid (PFDA)	**1.0**	**J**	1.8	0.28	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 19:15	1
Perfluorooctanesulfonic acid (PFOS)	**13**		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 19:15	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 19:15	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 19:15	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 19:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 19:15	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 19:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 19:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*60*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C4 PFOA	*59*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C5 PFNA	*62*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C2 PFUnA	*74*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C2 PFDoA	*72*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C2 PFTeDA	*72*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C3 PFBS	*70*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
18O2 PFHxS	*77*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C4 PFOS	*84*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
d3-NMeFOSAA	*62*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
d5-NEtFOSAA	*67*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:15*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**520**		9.0	2.6	ng/L		07/19/21 13:06	07/21/21 12:57	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*57*		*50 - 150*	*07/19/21 13:06*	*07/21/21 12:57*	*5*

Client Sample ID: SW-05
Date Collected: 07/14/21 10:50
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-8
Matrix: Water

Method: EPA 537(Mod) - 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	0.52	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 19:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 19:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 19:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 19:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 19:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 19:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 19:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 19:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*104*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C4 PFOA	*100*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C5 PFNA	*92*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C2 PFDA	*115*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C2 PFUnA	*110*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C2 PFDoA	*108*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C2 PFTeDA	*97*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C3 PFBS	*89*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
18O2 PFHxS	*101*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C4 PFOS	*110*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
d5-NEtFOSAA	*100*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:25*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-06
Date Collected: 07/14/21 11:50
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-9
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**7.1**		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluoroheptanoic acid (PFHpA)	**4.0**		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorooctanoic acid (PFOA)	**4.0**		1.8	0.75	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorononanoic acid (PFNA)	**1.5**	**J**	1.8	0.24	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorodecanoic acid (PFDA)	**0.96**	**J**	1.8	0.27	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	1.8	0.18	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorohexanesulfonic acid (PFHxS)	**12**		1.8	0.50	ng/L		07/19/21 13:06	07/20/21 19:53	1
Perfluorooctanesulfonic acid (PFOS)	**15**		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 19:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		07/19/21 13:06	07/20/21 19:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.4	1.1	ng/L		07/19/21 13:06	07/20/21 19:53	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 19:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		07/19/21 13:06	07/20/21 19:53	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 19:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		07/19/21 13:06	07/20/21 19:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*99*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C4 PFHpA	*59*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C5 PFNA	*80*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C2 PFDA	*121*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C2 PFUnA	*111*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C2 PFDoA	*114*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C2 PFTeDA	*97*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C3 PFBS	*78*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C4 PFOS	*108*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
d3-NMeFOSAA	*76*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
d5-NEtFOSAA	*95*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*
13C3 HFPO-DA	*83*		*50 - 150*	*07/19/21 13:06*	*07/20/21 19:53*	*1*

Client Sample ID: SW-07
Date Collected: 07/14/21 13:45
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-10
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**23**		1.8	0.53	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluoroheptanoic acid (PFHpA)	**9.0**		1.8	0.23	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorooctanoic acid (PFOA)	**7.7**		1.8	0.78	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorononanoic acid (PFNA)	**0.94**	**J**	1.8	0.25	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorobutanesulfonic acid (PFBS)	**10**		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 20:02	1
Perfluorohexanesulfonic acid (PFHxS)	**110**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 20:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/19/21 13:06	07/20/21 20:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/19/21 13:06	07/20/21 20:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 20:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		07/19/21 13:06	07/20/21 20:02	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 20:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		07/19/21 13:06	07/20/21 20:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*101*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C4 PFHpA	*67*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C4 PFOA	*102*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C5 PFNA	*78*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C2 PFDA	*137*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C2 PFUnA	*129*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C2 PFDoA	*127*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C2 PFTeDA	*119*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C3 PFBS	*77*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
18O2 PFHxS	*96*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C4 PFOS	*120*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
d3-NMeFOSAA	*91*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
d5-NEtFOSAA	*102*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*
13C3 HFPO-DA	*90*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:02*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**450**		9.2	2.5	ng/L		07/19/21 13:06	07/21/21 13:06	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*99*		*50 - 150*	*07/19/21 13:06*	*07/21/21 13:06*	*5*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-08
Date Collected: 07/14/21 16:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-11
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**5.0**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorooctanoic acid (PFOA)	**1.6**	**J**	1.8	0.76	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorobutanesulfonic acid (PFBS)	**0.81**	**J**	1.8	0.18	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorohexanesulfonic acid (PFHxS)	**5.6**		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 20:12	1
Perfluorooctanesulfonic acid (PFOS)	**4.8**		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 20:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		07/19/21 13:06	07/20/21 20:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.4	1.2	ng/L		07/19/21 13:06	07/20/21 20:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 20:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 20:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 20:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 20:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*35*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C4 PFHpA	*25*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C4 PFOA	*33*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C5 PFNA	*32*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C2 PFDA	*45*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C2 PFUnA	*39*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C2 PFDoA	*40*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C2 PFTeDA	*32*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C3 PFBS	*28*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
18O2 PFHxS	*33*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C4 PFOS	*41*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
d3-NMeFOSAA	*30*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
d5-NEtFOSAA	*33*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*
13C3 HFPO-DA	*32*	**5-*	*50 - 150*	*07/19/21 13:06*	*07/20/21 20:12*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-09
Date Collected: 07/14/21 18:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-12
Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**24**		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluoroheptanoic acid (PFHpA)	**9.2**		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorooctanoic acid (PFOA)	**9.7**		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorononanoic acid (PFNA)	**1.6**	**J I**	1.8	0.24	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorobutanesulfonic acid (PFBS)	**4.4**		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorohexanesulfonic acid (PFHxS)	**24**		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 20:21	1
Perfluorooctanesulfonic acid (PFOS)	**23**		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 20:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 20:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 20:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/19/21 13:06	07/20/21 20:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 20:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 20:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 20:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*108*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C4 PFOA	*101*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C2 PFDA	*116*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C2 PFUnA	*109*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C2 PFDoA	*113*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C2 PFTeDA	*106*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C3 PFBS	*91*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
18O2 PFHxS	*100*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C4 PFOS	*110*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*
13C3 HFPO-DA	*94*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:21*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: EB-SED

Date Collected: 07/14/21 20:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76363-13

Matrix: Water

Method: EPA 537(Mod) - 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	0.52	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 20:31	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 20:31	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 20:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 20:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 20:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 20:31	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 20:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 20:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*134*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C4 PFHpA	*119*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C4 PFOA	*126*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C5 PFNA	*124*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C2 PFDA	*135*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C2 PFUnA	*131*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C2 PFDoA	*131*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C2 PFTeDA	*130*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C3 PFBS	*106*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
18O2 PFHxS	*121*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C4 PFOS	*132*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
d3-NMeFOSAA	*108*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
d5-NEtFOSAA	*125*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*
13C3 HFPO-DA	*121*		*50 - 150*	*07/19/21 13:06*	*07/20/21 20:31*	*1*

Surrogate Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)	HFPODA (70-130)
320-76363-1	200140	131 S1+	123	114	123
320-76363-1 - RE	200140	111	110	107	109
LLCS 320-508443/2-A	Lab Control Sample	106	110	121	102
LLCS 320-510711/2-A - RE	Lab Control Sample	110	110	111	109
LLCSD 320-508443/3-A	Lab Control Sample Dup	102	111	115	101
LLCSD 320-510711/3-A - RE	Lab Control Sample Dup	112	113	115	112
MB 320-508443/1-A	Method Blank	122	118	112	114
MB 320-510711/1-A - RE	Method Blank	109	115	113	110

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Method: EPA 537(Mod) - 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)
320-76363-2	SW-01	30 *5-	25 *5-	28 *5-	28 *5-	37 *5-	35 *5-	35 *5-	23 *5-
320-76363-3	SW-02	105	73	97	82	138	121	119	112
320-76363-3 - DL	SW-02								
320-76363-4	SW-102	106	71	105	89	120	122	120	115
320-76363-4 - DL	SW-102								
320-76363-5	SW-03	64	44 *5-	60	50	78	70	66	38 *5-
320-76363-5 - DL	SW-03								
320-76363-6	SW-04		102	93	96	152 *5+	142	136	125
320-76363-6 - DL	SW-04	104							
320-76363-7	SW-104		60	59	62	83	74	72	72
320-76363-7 - DL	SW-104	57							
320-76363-8	SW-05	104	88	100	92	115	110	108	97
320-76363-9	SW-06	99	59	95	80	121	111	114	97
320-76363-10	SW-07	101	67	102	78	137	129	127	119
320-76363-10 - DL	SW-07								
320-76363-11	SW-08	35 *5-	25 *5-	33 *5-	32 *5-	45 *5-	39 *5-	40 *5-	32 *5-
320-76363-12	SW-09	108	84	101	90	116	109	113	106
320-76363-13	EB-SED	134	119	126	124	135	131	131	130
LCS 320-508071/2-A	Lab Control Sample	108	103	105	98	108	109	114	98
LCSD 320-508071/3-A	Lab Control Sample Dup	108	102	112	100	105	110	111	105
MB 320-508071/1-A	Method Blank	107	93	104	97	108	107	110	99

		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)		
320-76363-2	SW-01	23 *5-	29 *5-	34 *5-	27 *5-	32 *5-	26 *5-		
320-76363-3	SW-02	80	93	112	90	103	85		
320-76363-3 - DL	SW-02			94					
320-76363-4	SW-102	84	96	114	92	101	90		
320-76363-4 - DL	SW-102			88					
320-76363-5	SW-03	51	58	69	54	60	53		
320-76363-5 - DL	SW-03			61					
320-76363-6	SW-04	114	124	133	110	134	118		
320-76363-6 - DL	SW-04								
320-76363-7	SW-104	70	77	84	62	67	75		
320-76363-7 - DL	SW-104								
320-76363-8	SW-05	89	101	110	88	100	92		
320-76363-9	SW-06	78	86	108	76	95	83		
320-76363-10	SW-07	77	96	120	91	102	90		
320-76363-10 - DL	SW-07			99					
320-76363-11	SW-08	28 *5-	33 *5-	41 *5-	30 *5-	33 *5-	32 *5-		
320-76363-12	SW-09	91	100	110	85	93	94		
320-76363-13	EB-SED	106	121	132	108	125	121		
LCS 320-508071/2-A	Lab Control Sample	93	104	108	90	96	107		
LCSD 320-508071/3-A	Lab Control Sample Dup	93	102	108	85	102	97		
MB 320-508071/1-A	Method Blank	99	102	108	83	99	94		

Surrogate Legend

PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

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: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-508443/1-A
Matrix: Water
Analysis Batch: 509259

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 508443

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*122*		*70 - 130*	*07/20/21 13:03*	*07/22/21 15:19*	*1*
13C2 PFDA	*118*		*70 - 130*	*07/20/21 13:03*	*07/22/21 15:19*	*1*
d5-NEtFOSAA	*112*		*70 - 130*	*07/20/21 13:03*	*07/22/21 15:19*	*1*
13C3 HFPO-DA	*114*		*70 - 130*	*07/20/21 13:03*	*07/22/21 15:19*	*1*

Lab Sample ID: LLCS 320-508443/2-A
Matrix: Water
Analysis Batch: 512117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508443

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	4.00	4.44		ng/L		111	50 - 150
Perfluoroheptanoic acid (PFHpA)	4.00	4.68		ng/L		117	50 - 150
Perfluorooctanoic acid (PFOA)	4.00	5.19		ng/L		130	50 - 150
Perfluorononanoic acid (PFNA)	4.00	4.73		ng/L		118	50 - 150
Perfluorodecanoic acid (PFDA)	4.00	4.98		ng/L		124	50 - 150
Perfluoroundecanoic acid (PFUnA)	4.00	4.82		ng/L		120	50 - 150
Perfluorododecanoic acid (PFDoA)	4.00	4.96		ng/L		124	50 - 150
Perfluorotridecanoic acid (PFTriA)	4.00	4.43		ng/L		111	50 - 150
Perfluorotetradecanoic acid (PFTeA)	4.00	4.25		ng/L		106	50 - 150
Perfluorobutanesulfonic acid (PFBS)	3.54	4.11		ng/L		116	50 - 150

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCS 320-508443/2-A
Matrix: Water
Analysis Batch: 512117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508443

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanesulfonic acid (PFHxS)	3.64	4.48		ng/L		123	50 - 150
Perfluorooctanesulfonic acid (PFOS)	3.71	4.53		ng/L		122	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	4.58		ng/L		114	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	4.57		ng/L		114	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	3.73	4.45		ng/L		119	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF	3.77	4.61		ng/L		122	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	4.00	4.15		ng/L		104	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	3.77	4.39		ng/L		116	50 - 150

Surrogate	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C2 PFHxA	*106*		*70 - 130*
13C2 PFDA	*110*		*70 - 130*
d5-NEtFOSAA	*121*		*70 - 130*
13C3 HFPO-DA	*102*		*70 - 130*

Lab Sample ID: LLCSD 320-508443/3-A
Matrix: Water
Analysis Batch: 512117

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 508443

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	4.00	4.44		ng/L		111	50 - 150	0.1	50
Perfluoroheptanoic acid (PFHpA)	4.00	4.50		ng/L		112	50 - 150	4	50
Perfluorooctanoic acid (PFOA)	4.00	5.19		ng/L		130	50 - 150	0.1	50
Perfluorononanoic acid (PFNA)	4.00	4.72		ng/L		118	50 - 150	0.1	50
Perfluorodecanoic acid (PFDA)	4.00	4.71		ng/L		118	50 - 150	6	50
Perfluoroundecanoic acid (PFUnA)	4.00	4.85		ng/L		121	50 - 150	0.7	50
Perfluorododecanoic acid (PFDoA)	4.00	4.81		ng/L		120	50 - 150	3	50
Perfluorotridecanoic acid (PFTriA)	4.00	4.58		ng/L		114	50 - 150	3	50
Perfluorotetradecanoic acid (PFTeA)	4.00	4.15		ng/L		104	50 - 150	2	50
Perfluorobutanesulfonic acid (PFBS)	3.54	3.86		ng/L		109	50 - 150	6	50
Perfluorohexanesulfonic acid (PFHxS)	3.64	4.63		ng/L		127	50 - 150	3	50
Perfluorooctanesulfonic acid (PFOS)	3.71	4.42		ng/L		119	50 - 150	3	50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	4.00	4.70		ng/L		118	50 - 150	3	50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	4.00	4.61		ng/L		115	50 - 150	0.7	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O	3.73	4.44		ng/L		119	50 - 150	0.1	50

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCSD 320-508443/3-A
Matrix: Water
Analysis Batch: 512117

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 508443

Analyte			Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF			3.77	4.42		ng/L		117	50 - 150	4	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			4.00	4.20		ng/L		105	50 - 150	1	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			3.77	4.45		ng/L		118	50 - 150	1	50

Surrogate	*LLCSD %Recovery*	*LLCSD Qualifier*	*Limits*
13C2 PFHxA	*102*		*70 - 130*
13C2 PFDA	*111*		*70 - 130*
d5-NEtFOSAA	*115*		*70 - 130*
13C3 HFPO-DA	*101*		*70 - 130*

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) - RE

Lab Sample ID: MB 320-510711/1-A
Matrix: Water
Analysis Batch: 512119

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 510711

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluoroheptanoic acid (PFHpA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorooctanoic acid (PFOA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorononanoic acid (PFNA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorodecanoic acid (PFDA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluoroundecanoic acid (PFUnA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorododecanoic acid (PFDoA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorotridecanoic acid (PFTriA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorotetradecanoic acid (PFTeA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorobutanesulfonic acid (PFBS) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorohexanesulfonic acid (PFHxS) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorooctanesulfonic acid (PFOS) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) - RE (Continued)

Lab Sample ID: MB 320-510711/1-A
Matrix: Water
Analysis Batch: 512119

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 510711

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA - RE	109		70 - 130	07/27/21 13:06	08/01/21 15:42	1
13C2 PFDA - RE	115		70 - 130	07/27/21 13:06	08/01/21 15:42	1
d5-NEtFOSAA - RE	113		70 - 130	07/27/21 13:06	08/01/21 15:42	1
13C3 HFPO-DA - RE	110		70 - 130	07/27/21 13:06	08/01/21 15:42	1

Lab Sample ID: LLCS 320-510711/2-A
Matrix: Water
Analysis Batch: 512119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510711

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA) - RE	4.00	4.38		ng/L		110	50 - 150
Perfluoroheptanoic acid (PFHpA) - RE	4.00	4.61		ng/L		115	50 - 150
Perfluorooctanoic acid (PFOA) - RE	4.00	4.83		ng/L		121	50 - 150
Perfluorononanoic acid (PFNA) - RE	4.00	4.37		ng/L		109	50 - 150
Perfluorodecanoic acid (PFDA) - RE	4.00	4.36		ng/L		109	50 - 150
Perfluoroundecanoic acid (PFUnA) - RE	4.00	4.20		ng/L		105	50 - 150
Perfluorododecanoic acid (PFDoA) - RE	4.00	4.33		ng/L		108	50 - 150
Perfluorotridecanoic acid (PFTriA) - RE	4.00	4.07		ng/L		102	50 - 150
Perfluorotetradecanoic acid (PFTeA) - RE	4.00	3.79		ng/L		95	50 - 150
Perfluorobutanesulfonic acid (PFBS) - RE	3.54	3.99		ng/L		113	50 - 150
Perfluorohexanesulfonic acid (PFHxS) - RE	3.64	4.20		ng/L		115	50 - 150
Perfluorooctanesulfonic acid (PFOS) - RE	3.71	4.26		ng/L		115	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) - RE	4.00	4.30		ng/L		108	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RE	4.00	4.25		ng/L		106	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O - RE	3.73	4.22		ng/L		113	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF - RE	3.77	4.19		ng/L		111	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RE	4.00	4.58		ng/L		114	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RE	3.77	4.37		ng/L		116	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA - RE	110		70 - 130
13C2 PFDA - RE	110		70 - 130

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) - RE (Continued)

Lab Sample ID: LLCS 320-510711/2-A
Matrix: Water
Analysis Batch: 512119

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510711

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
d5-NEtFOSAA - RE	111		70 - 130
13C3 HFPO-DA - RE	109		70 - 130

Lab Sample ID: LLCSD 320-510711/3-A
Matrix: Water
Analysis Batch: 512119

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 510711

Analyte			Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA) - RE			4.00	4.47		ng/L		112	50 - 150	2	50
Perfluoroheptanoic acid (PFHpA) - RE			4.00	4.49		ng/L		112	50 - 150	3	50
Perfluorooctanoic acid (PFOA) - RE			4.00	4.58		ng/L		115	50 - 150	5	50
Perfluorononanoic acid (PFNA) - RE			4.00	4.41		ng/L		110	50 - 150	0.8	50
Perfluorodecanoic acid (PFDA) - RE			4.00	4.41		ng/L		110	50 - 150	1	50
Perfluoroundecanoic acid (PFUnA) - RE			4.00	4.37		ng/L		109	50 - 150	4	50
Perfluorododecanoic acid (PFDoA) - RE			4.00	4.22		ng/L		106	50 - 150	3	50
Perfluorotridecanoic acid (PFTriA) - RE			4.00	3.96		ng/L		99	50 - 150	3	50
Perfluorotetradecanoic acid (PFTeA) - RE			4.00	3.95		ng/L		99	50 - 150	4	50
Perfluorobutanesulfonic acid (PFBS) - RE			3.54	4.04		ng/L		114	50 - 150	1	50
Perfluorohexanesulfonic acid (PFHxS) - RE			3.64	4.27		ng/L		117	50 - 150	2	50
Perfluorooctanesulfonic acid (PFOS) - RE			3.71	4.02		ng/L		108	50 - 150	6	50
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) - RE			4.00	4.13		ng/L		103	50 - 150	4	50
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RE			4.00	4.41		ng/L		110	50 - 150	4	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O - RE			3.73	4.34		ng/L		116	50 - 150	3	50
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF - RE			3.77	4.25		ng/L		113	50 - 150	1	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RE			4.00	4.58		ng/L		115	50 - 150	0.2	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA) - RE			3.77	4.09		ng/L		109	50 - 150	7	50

Surrogate	LLCSD %Recovery	LLCSD Qualifier	Limits
13C2 PFHxA - RE	112		70 - 130
13C2 PFDA - RE	113		70 - 130
d5-NEtFOSAA - RE	115		70 - 130
13C3 HFPO-DA - RE	112		70 - 130

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-508071/1-A
Matrix: Water
Analysis Batch: 508595

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 508071

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/19/21 13:06	07/20/21 18:00	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/19/21 13:06	07/20/21 18:00	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/19/21 13:06	07/20/21 18:00	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/19/21 13:06	07/20/21 18:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		07/19/21 13:06	07/20/21 18:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		07/19/21 13:06	07/20/21 18:00	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.32	ng/L		07/19/21 13:06	07/20/21 18:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		07/19/21 13:06	07/20/21 18:00	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*107*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C4 PFHpA	*93*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C4 PFOA	*104*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C2 PFDA	*108*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C2 PFUnA	*107*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C2 PFDoA	*110*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C2 PFTeDA	*99*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
18O2 PFHxS	*102*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C4 PFOS	*108*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
d3-NMeFOSAA	*83*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
d5-NEtFOSAA	*99*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*
13C3 HFPO-DA	*94*		*50 - 150*	*07/19/21 13:06*	*07/20/21 18:00*	*1*

Lab Sample ID: LCS 320-508071/2-A
Matrix: Water
Analysis Batch: 508595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	36.7		ng/L		92	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	38.9		ng/L		97	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	37.7		ng/L		94	71 - 133
Perfluorononanoic acid (PFNA)	40.0	41.8		ng/L		105	69 - 130

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-508071/2-A
Matrix: Water
Analysis Batch: 508595

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508071

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	40.0	36.8		ng/L		92	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	38.3		ng/L		96	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	36.6		ng/L		92	72 - 134
Perfluorotridecanoic acid (PFTriA)	40.0	36.9		ng/L		92	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	38.5		ng/L		96	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	36.1		ng/L		102	72 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9		ng/L		96	68 - 131
Perfluorooctanesulfonic acid (PFOS)	37.1	37.2		ng/L		100	65 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	45.7		ng/L		114	65 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.9		ng/L		102	61 - 135
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	37.3	36.2		ng/L		97	77 - 137
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	35.3		ng/L		88	72 - 132
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	37.7	39.8		ng/L		106	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	35.2		ng/L		93	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*108*		*50 - 150*
13C4 PFHpA	*103*		*50 - 150*
13C4 PFOA	*105*		*50 - 150*
13C5 PFNA	*98*		*50 - 150*
13C2 PFDA	*108*		*50 - 150*
13C2 PFUnA	*109*		*50 - 150*
13C2 PFDoA	*114*		*50 - 150*
13C2 PFTeDA	*98*		*50 - 150*
13C3 PFBS	*93*		*50 - 150*
18O2 PFHxS	*104*		*50 - 150*
13C4 PFOS	*108*		*50 - 150*
d3-NMeFOSAA	*90*		*50 - 150*
d5-NEtFOSAA	*96*		*50 - 150*
13C3 HFPO-DA	*107*		*50 - 150*

Lab Sample ID: LCSD 320-508071/3-A
Matrix: Water
Analysis Batch: 508595

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 508071

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	40.0	38.1		ng/L		95	72 - 129	4	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.2		ng/L		101	72 - 130	3	30
Perfluorooctanoic acid (PFOA)	40.0	37.2		ng/L		93	71 - 133	1	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-508071/3-A
Matrix: Water
Analysis Batch: 508595

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 508071

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)			40.0	42.4		ng/L		106	69 - 130	1	30
Perfluorodecanoic acid (PFDA)			40.0	39.3		ng/L		98	71 - 129	6	30
Perfluoroundecanoic acid (PFUnA)			40.0	41.5		ng/L		104	69 - 133	8	30
Perfluorododecanoic acid (PFDoA)			40.0	41.6		ng/L		104	72 - 134	13	30
Perfluorotridecanoic acid (PFTriA)			40.0	40.2		ng/L		101	65 - 144	9	30
Perfluorotetradecanoic acid (PFTeA)			40.0	38.0		ng/L		95	71 - 132	1	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.9		ng/L		102	72 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.7		ng/L		98	68 - 131	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	36.9		ng/L		99	65 - 140	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	46.4		ng/L		116	65 - 136	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	38.7		ng/L		97	61 - 135	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	38.5		ng/L		103	77 - 137	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	38.9		ng/L		97	72 - 132	10	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	42.0		ng/L		112	76 - 136	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	36.5		ng/L		97	81 - 141	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*108*		*50 - 150*
13C4 PFHpA	*102*		*50 - 150*
13C4 PFOA	*112*		*50 - 150*
13C5 PFNA	*100*		*50 - 150*
13C2 PFDA	*105*		*50 - 150*
13C2 PFUnA	*110*		*50 - 150*
13C2 PFDoA	*111*		*50 - 150*
13C2 PFTeDA	*105*		*50 - 150*
13C3 PFBS	*93*		*50 - 150*
18O2 PFHxS	*102*		*50 - 150*
13C4 PFOS	*108*		*50 - 150*
d3-NMeFOSAA	*85*		*50 - 150*
d5-NEtFOSAA	*102*		*50 - 150*
13C3 HFPO-DA	*97*		*50 - 150*

LCMS

Prep Batch: 508071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-2	SW-01	Total/NA	Water	3535	
320-76363-3	SW-02	Total/NA	Water	3535	
320-76363-3 - DL	SW-02	Total/NA	Water	3535	
320-76363-4	SW-102	Total/NA	Water	3535	
320-76363-4 - DL	SW-102	Total/NA	Water	3535	
320-76363-5	SW-03	Total/NA	Water	3535	
320-76363-5 - DL	SW-03	Total/NA	Water	3535	
320-76363-6	SW-04	Total/NA	Water	3535	
320-76363-6 - DL	SW-04	Total/NA	Water	3535	
320-76363-7	SW-104	Total/NA	Water	3535	
320-76363-7 - DL	SW-104	Total/NA	Water	3535	
320-76363-8	SW-05	Total/NA	Water	3535	
320-76363-9	SW-06	Total/NA	Water	3535	
320-76363-10	SW-07	Total/NA	Water	3535	
320-76363-10 - DL	SW-07	Total/NA	Water	3535	
320-76363-11	SW-08	Total/NA	Water	3535	
320-76363-12	SW-09	Total/NA	Water	3535	
320-76363-13	EB-SED	Total/NA	Water	3535	
MB 320-508071/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-508071/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-508071/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Prep Batch: 508443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-1	200140	Total/NA	Water	537.1 DW	
MB 320-508443/1-A	Method Blank	Total/NA	Water	537.1 DW	
LLCS 320-508443/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCSD 320-508443/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	

Analysis Batch: 508595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-2	SW-01	Total/NA	Water	EPA 537(Mod)	508071
320-76363-3	SW-02	Total/NA	Water	EPA 537(Mod)	508071
320-76363-4	SW-102	Total/NA	Water	EPA 537(Mod)	508071
320-76363-5	SW-03	Total/NA	Water	EPA 537(Mod)	508071
320-76363-6	SW-04	Total/NA	Water	EPA 537(Mod)	508071
320-76363-7	SW-104	Total/NA	Water	EPA 537(Mod)	508071
320-76363-8	SW-05	Total/NA	Water	EPA 537(Mod)	508071
320-76363-9	SW-06	Total/NA	Water	EPA 537(Mod)	508071
320-76363-10	SW-07	Total/NA	Water	EPA 537(Mod)	508071
320-76363-11	SW-08	Total/NA	Water	EPA 537(Mod)	508071
320-76363-12	SW-09	Total/NA	Water	EPA 537(Mod)	508071
320-76363-13	EB-SED	Total/NA	Water	EPA 537(Mod)	508071
MB 320-508071/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	508071
LCS 320-508071/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	508071
LCSD 320-508071/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	508071

Analysis Batch: 508826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-3 - DL	SW-02	Total/NA	Water	EPA 537(Mod)	508071
320-76363-4 - DL	SW-102	Total/NA	Water	EPA 537(Mod)	508071

LCMS (Continued)

Analysis Batch: 508826 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-5 - DL	SW-03	Total/NA	Water	EPA 537(Mod)	508071
320-76363-6 - DL	SW-04	Total/NA	Water	EPA 537(Mod)	508071
320-76363-7 - DL	SW-104	Total/NA	Water	EPA 537(Mod)	508071
320-76363-10 - DL	SW-07	Total/NA	Water	EPA 537(Mod)	508071

Analysis Batch: 509259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-508443/1-A	Method Blank	Total/NA	Water	537.1 DW	508443

Analysis Batch: 509779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-1	200140	Total/NA	Water	537.1 DW	508443

Prep Batch: 510711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-1 - RE	200140	Total/NA	Water	537.1 DW	
MB 320-510711/1-A - RE	Method Blank	Total/NA	Water	537.1 DW	
LLCS 320-510711/2-A - RE	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCSD 320-510711/3-A - RE	Lab Control Sample Dup	Total/NA	Water	537.1 DW	

Analysis Batch: 512117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LLCS 320-508443/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	508443
LLCSD 320-508443/3-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	508443

Analysis Batch: 512119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-510711/1-A - RE	Method Blank	Total/NA	Water	537.1 DW	510711
LLCS 320-510711/2-A - RE	Lab Control Sample	Total/NA	Water	537.1 DW	510711
LLCSD 320-510711/3-A - RE	Lab Control Sample Dup	Total/NA	Water	537.1 DW	510711

Analysis Batch: 512121

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-1 - RE	200140	Total/NA	Water	537.1 DW	510711

Client Sample ID: 200140

Lab Sample ID: 320-76363-1

Date Collected: 07/12/21 12:40

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537.1 DW			268.6 mL	1.0 mL	508443	07/20/21 13:03	EH	TAL SAC
Total/NA	Analysis	537.1 DW		1			509779	07/23/21 20:52	D1R	TAL SAC
Total/NA	Prep	537.1 DW	RE		273.4 mL	1.0 mL	510711	07/27/21 13:06	EH	TAL SAC
Total/NA	Analysis	537.1 DW	RE	1			512121	08/01/21 16:29	D1R	TAL SAC

Client Sample ID: SW-01

Lab Sample ID: 320-76363-2

Date Collected: 07/13/21 14:30

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.7 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 18:28	D1R	TAL SAC

Client Sample ID: SW-02

Lab Sample ID: 320-76363-3

Date Collected: 07/13/21 16:30

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 18:38	D1R	TAL SAC
Total/NA	Prep	3535	DL		279.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			508826	07/21/21 12:19	D1R	TAL SAC

Client Sample ID: SW-102

Lab Sample ID: 320-76363-4

Date Collected: 07/13/21 16:40

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			280.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 18:47	D1R	TAL SAC
Total/NA	Prep	3535	DL		280.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			508826	07/21/21 12:29	D1R	TAL SAC

Client Sample ID: SW-03

Lab Sample ID: 320-76363-5

Date Collected: 07/13/21 18:30

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 18:57	D1R	TAL SAC
Total/NA	Prep	3535	DL		272.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			508826	07/21/21 12:38	D1R	TAL SAC

Client Sample ID: SW-04

Lab Sample ID: 320-76363-6

Date Collected: 07/14/21 09:00

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 19:06	D1R	TAL SAC
Total/NA	Prep	3535	DL		274 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			508826	07/21/21 12:47	D1R	TAL SAC

Client Sample ID: SW-104

Lab Sample ID: 320-76363-7

Date Collected: 07/14/21 09:10

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			278.9 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 19:15	D1R	TAL SAC
Total/NA	Prep	3535	DL		278.9 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			508826	07/21/21 12:57	D1R	TAL SAC

Client Sample ID: SW-05

Lab Sample ID: 320-76363-8

Date Collected: 07/14/21 10:50

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.2 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 19:25	D1R	TAL SAC

Client Sample ID: SW-06

Lab Sample ID: 320-76363-9

Date Collected: 07/14/21 11:50

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			284.2 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 19:53	D1R	TAL SAC

Client Sample ID: SW-07

Lab Sample ID: 320-76363-10

Date Collected: 07/14/21 13:45

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271.7 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 20:02	D1R	TAL SAC
Total/NA	Prep	3535	DL		271.7 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			508826	07/21/21 13:06	D1R	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-08

Lab Sample ID: 320-76363-11

Date Collected: 07/14/21 16:30

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			281.1 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 20:12	D1R	TAL SAC

Client Sample ID: SW-09

Lab Sample ID: 320-76363-12

Date Collected: 07/14/21 18:00

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.7 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 20:21	D1R	TAL SAC

Client Sample ID: EB-SED

Lab Sample ID: 320-76363-13

Date Collected: 07/14/21 20:00

Matrix: Water

Date Received: 07/16/21 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			277.9 mL	10.0 mL	508071	07/19/21 13:06	KJW	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508595	07/20/21 20:31	D1R	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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
537.1 DW	537.1 DW	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF
537.1 DW	537.1 DW	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1 DW	537.1 DW	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3O
537.1 DW	537.1 DW	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)
537.1 DW	537.1 DW	Water	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537.1 DW	537.1 DW	Water	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537.1 DW	537.1 DW	Water	Perfluorobutanesulfonic acid (PFBS)
537.1 DW	537.1 DW	Water	Perfluorodecanoic acid (PFDA)
537.1 DW	537.1 DW	Water	Perfluorododecanoic acid (PFDoA)
537.1 DW	537.1 DW	Water	Perfluoroheptanoic acid (PFHpA)
537.1 DW	537.1 DW	Water	Perfluorohexanesulfonic acid (PFHxS)
537.1 DW	537.1 DW	Water	Perfluorohexanoic acid (PFHxA)
537.1 DW	537.1 DW	Water	Perfluorononanoic acid (PFNA)
537.1 DW	537.1 DW	Water	Perfluorooctanesulfonic acid (PFOS)
537.1 DW	537.1 DW	Water	Perfluorooctanoic acid (PFOA)
537.1 DW	537.1 DW	Water	Perfluorotetradecanoic acid (PFTeA)
537.1 DW	537.1 DW	Water	Perfluorotridecanoic acid (PFTriA)
537.1 DW	537.1 DW	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Method	Method Description	Protocol	Laboratory
537.1 DW	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76363-1	200140	Water	07/12/21 12:40	07/16/21 11:30
320-76363-2	SW-01	Water	07/13/21 14:30	07/16/21 11:30
320-76363-3	SW-02	Water	07/13/21 16:30	07/16/21 11:30
320-76363-4	SW-102	Water	07/13/21 16:40	07/16/21 11:30
320-76363-5	SW-03	Water	07/13/21 18:30	07/16/21 11:30
320-76363-6	SW-04	Water	07/14/21 09:00	07/16/21 11:30
320-76363-7	SW-104	Water	07/14/21 09:10	07/16/21 11:30
320-76363-8	SW-05	Water	07/14/21 10:50	07/16/21 11:30
320-76363-9	SW-06	Water	07/14/21 11:50	07/16/21 11:30
320-76363-10	SW-07	Water	07/14/21 13:45	07/16/21 11:30
320-76363-11	SW-08	Water	07/14/21 16:30	07/16/21 11:30
320-76363-12	SW-09	Water	07/14/21 18:00	07/16/21 11:30
320-76363-13	EB-SED	Water	07/14/21 20:00	07/16/21 11:30

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David ACCtucker

Turn Around Time:	Quote No:	MSA Number:	J-Flags:
☒ Normal ☐ Rush		TBD	☒ Yes ☐ No
Please Specify			

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
200140		1240	7/12/21	X	2	drinking water + Trizma
SW-01		1430	7/13/21	X		water (surface)
SW-02		1630		X		
SW-102		1640		X		
SW-03		1830		X		
SW-04		0900	7/14/21	X		
SW-104		0910		X		
SW-05		1050		X		
SW-06		1150		X		
SW-07		1345		X		

320-76363 Chain of Custody

Project Information	
Number:	102581-009
Name:	DL GPFAS
Contact:	Marcy Nadel
Ongoing Project?	Yes ☒ No ☐
Sampler:	VTY

Sample Receipt	
Total No. of Containers:	26
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: Time: 1500	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/15/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 11:30	Signature: Time:	Signature: Time:
Printed Name: Connie Van Date: 7/16/21	Printed Name: Date:	Printed Name: Date:
Company: ETA sac	Company:	Company:

Notes:

Surface water samples contain plant matter.

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

* Sample shows discoloration. NC 7-16-21

No.

SHANNON & WILSON, INC.
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CHAIN-OF-CUSTODY RECORD

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Laboratory Attn: Test America David Acklucker

Analytical Methods (include preservative if used)

Turn Around Time:	Quote No:	MSA Number:	J-Flags:
[X] Normal [ ] Rush		TBD	[X] Yes [ ] No
Please Specify			

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SW-08		1630	7/14/21	X	2	water (surface)
SW-09		1800	7/14/21	X	2	water (surface)
EB-SOED		2000	7/14/21	X	2	water

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	26
Name:	DLG PFAS	COC Seals/Intact? Y/N/NA	
Contact:	Mary Nadeau	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	VTT	Delivery Method:	goldstreak

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1500	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/15/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 11:30	Signature: Time:	Signature: Time:
Printed Name: Connie Van Date: 7/16/21	Printed Name: Date:	Printed Name: Date:
Company: ETA SAC	Company:	Company:

Notes:

Surface water samples contain plant matter

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

1 Sample shows discoloration. NC 7-16-21

No.

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76363-1

Login Number: 76363
List Number: 1
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, 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?	False	
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	

Laboratory Data Review Checklist

Completed By:

Veselina Yakimova

Title:

Geologist

Date:

August 6, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins TestAmerica, Sacramento

Laboratory Report Number:

320-76363-1

Laboratory Report Date:

August 2, 2021

CS Site Name:

Dillingham DOT&PF PFAS

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76363-1

Laboratory Report Date:

August 2, 2021

CS Site Name:

Dillingham DOT&PF PFAS

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

All analyses were performed by the Eurofins TestAmerica Laboratory in West Sacramento, CA.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

The temperature blank was measured within the acceptable temperature range of 0 °C to 6 °C upon arrival at the laboratory. The temperature of the sample cooler upon receipt was 2.2°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

Analysis of per- and poly-fluoroalkyl substances (PFAS) in drinking water by EPA Method 537.1 requires preservation with Trizma. The drinking water sample was appropriately preserved.

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

The sample receipt form indicates that the field sampler was not listed on the COC. This note appears to be erroneous as the field sampler's initials are present on the COC.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The recovery of the method 537.1 isotope dilution alanyte (IDA) 13C2 PFHxA was outside of acceptable limits for the sample *200140*. Re-analysis was performed past the laboratory imposed holding time, with IDA recovery within control limits. Both sets of data are reported.

The "I" qualifier means the transition mass ratio was outside of the established ratio limits. This I-flag was applied to the perfluorononanoic acid (PFNA) results of one or more samples.

The recoveries of one or more IDA associated with samples *SW-01, SW-03,* and *SW-08* were below the method reccommended limit. 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.

The recoveries of one or more IDA for the sample *SW-04* were above the method recommended limit. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

The results for samples *SW-02, SW-102, SW-03, SW-04, SW-104* and *SW-07* were reported from the analyses of diluted extracts. These samples were diluted due to high concentrations of the target analytes in the undiluted extracts. Dilution factors were applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batches 320-508071, 320-508443, and 320-510711.

The samples *SW-02* and *SW-102* exhibited a yellow hue prior to extraction.

The samples *SW-01, SW-03* and *SW-08* exhibited red-brown hue with a thin layer of sediment at the bottom of the bottle prior to extraction.

The samples *SW-04, SW-104, SW-05, SW-06, SW-07* and *SW-09* contained a thin layer of sediment at the bottom of the bottle prior to extraction.

During the solid phase extraction process, samples *SW-01, SW-03, SW-104* and *SW-08* contained non-settable particulates which clogged the solid phase extraction column.

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c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

The sample *200140* was re-analyzed following elevated recovery of the IDA 13C2 PFHxA.

Samples *SW-02, SW-102, SW-03, SW-04, SW-104* and *SW-07* were diluted to bring the concentrations of target analytes within the instrument's calibration range.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The laboratory applied the I-flag to the PFNA results of one or more samples. According to the case narrative, the qualitative identification of the analyte has some degree of uncertainty and the reported values may have some high bias. However, analyst judgment was used to positively identify the analyte.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

The samples were analyzed within 14 of collection, meeting the 14-day hold time for extraction and 40-day hold time for analysis required by Method 537.1.

Sample *200140* was re-extracted outside of the 14-day holding time to confirm the results of the initial run. The within-hold results are used for reporting purposes.

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

This work order does not include soil samples.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

The LOQ, equivalent to the TestAmerica Reporting Limit (RL), is less than the applicable DEC regulatory limits for perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA).

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e. Data quality or usability affected?

The data quality and/or usability are not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Target PFAS analytes were not detected in the method blank samples.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; no PFAS analytes were detected in the method blank samples.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; therefore, qualification is not required.

v. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

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ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None; method accuracy and precision were demonstrated to be within acceptable limits.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected.

320-76363-1

Laboratory Report Date:

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CS Site Name:

Dillingham DOT&PF PFAS

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Sufficient volume was not available to complete an MS/MSD for the project sample set. Method accuracy and precision were evaluated using the LCS/LCSD samples.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

See section 6.b.iii for assessment of method accuracy.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

See section 6.b.iv for assessment of method precision.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

MS/MSD samples were not reported with this work order.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification is not required; see above.

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CS Site Name:

Dillingham DOT&PF PFAS

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality and/or usability are not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

Method 537.1 uses IDAs, which entails spiking samples with isotopically labed compounds for certain target analytes to assess recovery.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The recovery of the 13C2 PFHxA surrogate in sample *200140* exceeds laboratory control limits.

The recoveries of all IDA in the samples *SW-01* and *SW-08* are below the laboratory's lower control limits.

The recoveries of the IDAs 13C2 PFTeDA and 13C4 PFHpA in sample *SW-03* are below the laboratory's lower control limits.

The recovery of the IDA 13C2 PFDA in sample *SW-04* exceeds laboratory's upper control limit.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

The associated detectable results are flagged "J" in the analytical table. The non-detect results are flagged "UJ", except for the PFDA result for sample *SW-04* which does not require qualification due to the IDA recovery being elevated and PFDA not being present at a detectable concentration.

iv. Data quality or usability affected?

Comments:

The data quality and/or usability are affected. See above.

320-76363-1

Laboratory Report Date:

August 2, 2021

CS Site Name:

Dillingham DOT&PF PFAS

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not considered volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; a trip blank was not submitted with this work order.

v. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Field duplicate pairs *SW-02* / *SW-102* and *SW-04 / SW-104* was submitted with this work order.

320-76363-1

Laboratory Report Date:

August 2, 2021

CS Site Name:

Dillingham DOT&PF PFAS

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality/usability are not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

These samples were not collected with reusable equipment; therefore, there is no practical potential for equipment based cross-contamination.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank sample was not collected or required.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; an equipment-blank sample was not collected.

iii. Data quality or usability affected?

Comments:

The data quality and/or usability are not affected; see above.

320-76363-1

Laboratory Report Date:

August 2, 2021

CS Site Name:

Dillingham DOT&PF PFAS

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

The PFNA result of sample *SW-09* is flagged "J" due to a transition mass ratio failure.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76365-1
Client Project/Site: DLG PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
7/26/2021 2:11:09 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Qualifiers

LCMS

Qualifier	Qualifier Description
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
H	Sample was prepped or analyzed beyond the specified holding time
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

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

Job ID: 320-76365-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Receipt
The samples were received on 7/16/2021 11:30 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 2.2º C.

LCMS
Method EPA 537(Mod): The “I” qualifier means the transition mass ratios for the indicated analytes were outside of the established ratio limits. The qualitative identification of the analytes have some degree of uncertainty, and the reported values may have some high bias. However, analyst judgement was used to positively identify the analytes.

Method EPA 537(Mod): The continuing calibration verification (CCV) associated with batch 320-508555 recovered above the upper control limit for 9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

Method EPA 537(Mod): The following sample exhibited matrix interferences for Perfluorooctanesulfonic acid (PFOS) elevation of the reporting limit (RL) <commaMerge&> . The RL for the affected analyte has been raised to the level of the matrix interference, and a "G" qualifier applied.

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

General Chemistry
Method Moisture: The reference method does not list a specific holding time for this procedure; therefore, the laboratory defaults to an in-house holding time of 14 days. The following sample was prepared and/or analyzed outside this time period: SB2-45.3-46.0 (320-76365-26).

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

Organic Prep
Method SHAKE: The following samples were light yellow after final extraction/volume:SED-01 (320-76365-15), SED-06 (320-76365-22), SED-07 (320-76365-23) and SED-08 (320-76365-24)

Method SHAKE: The following samples were prepared outside of preparation holding time due to being received the day the holding time expired : SB2-45.3-46.0 (320-76365-26), (320-76365-A-26 MS) and (320-76365-A-26 MSD).

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB6-0.0-0.5 — Lab Sample ID: 320-76365-1

No Detections.

Client Sample ID: SB6-6.9-7.9 — Lab Sample ID: 320-76365-2

No Detections.

Client Sample ID: SB61-6.9-7.9 — Lab Sample ID: 320-76365-3

No Detections.

Client Sample ID: SB6-11.8-12.4 — Lab Sample ID: 320-76365-4

No Detections.

Client Sample ID: SB7-0.0-1.1 — Lab Sample ID: 320-76365-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.082	J	0.20	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.24	J	0.50	0.20	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB7-16.7-27.1 — Lab Sample ID: 320-76365-6

No Detections.

Client Sample ID: SB7-29.8-30.3 — Lab Sample ID: 320-76365-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.22	J	0.26	0.040	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB8-0.0-0.6 — Lab Sample ID: 320-76365-8

No Detections.

Client Sample ID: SB8-16.4-16.8 — Lab Sample ID: 320-76365-9

No Detections.

Client Sample ID: SB8-30.0-30.5 — Lab Sample ID: 320-76365-10

No Detections.

Client Sample ID: SB9-0.0-0.5 — Lab Sample ID: 320-76365-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.085	J	0.31	0.065	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.054	J	0.31	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.074	J	0.31	0.056	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.086	J	0.31	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.68		0.31	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.7		0.77	0.31	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB9-5.0-5.5 — Lab Sample ID: 320-76365-12

No Detections.

Client Sample ID: SB9-36.6-36.8 — Lab Sample ID: 320-76365-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.23	J	0.24	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.25		0.24	0.035	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: SB9-36.6-36.8 (Continued) — Lab Sample ID: 320-76365-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	16		0.24	0.10	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB9-15.6-16.2 — Lab Sample ID: 320-76365-14

No Detections.

Client Sample ID: SED-01 — Lab Sample ID: 320-76365-15

No Detections.

Client Sample ID: SED-02 — Lab Sample ID: 320-76365-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.080	J	0.25	0.028	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.55		0.25	0.084	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotridecanoic acid (PFTriA)	0.18	J	0.25	0.064	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.61		0.25	0.068	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.10	J	0.25	0.039	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.83	I	0.63	0.25	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-102 — Lab Sample ID: 320-76365-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.052	J	0.23	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.082	J	0.23	0.025	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorododecanoic acid (PFDoA)	0.36		0.23	0.077	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotridecanoic acid (PFTriA)	0.12	J	0.23	0.059	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.42		0.23	0.062	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.079	J	0.23	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.54	J I	0.58	0.23	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-03 — Lab Sample ID: 320-76365-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.14	J	0.19	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9		0.47	0.19	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-04 — Lab Sample ID: 320-76365-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.12	J	0.22	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-104 — Lab Sample ID: 320-76365-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.11	J	0.23	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-05 — Lab Sample ID: 320-76365-21

No Detections.

Client Sample ID: SED-06 — Lab Sample ID: 320-76365-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.20	J I	0.52	0.058	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.31	J	0.52	0.094	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: SED-06 (Continued) — Lab Sample ID: 320-76365-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorododecanoic acid (PFDoA)	0.42	J	0.52	0.18	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.20	J	0.52	0.14	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.17	J	0.52	0.081	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.5	I	1.3	0.52	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-07 — Lab Sample ID: 320-76365-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.040	J	0.33	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.35		0.33	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	14		0.83	0.33	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-08 — Lab Sample ID: 320-76365-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.36	J	1.3	0.21	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.2	J I	3.3	1.3	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SED-09 — Lab Sample ID: 320-76365-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.038	J	0.23	0.036	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB2-45.3-46.0 — Lab Sample ID: 320-76365-26

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: SB6-0.0-0.5

Date Collected: 07/12/21 20:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-1

Matrix: Solid
Percent Solids: 95.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.083	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.021	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.065	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.049	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.052	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.19	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.48	0.19	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.38	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.36	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.026	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.021	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.017	ug/Kg	☼	07/19/21 18:40	07/23/21 15:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C4 PFHpA	*82*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C4 PFOA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C2 PFDA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C2 PFUnA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C2 PFDoA	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C2 PFTeDA	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C3 PFBS	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
18O2 PFHxS	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C4 PFOS	*77*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
d5-NEtFOSAA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**4.6**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**95.4**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB6-6.9-7.9
Date Collected: 07/12/21 20:50
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-2
Matrix: Solid
Percent Solids: 94.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.084	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.021	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.065	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.050	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.053	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.19	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.49	0.19	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.38	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.36	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.026	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.021	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.018	ug/Kg	☼	07/19/21 18:40	07/23/21 16:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C4 PFOA	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C5 PFNA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C2 PFDA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C2 PFUnA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C2 PFDoA	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C2 PFTeDA	*70*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C3 PFBS	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
18O2 PFHxS	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C4 PFOS	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:08*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**5.3**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**94.7**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB61-6.9-7.9
Date Collected: 07/12/21 21:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-3
Matrix: Solid
Percent Solids: 93.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.083	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.021	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.065	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.049	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.052	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.19	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.48	0.19	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.38	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.36	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.026	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.021	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.017	ug/Kg	☼	07/19/21 18:40	07/23/21 16:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*71*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C4 PFOA	*82*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C5 PFNA	*77*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C2 PFDA	*69*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C2 PFUnA	*72*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C2 PFDoA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C3 PFBS	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
18O2 PFHxS	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C4 PFOS	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
d5-NEtFOSAA	*85*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:17*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**6.1**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**93.9**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB6-11.8-12.4

Date Collected: 07/12/21 21:03
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-4

Matrix: Solid
Percent Solids: 92.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.085	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.050	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.053	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.49	0.20	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/19/21 18:40	07/23/21 16:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C4 PFHpA	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C5 PFNA	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C2 PFUnA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C2 PFDoA	*91*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C2 PFTeDA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C3 PFBS	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C4 PFOS	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
d3-NMeFOSAA	*97*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
d5-NEtFOSAA	*101*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:26*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.5**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**92.5**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB7-0.0-1.1
Date Collected: 07/12/21 21:40
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-5
Matrix: Solid
Percent Solids: 95.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorohexanesulfonic acid (PFHxS)	**0.082**	**J**	0.20	0.031	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Perfluorooctanesulfonic acid (PFOS)	**0.24**	**J**	0.50	0.20	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C4 PFOA	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C5 PFNA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C2 PFDA	*77*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C2 PFUnA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C2 PFTeDA	*82*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C3 PFBS	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
18O2 PFHxS	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C4 PFOS	*73*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
d3-NMeFOSAA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*
13C3 HFPO-DA	*70*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:35*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**4.6**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**95.4**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB7-16.7-27.1

Date Collected: 07/12/21 23:20
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-6

Matrix: Solid
Percent Solids: 78.8

Method: EPA 537(Mod) - 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	0.051	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.10	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.043	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.043	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.081	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.061	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.065	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.037	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.60	0.24	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.4	0.47	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.4	0.45	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.033	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.30	0.13	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C5 PFNA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C2 PFDA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C2 PFUnA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C2 PFDoA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C3 PFBS	*94*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
18O2 PFHxS	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
d5-NEtFOSAA	*106*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 16:53*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.3**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**78.8**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB7-29.8-30.3

Date Collected: 07/12/21 23:05
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-7

Matrix: Solid
Percent Solids: 77.4

Method: EPA 537(Mod) - 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	0.054	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluoroheptanoic acid (PFHpA)	ND		0.26	0.037	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorooctanoic acid (PFOA)	ND		0.26	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorononanoic acid (PFNA)	ND		0.26	0.046	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorodecanoic acid (PFDA)	ND		0.26	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluoroundecanoic acid (PFUnA)	ND		0.26	0.046	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorododecanoic acid (PFDoA)	ND		0.26	0.086	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorotridecanoic acid (PFTriA)	ND		0.26	0.066	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.26	0.070	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.26	0.032	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorohexanesulfonic acid (PFHxS)	**0.22**	**J**	0.26	0.040	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.64	0.26	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.6	0.50	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.6	0.48	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.26	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.32	0.14	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.26	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.26	0.023	ug/Kg	☼	07/19/21 18:40	07/23/21 17:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*69*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C4 PFOA	*77*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C2 PFDA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C2 PFUnA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C2 PFDoA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C2 PFTeDA	*73*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C3 PFBS	*91*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
18O2 PFHxS	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C4 PFOS	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
d3-NMeFOSAA	*82*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*
13C3 HFPO-DA	*67*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:02*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**22.6**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**77.4**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB8-0.0-0.6

Date Collected: 07/13/21 00:04
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-8

Matrix: Solid
Percent Solids: 95.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.085	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.066	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.050	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.053	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.49	0.20	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*68*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C4 PFHpA	*77*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C4 PFOA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C5 PFNA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C2 PFDA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C2 PFUnA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C2 PFDoA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C3 PFBS	*88*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
18O2 PFHxS	*70*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C4 PFOS	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
d5-NEtFOSAA	*104*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*
13C3 HFPO-DA	*70*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:11*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**4.9**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**95.1**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB8-16.4-16.8

Date Collected: 07/13/21 01:10
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-9

Matrix: Solid
Percent Solids: 85.9

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.045	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.031	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.092	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.038	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.038	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.072	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.054	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.058	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.033	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53	0.21	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.1	0.42	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.1	0.40	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.029	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.019	ug/Kg	☼	07/19/21 18:40	07/23/21 17:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*66*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C4 PFHpA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C4 PFOA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C5 PFNA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C2 PFDA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C2 PFUnA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C2 PFDoA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C2 PFTeDA	*68*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C3 PFBS	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
18O2 PFHxS	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C4 PFOS	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*
13C3 HFPO-DA	*68*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:21*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**14.1**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**85.9**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB8-30.0-30.5

Date Collected: 07/13/21 01:06
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-10

Matrix: Solid
Percent Solids: 81.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.047	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.032	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.095	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.040	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.040	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.074	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.057	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.060	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.034	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.22	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.41	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.28	0.12	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.020	ug/Kg	☼	07/19/21 18:40	07/23/21 17:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*70*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C4 PFHpA	*90*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C5 PFNA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C2 PFDA	*77*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C2 PFDoA	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C2 PFTeDA	*69*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C3 PFBS	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
18O2 PFHxS	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C4 PFOS	*87*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.9**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**81.1**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB9-0.0-0.5

Date Collected: 07/13/21 13:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-11

Matrix: Solid
Percent Solids: 61.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.085**	**J**	0.31	0.065	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluoroheptanoic acid (PFHpA)	**0.054**	**J**	0.31	0.045	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorooctanoic acid (PFOA)	ND		0.31	0.13	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorononanoic acid (PFNA)	**0.074**	**J**	0.31	0.056	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorodecanoic acid (PFDA)	**0.086**	**J**	0.31	0.034	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluoroundecanoic acid (PFUnA)	ND		0.31	0.056	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorododecanoic acid (PFDoA)	ND		0.31	0.10	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorotridecanoic acid (PFTriA)	ND		0.31	0.079	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.31	0.083	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.31	0.039	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorohexanesulfonic acid (PFHxS)	**0.68**		0.31	0.048	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Perfluorooctanesulfonic acid (PFOS)	**5.7**		0.77	0.31	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		3.1	0.60	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		3.1	0.57	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.31	0.042	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.39	0.17	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.31	0.034	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.31	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 17:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C4 PFHpA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C4 PFOA	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C5 PFNA	*82*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C2 PFDA	*73*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C2 PFUnA	*66*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C2 PFDoA	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C2 PFTeDA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C3 PFBS	*92*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
18O2 PFHxS	*73*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C4 PFOS	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
d3-NMeFOSAA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
d5-NEtFOSAA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*
13C3 HFPO-DA	*70*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:39*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**38.3**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**61.7**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB9-5.0-5.5

Date Collected: 07/13/21 14:16
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-12

Matrix: Solid
Percent Solids: 82.1

Method: EPA 537(Mod) - 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	0.048	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.033	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.098	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.025	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.041	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.076	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.058	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.061	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.028	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Perfluorooctanesulfonic acid (PFOS)	ND	G	0.63	0.63	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.44	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.42	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.031	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.28	0.13	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.025	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.020	ug/Kg	☼	07/19/21 18:40	07/23/21 17:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C4 PFHpA	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C2 PFDA	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C2 PFUnA	*82*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C2 PFDoA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C2 PFTeDA	*72*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C3 PFBS	*100*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
18O2 PFHxS	*83*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C4 PFOS	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
d3-NMeFOSAA	*95*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:48*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.9**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**82.1**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB9-36.6-36.8
Date Collected: 07/13/21 15:37
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-13
Matrix: Solid
Percent Solids: 79.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.23**	**J**	0.24	0.051	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluoroheptanoic acid (PFHpA)	**0.25**		0.24	0.035	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorooctanoic acid (PFOA)	**16**		0.24	0.10	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.044	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.044	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.081	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.062	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.065	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.030	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.038	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.61	0.24	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.4	0.47	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.4	0.45	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.033	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.30	0.13	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.027	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.022	ug/Kg	☼	07/19/21 18:40	07/23/21 17:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*68*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C4 PFOA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C5 PFNA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C2 PFDA	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C2 PFUnA	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C2 PFDoA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C3 PFBS	*86*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
18O2 PFHxS	*78*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C4 PFOS	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
d5-NEtFOSAA	*104*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 17:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.0**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**79.0**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB9-15.6-16.2

Date Collected: 07/13/21 16:48
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-14

Matrix: Solid
Percent Solids: 79.0

Method: EPA 537(Mod) - 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	0.052	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.11	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.045	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.027	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.045	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.083	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorotridecanoic acid (PFTriA)	ND		0.25	0.063	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.067	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.031	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.038	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.62	0.25	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.5	0.48	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.5	0.46	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.25	0.033	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.31	0.14	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.25	0.027	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.022	ug/Kg	☼	07/19/21 11:59	07/21/21 04:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C5 PFNA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C2 PFDA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C2 PFUnA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C2 PFDoA	*93*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C2 PFTeDA	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C3 PFBS	*73*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C4 PFOS	*87*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
d3-NMeFOSAA	*69*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:28*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.0**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**79.0**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-01
Date Collected: 07/13/21 14:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-15
Matrix: Solid
Percent Solids: 15.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.3	0.27	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluoroheptanoic acid (PFHpA)	ND		1.3	0.18	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorooctanoic acid (PFOA)	ND		1.3	0.54	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorononanoic acid (PFNA)	ND		1.3	0.23	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorodecanoic acid (PFDA)	ND		1.3	0.14	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.3	0.23	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.3	0.42	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorotridecanoic acid (PFTriA)	ND		1.3	0.32	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.3	0.34	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.3	0.16	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.3	0.20	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		3.2	1.3	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		13	2.5	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		13	2.3	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.3	0.17	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.6	0.69	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.3	0.14	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.3	0.11	ug/Kg	☼	07/19/21 11:59	07/21/21 04:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*67*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C4 PFHpA	*67*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C4 PFOA	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C5 PFNA	*74*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C2 PFDA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C2 PFUnA	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C2 PFDoA	*65*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C2 PFTeDA	*70*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C3 PFBS	*64*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
18O2 PFHxS	*70*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C4 PFOS	*78*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
d3-NMeFOSAA	*56*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
d5-NEtFOSAA	*70*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*
13C3 HFPO-DA	*66*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:38*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**84.6**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**15.4**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SED-02

Date Collected: 07/13/21 16:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-16

Matrix: Solid
Percent Solids: 78.7

Method: EPA 537(Mod) - 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	0.053	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.037	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.11	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.045	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorodecanoic acid (PFDA)	**0.080**	**J**	0.25	0.028	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.045	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorododecanoic acid (PFDoA)	**0.55**		0.25	0.084	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorotridecanoic acid (PFTriA)	**0.18**	**J**	0.25	0.064	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorotetradecanoic acid (PFTeA)	**0.61**		0.25	0.068	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.032	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorohexanesulfonic acid (PFHxS)	**0.10**	**J**	0.25	0.039	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Perfluorooctanesulfonic acid (PFOS)	**0.83**	**I**	0.63	0.25	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.5	0.49	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.5	0.47	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.25	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.32	0.14	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.25	0.028	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.023	ug/Kg	☼	07/19/21 11:59	07/21/21 04:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C4 PFHpA	*87*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C2 PFDA	*92*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C2 PFUnA	*87*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C2 PFDoA	*80*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C3 PFBS	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C4 PFOS	*89*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
d3-NMeFOSAA	*66*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*
13C3 HFPO-DA	*89*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:47*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**21.3**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**78.7**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-102

Date Collected: 07/13/21 16:40
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-17

Matrix: Solid
Percent Solids: 80.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.052**	**J**	0.23	0.048	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.033	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.099	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorodecanoic acid (PFDA)	**0.082**	**J**	0.23	0.025	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorododecanoic acid (PFDoA)	**0.36**		0.23	0.077	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorotridecanoic acid (PFTriA)	**0.12**	**J**	0.23	0.059	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorotetradecanoic acid (PFTeA)	**0.42**		0.23	0.062	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorohexanesulfonic acid (PFHxS)	**0.079**	**J**	0.23	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorooctanesulfonic acid (PFOS)	**0.54**	**J I**	0.58	0.23	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.031	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.025	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C2 PFDA	*93*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C2 PFUnA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C2 PFDoA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C3 PFBS	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
d3-NMeFOSAA	*70*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*
13C3 HFPO-DA	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 04:57*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**19.8**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**80.2**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SED-03
Date Collected: 07/13/21 18:38
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-18
Matrix: Solid
Percent Solids: 96.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.040	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.027	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.081	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.063	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.048	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.051	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19	0.024	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorohexanesulfonic acid (PFHxS)	**0.14**	**J**	0.19	0.029	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Perfluorooctanesulfonic acid (PFOS)	**1.9**		0.47	0.19	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.9	0.37	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.9	0.35	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.025	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.10	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.017	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C4 PFHpA	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C4 PFOA	*89*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C5 PFNA	*87*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C2 PFDA	*94*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C2 PFDoA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C3 PFBS	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
d3-NMeFOSAA	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*
13C3 HFPO-DA	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:06*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**3.7**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**96.3**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-04
Date Collected: 07/14/21 09:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-19
Matrix: Solid
Percent Solids: 85.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.12**	**J**	0.22	0.045	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.031	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.093	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.039	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.039	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.072	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.055	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.058	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.027	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.54	0.22	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.2	0.42	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.2	0.40	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.029	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.024	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.019	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C5 PFNA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C2 PFDA	*82*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C2 PFUnA	*79*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C2 PFDoA	*78*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C3 PFBS	*69*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
18O2 PFHxS	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C4 PFOS	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
d3-NMeFOSAA	*71*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
d5-NEtFOSAA	*78*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:15*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**15.0**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**85.0**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-104
Date Collected: 07/14/21 09:40
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-20
Matrix: Solid
Percent Solids: 84.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.11**	**J**	0.23	0.049	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.10	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.079	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.060	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.063	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.59	0.23	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.46	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.032	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 05:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C4 PFHpA	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C4 PFOA	*89*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C2 PFUnA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C2 PFTeDA	*92*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C3 PFBS	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C4 PFOS	*89*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:25*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**15.5**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**84.5**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SED-05
Date Collected: 07/14/21 11:05
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-21
Matrix: Solid
Percent Solids: 82.2

Method: EPA 537(Mod) - 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	0.049	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.10	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.078	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.059	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.063	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.031	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 05:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C5 PFNA	*78*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C2 PFDA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C2 PFUnA	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C2 PFDoA	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C3 PFBS	*69*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
18O2 PFHxS	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C4 PFOS	*82*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
d3-NMeFOSAA	*71*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*07/19/21 11:59*	*07/21/21 05:34*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.8**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**82.2**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SED-06
Date Collected: 07/14/21 12:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-22
Matrix: Solid
Percent Solids: 33.4

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.52	0.11	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluoroheptanoic acid (PFHpA)	ND		0.52	0.076	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorooctanoic acid (PFOA)	ND		0.52	0.22	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorononanoic acid (PFNA)	ND		0.52	0.094	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorodecanoic acid (PFDA)	**0.20**	**J I**	0.52	0.058	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluoroundecanoic acid (PFUnA)	**0.31**	**J**	0.52	0.094	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorododecanoic acid (PFDoA)	**0.42**	**J**	0.52	0.18	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorotridecanoic acid (PFTriA)	ND		0.52	0.13	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorotetradecanoic acid (PFTeA)	**0.20**	**J**	0.52	0.14	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.52	0.065	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorohexanesulfonic acid (PFHxS)	**0.17**	**J**	0.52	0.081	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Perfluorooctanesulfonic acid (PFOS)	**1.5**	**I**	1.3	0.52	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.2	1.0	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.2	0.97	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.52	0.071	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.65	0.29	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.52	0.058	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.52	0.047	ug/Kg	☼	07/19/21 11:59	07/21/21 09:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C4 PFHpA	*93*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C2 PFDA	*101*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C2 PFUnA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C2 PFDoA	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C3 PFBS	*82*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
18O2 PFHxS	*96*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C4 PFOS	*104*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
d3-NMeFOSAA	*67*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
d5-NEtFOSAA	*79*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*
13C3 HFPO-DA	*87*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:20*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**66.6**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**33.4**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-07
Date Collected: 07/14/21 14:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-23
Matrix: Solid
Percent Solids: 54.8

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.33	0.070	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluoroheptanoic acid (PFHpA)	ND		0.33	0.048	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorooctanoic acid (PFOA)	ND		0.33	0.14	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorononanoic acid (PFNA)	ND		0.33	0.060	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorodecanoic acid (PFDA)	**0.040**	**J**	0.33	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluoroundecanoic acid (PFUnA)	ND		0.33	0.060	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorododecanoic acid (PFDoA)	ND		0.33	0.11	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorotridecanoic acid (PFTriA)	ND		0.33	0.084	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.33	0.089	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.33	0.041	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorohexanesulfonic acid (PFHxS)	**0.35**		0.33	0.051	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Perfluorooctanesulfonic acid (PFOS)	**14**		0.83	0.33	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		3.3	0.65	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		3.3	0.61	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.33	0.045	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.41	0.18	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.33	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.33	0.030	ug/Kg	☼	07/19/21 11:59	07/21/21 09:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C4 PFHpA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C5 PFNA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C2 PFDA	*102*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C2 PFUnA	*85*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C2 PFDoA	*73*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C3 PFBS	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
18O2 PFHxS	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C4 PFOS	*102*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
d3-NMeFOSAA	*63*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
d5-NEtFOSAA	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*
13C3 HFPO-DA	*91*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**45.2**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**54.8**		0.1	0.1	%			07/19/21 11:46	1

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-08

Date Collected: 07/14/21 16:45
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-24

Matrix: Solid
Percent Solids: 13.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.3	0.28	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluoroheptanoic acid (PFHpA)	ND		1.3	0.19	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorooctanoic acid (PFOA)	ND		1.3	0.57	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorononanoic acid (PFNA)	ND		1.3	0.24	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorodecanoic acid (PFDA)	ND		1.3	0.15	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.3	0.24	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.3	0.45	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorotridecanoic acid (PFTriA)	ND		1.3	0.34	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.3	0.36	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.3	0.17	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorohexanesulfonic acid (PFHxS)	**0.36**	**J**	1.3	0.21	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Perfluorooctanesulfonic acid (PFOS)	**3.2**	**J I**	3.3	1.3	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		13	2.6	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		13	2.5	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.3	0.18	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.7	0.74	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.3	0.15	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.3	0.12	ug/Kg	☼	07/19/21 11:59	07/21/21 09:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C4 PFHpA	*80*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C4 PFOA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C2 PFDA	*92*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C2 PFDoA	*72*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C3 PFBS	*76*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
18O2 PFHxS	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C4 PFOS	*92*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
d3-NMeFOSAA	*62*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
d5-NEtFOSAA	*73*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:39*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**86.5**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**13.5**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SED-09
Date Collected: 07/14/21 18:15
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-25
Matrix: Solid
Percent Solids: 83.3

Method: EPA 537(Mod) - 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	0.049	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorooctanoic acid (PFOA)	ND		0.23	0.10	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorononanoic acid (PFNA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorodecanoic acid (PFDA)	ND		0.23	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.042	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.078	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.060	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.063	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorohexanesulfonic acid (PFHxS)	**0.038**	**J**	0.23	0.036	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.3	0.46	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.032	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 09:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C5 PFNA	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C2 PFDA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C2 PFDoA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C2 PFTeDA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C3 PFBS	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
18O2 PFHxS	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C4 PFOS	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
d3-NMeFOSAA	*74*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:48*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**16.7**		0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**83.3**		0.1	0.1	%			07/19/21 11:46	1

Client Sample ID: SB2-45.3-46.0

Date Collected: 07/02/21 15:05
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-26

Matrix: Solid
Percent Solids: 91.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	H	0.19	0.040	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluoroheptanoic acid (PFHpA)	ND	H	0.19	0.028	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorooctanoic acid (PFOA)	ND	H	0.19	0.082	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorononanoic acid (PFNA)	ND	H	0.19	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorodecanoic acid (PFDA)	ND	H	0.19	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.19	0.034	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.19	0.064	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorotridecanoic acid (PFTriA)	ND	H	0.19	0.049	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.19	0.052	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.19	0.024	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.19	0.030	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.48	0.19	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.9	0.37	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.9	0.35	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND	H	0.19	0.026	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	0.24	0.11	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND	H	0.19	0.021	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.19	0.017	ug/Kg	☼	07/19/21 11:59	07/21/21 09:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C4 PFOA	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C5 PFNA	*86*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C2 PFDA	*82*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C2 PFDoA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C2 PFTeDA	*88*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C3 PFBS	*75*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
18O2 PFHxS	*81*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C4 PFOS	*77*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
d3-NMeFOSAA	*74*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/19/21 11:59*	*07/21/21 09:58*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**8.3**	**H**	0.1	0.1	%			07/19/21 11:46	1
Percent Solids	**91.7**	**H**	0.1	0.1	%			07/19/21 11:46	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Method: EPA 537(Mod) - 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)
320-76365-1	SB6-0.0-0.5	79	82	83	83	80	86	87	87
320-76365-1 MS	SB6-0.0-0.5	71	88	87	88	82	86	80	82
320-76365-1 MSD	SB6-0.0-0.5	70	81	81	74	79	83	75	74
320-76365-2	SB6-6.9-7.9	74	83	84	86	80	83	87	70
320-76365-3	SB61-6.9-7.9	71	79	82	77	69	72	74	75
320-76365-4	SB6-11.8-12.4	81	87	88	87	83	79	91	81
320-76365-5	SB7-0.0-1.1	75	84	84	81	77	81	81	82
320-76365-6	SB7-16.7-27.1	78	83	88	79	81	75	79	79
320-76365-7	SB7-29.8-30.3	69	84	77	88	79	80	80	73
320-76365-8	SB8-0.0-0.6	68	77	78	78	75	75	80	71
320-76365-9	SB8-16.4-16.8	66	78	75	75	75	74	79	68
320-76365-10	SB8-30.0-30.5	70	90	86	80	77	84	76	69
320-76365-11	SB9-0.0-0.5	74	78	76	82	73	66	76	74
320-76365-12	SB9-5.0-5.5	81	86	85	83	76	82	75	72
320-76365-13	SB9-36.6-36.8	68	79	80	75	78	76	80	75
320-76365-14	SB9-15.6-16.2	84	89	95	86	86	85	93	77
320-76365-15	SED-01	67	67	76	74	81	76	65	70
320-76365-16	SED-02	84	87	93	85	92	87	80	80
320-76365-17	SED-102	81	83	95	85	93	83	86	85
320-76365-18	SED-03	86	91	89	87	94	84	90	84
320-76365-19	SED-04	77	88	86	81	82	79	78	79
320-76365-20	SED-104	90	91	89	90	91	85	81	92
320-76365-21	SED-05	83	83	86	78	86	75	77	85
320-76365-22	SED-06	91	93	93	97	101	86	75	71
320-76365-23	SED-07	86	90	88	86	102	85	73	80
320-76365-24	SED-08	81	80	84	90	92	84	72	75
320-76365-25	SED-09	78	79	88	81	84	84	83	83
320-76365-26	SB2-45.3-46.0	82	83	88	86	82	84	84	88
320-76365-26 MS	SB2-45.3-46.0	84	88	87	83	84	85	84	84
320-76365-26 MSD	SB2-45.3-46.0	86	94	94	85	80	90	86	88
LCS 320-508039/2-A	Lab Control Sample	74	81	82	82	77	73	87	82
LCS 320-508240/2-A	Lab Control Sample	80	90	87	84	83	81	87	73
MB 320-508039/1-A	Method Blank	61	67	71	66	69	64	63	72
MB 320-508240/1-A	Method Blank	74	85	81	79	76	80	81	71

		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)		
320-76365-1	SB6-0.0-0.5	76	81	77	86	86	73		
320-76365-1 MS	SB6-0.0-0.5	92	76	85	100	102	72		
320-76365-1 MSD	SB6-0.0-0.5	75	79	78	94	94	72		
320-76365-2	SB6-6.9-7.9	81	76	80	88	94	69		
320-76365-3	SB61-6.9-7.9	81	75	76	87	85	74		
320-76365-4	SB6-11.8-12.4	84	85	84	97	101	74		
320-76365-5	SB7-0.0-1.1	81	74	73	81	103	70		
320-76365-6	SB7-16.7-27.1	94	76	91	95	106	74		
320-76365-7	SB7-29.8-30.3	91	74	87	82	93	67		
320-76365-8	SB8-0.0-0.6	88	70	83	93	104	70		
320-76365-9	SB8-16.4-16.8	84	76	79	86	94	68		
320-76365-10	SB8-30.0-30.5	86	79	87	86	89	74		

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Job ID: 320-76365-1
Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Solid
Prep Type: Total/NA

		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)		
320-76365-11	SB9-0.0-0.5	92	73	79	78	79	70		
320-76365-12	SB9-5.0-5.5	100	83	86	95	92	79		
320-76365-13	SB9-36.6-36.8	86	78	81	90	104	74		
320-76365-14	SB9-15.6-16.2	73	93	87	69	90	80		
320-76365-15	SED-01	64	70	78	56	70	66		
320-76365-16	SED-02	77	86	89	66	84	89		
320-76365-17	SED-102	77	86	88	70	91	77		
320-76365-18	SED-03	76	86	91	75	92	88		
320-76365-19	SED-04	69	76	76	71	78	74		
320-76365-20	SED-104	75	87	89	73	96	81		
320-76365-21	SED-05	69	84	82	71	84	73		
320-76365-22	SED-06	82	96	104	67	79	87		
320-76365-23	SED-07	83	90	102	63	76	91		
320-76365-24	SED-08	76	83	92	62	73	81		
320-76365-25	SED-09	75	83	81	74	90	73		
320-76365-26	SB2-45.3-46.0	75	81	77	74	84	74		
320-76365-26 MS	SB2-45.3-46.0	76	87	81	72	92	93		
320-76365-26 MSD	SB2-45.3-46.0	79	89	87	78	89	82		
LCS 320-508039/2-A	Lab Control Sample	83	76	80	82	78	68		
LCS 320-508240/2-A	Lab Control Sample	96	90	85	94	97	77		
MB 320-508039/1-A	Method Blank	72	63	68	62	72	67		
MB 320-508240/1-A	Method Blank	92	76	88	81	93	69		

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: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-508039/1-A
Matrix: Solid
Analysis Batch: 508927

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 508039

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg		07/19/21 11:59	07/21/21 16:34	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*61*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C4 PFHpA	*67*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C4 PFOA	*71*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C5 PFNA	*66*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C2 PFDA	*69*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C2 PFUnA	*64*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C2 PFDoA	*63*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C2 PFTeDA	*72*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C3 PFBS	*72*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
18O2 PFHxS	*63*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C4 PFOS	*68*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
d3-NMeFOSAA	*62*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
d5-NEtFOSAA	*72*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*
13C3 HFPO-DA	*67*		*50 - 150*	*07/19/21 11:59*	*07/21/21 16:34*	*1*

Lab Sample ID: LCS 320-508039/2-A
Matrix: Solid
Analysis Batch: 508927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508039

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.00		ug/Kg		100	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	1.94		ug/Kg		97	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.13		ug/Kg		106	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.00		ug/Kg		100	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-508039/2-A
Matrix: Solid
Analysis Batch: 508927

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508039

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	2.00	1.89		ug/Kg		94	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.20		ug/Kg		110	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.73		ug/Kg		87	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	1.93		ug/Kg		97	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.99		ug/Kg		99	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.49		ug/Kg		85	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.83		ug/Kg		101	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.81		ug/Kg		97	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.72	J	ug/Kg		86	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.96	J	ug/Kg		98	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.89		ug/Kg		101	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.58		ug/Kg		129	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.90		ug/Kg		101	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.85		ug/Kg		98	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*74*		*50 - 150*
13C4 PFHpA	*81*		*50 - 150*
13C4 PFOA	*82*		*50 - 150*
13C5 PFNA	*82*		*50 - 150*
13C2 PFDA	*77*		*50 - 150*
13C2 PFUnA	*73*		*50 - 150*
13C2 PFDoA	*87*		*50 - 150*
13C2 PFTeDA	*82*		*50 - 150*
13C3 PFBS	*83*		*50 - 150*
18O2 PFHxS	*76*		*50 - 150*
13C4 PFOS	*80*		*50 - 150*
d3-NMeFOSAA	*82*		*50 - 150*
d5-NEtFOSAA	*78*		*50 - 150*
13C3 HFPO-DA	*68*		*50 - 150*

Lab Sample ID: 320-76365-26 MS
Matrix: Solid
Analysis Batch: 508764

Client Sample ID: SB2-45.3-46.0
Prep Type: Total/NA
Prep Batch: 508039

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND	H	2.16	2.13		ug/Kg	☼	98	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND	H	2.16	2.10		ug/Kg	☼	97	71 - 131
Perfluorooctanoic acid (PFOA)	ND	H	2.16	2.47		ug/Kg	☼	114	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76365-26 MS
Matrix: Solid
Analysis Batch: 508764

Client Sample ID: SB2-45.3-46.0
Prep Type: Total/NA
Prep Batch: 508039

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	ND	H	2.16	2.13		ug/Kg	☼	98	72 - 129
Perfluorodecanoic acid (PFDA)	ND	H	2.16	2.03		ug/Kg	☼	94	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND	H	2.16	2.18		ug/Kg	☼	101	64 - 136
Perfluorododecanoic acid (PFDoA)	ND	H	2.16	1.97		ug/Kg	☼	91	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND	H	2.16	2.39		ug/Kg	☼	111	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND	H	2.16	1.96		ug/Kg	☼	91	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.91	1.88		ug/Kg	☼	98	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.97	2.00		ug/Kg	☼	102	67 - 130
Perfluorooctanesulfonic acid (PFOS)	ND	H	2.01	1.99		ug/Kg	☼	99	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	2.16	2.41		ug/Kg	☼	111	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	2.16	1.78	J	ug/Kg	☼	82	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND	H	2.02	2.20		ug/Kg	☼	109	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	2.16	1.96		ug/Kg	☼	91	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND	H	2.04	2.24		ug/Kg	☼	110	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	2.04	2.28		ug/Kg	☼	112	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*84*		*50 - 150*
13C4 PFHpA	*88*		*50 - 150*
13C4 PFOA	*87*		*50 - 150*
13C5 PFNA	*83*		*50 - 150*
13C2 PFDA	*84*		*50 - 150*
13C2 PFUnA	*85*		*50 - 150*
13C2 PFDoA	*84*		*50 - 150*
13C2 PFTeDA	*84*		*50 - 150*
13C3 PFBS	*76*		*50 - 150*
18O2 PFHxS	*87*		*50 - 150*
13C4 PFOS	*81*		*50 - 150*
d3-NMeFOSAA	*72*		*50 - 150*
d5-NEtFOSAA	*92*		*50 - 150*
13C3 HFPO-DA	*93*		*50 - 150*

Lab Sample ID: 320-76365-26 MSD
Matrix: Solid
Analysis Batch: 508764

Client Sample ID: SB2-45.3-46.0
Prep Type: Total/NA
Prep Batch: 508039

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND	H	1.98	2.02		ug/Kg	☼	102	70 - 132	5	30
Perfluoroheptanoic acid (PFHpA)	ND	H	1.98	1.99		ug/Kg	☼	100	71 - 131	6	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76365-26 MSD
Matrix: Solid
Analysis Batch: 508764

Client Sample ID: SB2-45.3-46.0
Prep Type: Total/NA
Prep Batch: 508039

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	ND	H	1.98	2.16		ug/Kg	☼	109	69 - 133	14	30
Perfluorononanoic acid (PFNA)	ND	H	1.98	2.12		ug/Kg	☼	107	72 - 129	0	30
Perfluorodecanoic acid (PFDA)	ND	H	1.98	2.16		ug/Kg	☼	109	69 - 133	6	30
Perfluoroundecanoic acid (PFUnA)	ND	H	1.98	2.04		ug/Kg	☼	103	64 - 136	7	30
Perfluorododecanoic acid (PFDoA)	ND	H	1.98	2.07		ug/Kg	☼	105	69 - 135	5	30
Perfluorotridecanoic acid (PFTriA)	ND	H	1.98	2.32		ug/Kg	☼	117	66 - 139	3	30
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.98	2.12		ug/Kg	☼	107	69 - 133	8	30
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.75	1.83		ug/Kg	☼	105	72 - 128	3	30
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.80	1.83		ug/Kg	☼	101	67 - 130	9	30
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.84	1.75		ug/Kg	☼	96	68 - 136	12	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	1.98	2.03		ug/Kg	☼	103	63 - 144	17	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	1.98	2.06		ug/Kg	☼	104	61 - 139	15	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND	H	1.84	1.92		ug/Kg	☼	104	75 - 135	14	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	H	1.98	2.08		ug/Kg	☼	105	77 - 137	6	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND	H	1.86	2.01		ug/Kg	☼	108	76 - 136	10	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	1.86	2.19		ug/Kg	☼	118	79 - 139	4	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*86*		*50 - 150*
13C4 PFHpA	*94*		*50 - 150*
13C4 PFOA	*94*		*50 - 150*
13C5 PFNA	*85*		*50 - 150*
13C2 PFDA	*80*		*50 - 150*
13C2 PFUnA	*90*		*50 - 150*
13C2 PFDoA	*86*		*50 - 150*
13C2 PFTeDA	*88*		*50 - 150*
13C3 PFBS	*79*		*50 - 150*
18O2 PFHxS	*89*		*50 - 150*
13C4 PFOS	*87*		*50 - 150*
d3-NMeFOSAA	*78*		*50 - 150*
d5-NEtFOSAA	*89*		*50 - 150*
13C3 HFPO-DA	*82*		*50 - 150*

Lab Sample ID: MB 320-508240/1-A
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 508240

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg		07/19/21 18:40	07/23/21 15:22	1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-508240/1-A
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 508240

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.027	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.11	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.022	ug/Kg		07/19/21 18:40	07/23/21 15:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.018	ug/Kg		07/19/21 18:40	07/23/21 15:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C4 PFHpA	*85*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C4 PFOA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C5 PFNA	*79*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C2 PFDA	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C2 PFUnA	*80*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C3 PFBS	*92*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
18O2 PFHxS	*76*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
d3-NMeFOSAA	*81*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
d5-NEtFOSAA	*93*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*07/19/21 18:40*	*07/23/21 15:22*	*1*

Lab Sample ID: LCS 320-508240/2-A
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508240

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	2.01		ug/Kg		100	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	1.81		ug/Kg		90	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.00		ug/Kg		100	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.98		ug/Kg		99	72 - 129
Perfluorodecanoic acid (PFDA)	2.00	1.85		ug/Kg		93	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-508240/2-A
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 508240

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroundecanoic acid (PFUnA)	2.00	2.21		ug/Kg		111	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.84		ug/Kg		92	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	1.59		ug/Kg		80	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	2.29		ug/Kg		114	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.44		ug/Kg		82	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.87		ug/Kg		103	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.77		ug/Kg		96	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.10		ug/Kg		105	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.00		ug/Kg		100	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.75		ug/Kg		94	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.04		ug/Kg		102	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.70		ug/Kg		90	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	2.09		ug/Kg		111	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*80*		*50 - 150*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*87*		*50 - 150*
13C5 PFNA	*84*		*50 - 150*
13C2 PFDA	*83*		*50 - 150*
13C2 PFUnA	*81*		*50 - 150*
13C2 PFDoA	*87*		*50 - 150*
13C2 PFTeDA	*73*		*50 - 150*
13C3 PFBS	*96*		*50 - 150*
18O2 PFHxS	*90*		*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: 320-76365-1 MS
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: SB6-0.0-0.5
Prep Type: Total/NA
Prep Batch: 508240

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND		1.87	1.90		ug/Kg	☼	101	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		1.87	1.84		ug/Kg	☼	98	71 - 131
Perfluorooctanoic acid (PFOA)	ND		1.87	1.87		ug/Kg	☼	100	69 - 133
Perfluorononanoic acid (PFNA)	ND		1.87	1.89		ug/Kg	☼	101	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76365-1 MS
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: SB6-0.0-0.5
Prep Type: Total/NA
Prep Batch: 508240

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	ND		1.87	1.91		ug/Kg	☼	102	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND		1.87	1.90		ug/Kg	☼	102	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		1.87	1.85		ug/Kg	☼	99	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		1.87	1.64		ug/Kg	☼	87	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		1.87	1.93		ug/Kg	☼	103	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND		1.66	1.35		ug/Kg	☼	81	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	ND		1.71	1.86		ug/Kg	☼	109	67 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		1.74	1.60		ug/Kg	☼	92	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.87	1.78	J	ug/Kg	☼	95	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.87	1.87	J	ug/Kg	☼	100	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.75	1.49		ug/Kg	☼	85	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.87	2.01		ug/Kg	☼	107	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.77	1.47		ug/Kg	☼	83	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.77	1.71		ug/Kg	☼	97	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*71*		*50 - 150*
13C4 PFHpA	*88*		*50 - 150*
13C4 PFOA	*87*		*50 - 150*
13C5 PFNA	*88*		*50 - 150*
13C2 PFDA	*82*		*50 - 150*
13C2 PFUnA	*86*		*50 - 150*
13C2 PFDoA	*80*		*50 - 150*
13C2 PFTeDA	*82*		*50 - 150*
13C3 PFBS	*92*		*50 - 150*
18O2 PFHxS	*76*		*50 - 150*
13C4 PFOS	*85*		*50 - 150*
d3-NMeFOSAA	*100*		*50 - 150*
d5-NEtFOSAA	*102*		*50 - 150*
13C3 HFPO-DA	*72*		*50 - 150*

Lab Sample ID: 320-76365-1 MSD
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: SB6-0.0-0.5
Prep Type: Total/NA
Prep Batch: 508240

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND		1.94	2.11		ug/Kg	☼	108	70 - 132	10	30
Perfluoroheptanoic acid (PFHpA)	ND		1.94	2.00		ug/Kg	☼	103	71 - 131	8	30
Perfluorooctanoic acid (PFOA)	ND		1.94	1.94		ug/Kg	☼	100	69 - 133	3	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76365-1 MSD
Matrix: Solid
Analysis Batch: 509756

Client Sample ID: SB6-0.0-0.5
Prep Type: Total/NA
Prep Batch: 508240

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)	ND		1.94	2.03		ug/Kg	☼	105	72 - 129	7	30
Perfluorodecanoic acid (PFDA)	ND		1.94	1.84		ug/Kg	☼	95	69 - 133	4	30
Perfluoroundecanoic acid (PFUnA)	ND		1.94	2.07		ug/Kg	☼	106	64 - 136	8	30
Perfluorododecanoic acid (PFDoA)	ND		1.94	1.89		ug/Kg	☼	97	69 - 135	3	30
Perfluorotridecanoic acid (PFTriA)	ND		1.94	1.92		ug/Kg	☼	99	66 - 139	16	30
Perfluorotetradecanoic acid (PFTeA)	ND		1.94	2.03		ug/Kg	☼	105	69 - 133	5	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.72	1.58		ug/Kg	☼	92	72 - 128	16	30
Perfluorohexanesulfonic acid (PFHxS)	ND		1.77	1.80		ug/Kg	☼	102	67 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	ND		1.80	1.70		ug/Kg	☼	94	68 - 136	7	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.94	2.07		ug/Kg	☼	107	63 - 144	15	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.94	1.96		ug/Kg	☼	101	61 - 139	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.81	1.62		ug/Kg	☼	89	75 - 135	8	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.94	2.07		ug/Kg	☼	106	77 - 137	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.83	1.69		ug/Kg	☼	92	76 - 136	14	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.83	1.91		ug/Kg	☼	104	79 - 139	11	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*70*		*50 - 150*
13C4 PFHpA	*81*		*50 - 150*
13C4 PFOA	*81*		*50 - 150*
13C5 PFNA	*74*		*50 - 150*
13C2 PFDA	*79*		*50 - 150*
13C2 PFUnA	*83*		*50 - 150*
13C2 PFDoA	*75*		*50 - 150*
13C2 PFTeDA	*74*		*50 - 150*
13C3 PFBS	*75*		*50 - 150*
18O2 PFHxS	*79*		*50 - 150*
13C4 PFOS	*78*		*50 - 150*
d3-NMeFOSAA	*94*		*50 - 150*
d5-NEtFOSAA	*94*		*50 - 150*
13C3 HFPO-DA	*72*		*50 - 150*

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76365-1 DU
Matrix: Solid
Analysis Batch: 508016

Client Sample ID: SB6-0.0-0.5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	4.6			4.8		%				4	20
Percent Solids	95.4			95.2		%				0.2	20

Lab Sample ID: 320-76365-20 DU
Matrix: Solid
Analysis Batch: 508017

Client Sample ID: SED-104
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	15.5			15.9		%				3	20
Percent Solids	84.5			84.1		%				0.5	20

LCMS

Prep Batch: 508039

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-14	SB9-15.6-16.2	Total/NA	Solid	SHAKE	
320-76365-15	SED-01	Total/NA	Solid	SHAKE	
320-76365-16	SED-02	Total/NA	Solid	SHAKE	
320-76365-17	SED-102	Total/NA	Solid	SHAKE	
320-76365-18	SED-03	Total/NA	Solid	SHAKE	
320-76365-19	SED-04	Total/NA	Solid	SHAKE	
320-76365-20	SED-104	Total/NA	Solid	SHAKE	
320-76365-21	SED-05	Total/NA	Solid	SHAKE	
320-76365-22	SED-06	Total/NA	Solid	SHAKE	
320-76365-23	SED-07	Total/NA	Solid	SHAKE	
320-76365-24	SED-08	Total/NA	Solid	SHAKE	
320-76365-25	SED-09	Total/NA	Solid	SHAKE	
320-76365-26	SB2-45.3-46.0	Total/NA	Solid	SHAKE	
MB 320-508039/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-508039/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76365-26 MS	SB2-45.3-46.0	Total/NA	Solid	SHAKE	
320-76365-26 MSD	SB2-45.3-46.0	Total/NA	Solid	SHAKE	

Prep Batch: 508240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-1	SB6-0.0-0.5	Total/NA	Solid	SHAKE	
320-76365-2	SB6-6.9-7.9	Total/NA	Solid	SHAKE	
320-76365-3	SB61-6.9-7.9	Total/NA	Solid	SHAKE	
320-76365-4	SB6-11.8-12.4	Total/NA	Solid	SHAKE	
320-76365-5	SB7-0.0-1.1	Total/NA	Solid	SHAKE	
320-76365-6	SB7-16.7-27.1	Total/NA	Solid	SHAKE	
320-76365-7	SB7-29.8-30.3	Total/NA	Solid	SHAKE	
320-76365-8	SB8-0.0-0.6	Total/NA	Solid	SHAKE	
320-76365-9	SB8-16.4-16.8	Total/NA	Solid	SHAKE	
320-76365-10	SB8-30.0-30.5	Total/NA	Solid	SHAKE	
320-76365-11	SB9-0.0-0.5	Total/NA	Solid	SHAKE	
320-76365-12	SB9-5.0-5.5	Total/NA	Solid	SHAKE	
320-76365-13	SB9-36.6-36.8	Total/NA	Solid	SHAKE	
MB 320-508240/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-508240/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76365-1 MS	SB6-0.0-0.5	Total/NA	Solid	SHAKE	
320-76365-1 MSD	SB6-0.0-0.5	Total/NA	Solid	SHAKE	

Analysis Batch: 508575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-14	SB9-15.6-16.2	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-15	SED-01	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-16	SED-02	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-17	SED-102	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-18	SED-03	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-19	SED-04	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-20	SED-104	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-21	SED-05	Total/NA	Solid	EPA 537(Mod)	508039

LCMS

Analysis Batch: 508764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-22	SED-06	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-23	SED-07	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-24	SED-08	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-25	SED-09	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-26	SB2-45.3-46.0	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-26 MS	SB2-45.3-46.0	Total/NA	Solid	EPA 537(Mod)	508039
320-76365-26 MSD	SB2-45.3-46.0	Total/NA	Solid	EPA 537(Mod)	508039

Analysis Batch: 508927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-508039/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	508039
LCS 320-508039/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	508039

Analysis Batch: 509756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-1	SB6-0.0-0.5	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-2	SB6-6.9-7.9	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-3	SB61-6.9-7.9	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-4	SB6-11.8-12.4	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-5	SB7-0.0-1.1	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-6	SB7-16.7-27.1	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-7	SB7-29.8-30.3	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-8	SB8-0.0-0.6	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-9	SB8-16.4-16.8	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-10	SB8-30.0-30.5	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-11	SB9-0.0-0.5	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-12	SB9-5.0-5.5	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-13	SB9-36.6-36.8	Total/NA	Solid	EPA 537(Mod)	508240
MB 320-508240/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	508240
LCS 320-508240/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-1 MS	SB6-0.0-0.5	Total/NA	Solid	EPA 537(Mod)	508240
320-76365-1 MSD	SB6-0.0-0.5	Total/NA	Solid	EPA 537(Mod)	508240

General Chemistry

Analysis Batch: 508016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-1	SB6-0.0-0.5	Total/NA	Solid	D 2216	
320-76365-2	SB6-6.9-7.9	Total/NA	Solid	D 2216	
320-76365-3	SB61-6.9-7.9	Total/NA	Solid	D 2216	
320-76365-4	SB6-11.8-12.4	Total/NA	Solid	D 2216	
320-76365-5	SB7-0.0-1.1	Total/NA	Solid	D 2216	
320-76365-6	SB7-16.7-27.1	Total/NA	Solid	D 2216	
320-76365-7	SB7-29.8-30.3	Total/NA	Solid	D 2216	
320-76365-8	SB8-0.0-0.6	Total/NA	Solid	D 2216	
320-76365-9	SB8-16.4-16.8	Total/NA	Solid	D 2216	
320-76365-10	SB8-30.0-30.5	Total/NA	Solid	D 2216	
320-76365-11	SB9-0.0-0.5	Total/NA	Solid	D 2216	
320-76365-12	SB9-5.0-5.5	Total/NA	Solid	D 2216	
320-76365-13	SB9-36.6-36.8	Total/NA	Solid	D 2216	
320-76365-14	SB9-15.6-16.2	Total/NA	Solid	D 2216	

General Chemistry (Continued)

Analysis Batch: 508016 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-15	SED-01	Total/NA	Solid	D 2216	
320-76365-16	SED-02	Total/NA	Solid	D 2216	
320-76365-17	SED-102	Total/NA	Solid	D 2216	
320-76365-18	SED-03	Total/NA	Solid	D 2216	
320-76365-19	SED-04	Total/NA	Solid	D 2216	
320-76365-1 DU	SB6-0.0-0.5	Total/NA	Solid	D 2216	

Analysis Batch: 508017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76365-20	SED-104	Total/NA	Solid	D 2216	
320-76365-21	SED-05	Total/NA	Solid	D 2216	
320-76365-22	SED-06	Total/NA	Solid	D 2216	
320-76365-23	SED-07	Total/NA	Solid	D 2216	
320-76365-24	SED-08	Total/NA	Solid	D 2216	
320-76365-25	SED-09	Total/NA	Solid	D 2216	
320-76365-26	SB2-45.3-46.0	Total/NA	Solid	D 2216	
320-76365-20 DU	SED-104	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB6-0.0-0.5
Date Collected: 07/12/21 20:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-1
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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB6-0.0-0.5
Date Collected: 07/12/21 20:30
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-1
Matrix: Solid
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.43 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 15:40	K1S	TAL SAC

Client Sample ID: SB6-6.9-7.9
Date Collected: 07/12/21 20:50
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-2
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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB6-6.9-7.9
Date Collected: 07/12/21 20:50
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-2
Matrix: Solid
Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.43 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 16:08	K1S	TAL SAC

Client Sample ID: SB61-6.9-7.9
Date Collected: 07/12/21 21:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-3
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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB61-6.9-7.9
Date Collected: 07/12/21 21:00
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-3
Matrix: Solid
Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.50 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 16:17	K1S	TAL SAC

Client Sample ID: SB6-11.8-12.4
Date Collected: 07/12/21 21:03
Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-4
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			508016	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB6-11.8-12.4
Lab Sample ID: 320-76365-4
Date Collected: 07/12/21 21:03
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 92.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.49 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 16:26	K1S	TAL SAC

Client Sample ID: SB7-0.0-1.1
Lab Sample ID: 320-76365-5
Date Collected: 07/12/21 21:40
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB7-0.0-1.1
Lab Sample ID: 320-76365-5
Date Collected: 07/12/21 21:40
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.24 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 16:35	K1S	TAL SAC

Client Sample ID: SB7-16.7-27.1
Lab Sample ID: 320-76365-6
Date Collected: 07/12/21 23:20
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB7-16.7-27.1
Lab Sample ID: 320-76365-6
Date Collected: 07/12/21 23:20
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 78.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.27 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 16:53	K1S	TAL SAC

Client Sample ID: SB7-29.8-30.3
Lab Sample ID: 320-76365-7
Date Collected: 07/12/21 23:05
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB7-29.8-30.3
Lab Sample ID: 320-76365-7
Date Collected: 07/12/21 23:05
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 77.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.01 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:02	K1S	TAL SAC

Client Sample ID: SB8-0.0-0.6
Lab Sample ID: 320-76365-8
Date Collected: 07/13/21 00:04
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB8-0.0-0.6
Lab Sample ID: 320-76365-8
Date Collected: 07/13/21 00:04
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 95.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.35 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:11	K1S	TAL SAC

Client Sample ID: SB8-16.4-16.8
Lab Sample ID: 320-76365-9
Date Collected: 07/13/21 01:10
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB8-16.4-16.8
Lab Sample ID: 320-76365-9
Date Collected: 07/13/21 01:10
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 85.9

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.45 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:21	K1S	TAL SAC

Client Sample ID: SB8-30.0-30.5
Lab Sample ID: 320-76365-10
Date Collected: 07/13/21 01:06
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB8-30.0-30.5
Lab Sample ID: 320-76365-10
Date Collected: 07/13/21 01:06
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 81.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.56 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:30	K1S	TAL SAC

Client Sample ID: SB9-0.0-0.5
Lab Sample ID: 320-76365-11
Date Collected: 07/13/21 13:00
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB9-0.0-0.5
Lab Sample ID: 320-76365-11
Date Collected: 07/13/21 13:00
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 61.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.25 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:39	K1S	TAL SAC

Client Sample ID: SB9-5.0-5.5
Lab Sample ID: 320-76365-12
Date Collected: 07/13/21 14:16
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB9-5.0-5.5
Lab Sample ID: 320-76365-12
Date Collected: 07/13/21 14:16
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 82.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.36 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:48	K1S	TAL SAC

Client Sample ID: SB9-36.6-36.8
Lab Sample ID: 320-76365-13
Date Collected: 07/13/21 15:37
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SB9-36.6-36.8
Lab Sample ID: 320-76365-13
Date Collected: 07/13/21 15:37
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.22 g	10.0 mL	508240	07/19/21 18:40	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			509756	07/23/21 17:57	K1S	TAL SAC

Client Sample ID: SB9-15.6-16.2
Lab Sample ID: 320-76365-14
Date Collected: 07/13/21 16:48
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB9-15.6-16.2
Lab Sample ID: 320-76365-14
Date Collected: 07/13/21 16:48
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.11 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 04:28	K1S	TAL SAC

Client Sample ID: SED-01
Lab Sample ID: 320-76365-15
Date Collected: 07/13/21 14:30
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-01
Lab Sample ID: 320-76365-15
Date Collected: 07/13/21 14:30
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 15.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.13 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 04:38	K1S	TAL SAC

Client Sample ID: SED-02
Lab Sample ID: 320-76365-16
Date Collected: 07/13/21 16:30
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-02
Lab Sample ID: 320-76365-16
Date Collected: 07/13/21 16:30
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 78.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.04 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 04:47	K1S	TAL SAC

Client Sample ID: SED-102
Lab Sample ID: 320-76365-17
Date Collected: 07/13/21 16:40
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-102
Lab Sample ID: 320-76365-17
Date Collected: 07/13/21 16:40
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.40 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 04:57	K1S	TAL SAC

Client Sample ID: SED-03
Lab Sample ID: 320-76365-18
Date Collected: 07/13/21 18:38
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-03
Lab Sample ID: 320-76365-18
Date Collected: 07/13/21 18:38
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 96.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.50 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 05:06	K1S	TAL SAC

Client Sample ID: SED-04
Lab Sample ID: 320-76365-19
Date Collected: 07/14/21 09:30
Matrix: Solid
Date Received: 07/16/21 11:30

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			508016	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-04
Lab Sample ID: 320-76365-19
Date Collected: 07/14/21 09:30
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 85.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.44 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 05:15	K1S	TAL SAC

Client Sample ID: SED-104
Lab Sample ID: 320-76365-20
Date Collected: 07/14/21 09:40
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-104
Lab Sample ID: 320-76365-20
Date Collected: 07/14/21 09:40
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.04 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 05:25	K1S	TAL SAC

Client Sample ID: SED-05
Lab Sample ID: 320-76365-21
Date Collected: 07/14/21 11:05
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-05
Lab Sample ID: 320-76365-21
Date Collected: 07/14/21 11:05
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 82.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.24 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 05:34	K1S	TAL SAC

Client Sample ID: SED-06
Lab Sample ID: 320-76365-22
Date Collected: 07/14/21 12:00
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-06
Lab Sample ID: 320-76365-22
Date Collected: 07/14/21 12:00
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 33.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.73 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508764	07/21/21 09:20	D1R	TAL SAC

Client Sample ID: SED-07
Lab Sample ID: 320-76365-23
Date Collected: 07/14/21 14:00
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-07
Lab Sample ID: 320-76365-23
Date Collected: 07/14/21 14:00
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 54.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.51 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508764	07/21/21 09:30	D1R	TAL SAC

Client Sample ID: SED-08
Lab Sample ID: 320-76365-24
Date Collected: 07/14/21 16:45
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-08
Lab Sample ID: 320-76365-24
Date Collected: 07/14/21 16:45
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 13.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.55 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508764	07/21/21 09:39	D1R	TAL SAC

Client Sample ID: SED-09
Lab Sample ID: 320-76365-25
Date Collected: 07/14/21 18:15
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Client Sample ID: SED-09
Lab Sample ID: 320-76365-25
Date Collected: 07/14/21 18:15
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 83.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.14 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508764	07/21/21 09:48	D1R	TAL SAC

Client Sample ID: SB2-45.3-46.0
Lab Sample ID: 320-76365-26
Date Collected: 07/02/21 15:05
Matrix: Solid
Date Received: 07/16/21 11:30

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			508017	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB2-45.3-46.0
Lab Sample ID: 320-76365-26
Date Collected: 07/02/21 15:05
Matrix: Solid
Date Received: 07/16/21 11:30
Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.70 g	10.0 mL	508039	07/19/21 11:59	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508764	07/21/21 09:58	D1R	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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 Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76365-1	SB6-0.0-0.5	Solid	07/12/21 20:30	07/16/21 11:30
320-76365-2	SB6-6.9-7.9	Solid	07/12/21 20:50	07/16/21 11:30
320-76365-3	SB61-6.9-7.9	Solid	07/12/21 21:00	07/16/21 11:30
320-76365-4	SB6-11.8-12.4	Solid	07/12/21 21:03	07/16/21 11:30
320-76365-5	SB7-0.0-1.1	Solid	07/12/21 21:40	07/16/21 11:30
320-76365-6	SB7-16.7-27.1	Solid	07/12/21 23:20	07/16/21 11:30
320-76365-7	SB7-29.8-30.3	Solid	07/12/21 23:05	07/16/21 11:30
320-76365-8	SB8-0.0-0.6	Solid	07/13/21 00:04	07/16/21 11:30
320-76365-9	SB8-16.4-16.8	Solid	07/13/21 01:10	07/16/21 11:30
320-76365-10	SB8-30.0-30.5	Solid	07/13/21 01:06	07/16/21 11:30
320-76365-11	SB9-0.0-0.5	Solid	07/13/21 13:00	07/16/21 11:30
320-76365-12	SB9-5.0-5.5	Solid	07/13/21 14:16	07/16/21 11:30
320-76365-13	SB9-36.6-36.8	Solid	07/13/21 15:37	07/16/21 11:30
320-76365-14	SB9-15.6-16.2	Solid	07/13/21 16:48	07/16/21 11:30
320-76365-15	SED-01	Solid	07/13/21 14:30	07/16/21 11:30
320-76365-16	SED-02	Solid	07/13/21 16:30	07/16/21 11:30
320-76365-17	SED-102	Solid	07/13/21 16:40	07/16/21 11:30
320-76365-18	SED-03	Solid	07/13/21 18:38	07/16/21 11:30
320-76365-19	SED-04	Solid	07/14/21 09:30	07/16/21 11:30
320-76365-20	SED-104	Solid	07/14/21 09:40	07/16/21 11:30
320-76365-21	SED-05	Solid	07/14/21 11:05	07/16/21 11:30
320-76365-22	SED-06	Solid	07/14/21 12:00	07/16/21 11:30
320-76365-23	SED-07	Solid	07/14/21 14:00	07/16/21 11:30
320-76365-24	SED-08	Solid	07/14/21 16:45	07/16/21 11:30
320-76365-25	SED-09	Solid	07/14/21 18:15	07/16/21 11:30
320-76365-26	SB2-45.3-46.0	Solid	07/02/21 15:05	07/16/21 11:30

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David ACCtucker

Turn Around Time:	Quote No:	MSA Number: TBD	J-Flags:
[X] Normal [ ] Rush			[X] Yes [ ] No
Please Specify			

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB6-0.0-0.5		2030	7/12/21	X	1	soil
SB6-6.9-7.9		2050		X		
SB61-6.9-7.9		2100		X		
SB6-11.8-12.4		2103		X		
SB7-0.0-1.1		2140		X		
SB7-16.7-27.1		2320		X		
SB7-29.8-30.3		2305		X		
SB8-0.0-0.6		0004	7/13/21	X		
SB8-16.4-16.8		0110		X		
SB8-30.0-30.5		0106		X		

320-76365 Chain of Custody

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	26
Name:	DLG PFAS	COC Seals/Intact? Y/N/NA	
Contact:	Marcy Wadler	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	VTY, DHF	Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1500	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/15/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 11:30	Signature: Time:	Signature: Time:
Printed Name: Connie Van Date: 7/16/21	Printed Name: Date:	Printed Name: Date:
Company: ETA SAC	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. _____

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David McCracken

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS+18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB9-0.0-0.5		1300	7/13/21	X		soil
SB9-5.0-5.5		1416		X		
SB9-36.6-36.8		1537		X		
SB9-15.6-16.2		1648		X		
SED-01		1430		X		sediment
SED-02		1630		X		
SED-102		1640		X		
SED-03		1838		X		
SED-04		0930	7/14/21	X		
SED-104		0940		X		

Project Information

Number: 102581-009
Name: DLG - PFAS
Contact: MDN
Ongoing Project? Yes [X] No [ ]
Sampler: VTY, DHF

Sample Receipt

Total No. of Containers: 26
COC Seals/Intact? Y/N/NA:
Received Good Cond./Cold:
Temp:
Delivery Method: gocastreak

Notes:

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: [signature] Time: 1500	Signature: Time:	Signature: Time:
Printed Name: Veselona Jakimova Date: 7/15/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 11:30	Signature: Time:	Signature: Time:
Printed Name: Connie Van Date: 7/16/21	Printed Name: Date:	Printed Name: Date:
Company: ETA SAC	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. _____

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CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David McCracken

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SED-05		1105	7/1/21	X	1	sediment
SED-06		1200		X	1	
SED-07		1400		X	1	
SED-08		1645		X	1	
SED-09		1815		X	1	
SB2-45.3-46.0		1505	7/2/21	X	1	soil

Project Information	
Number:	102581-009
Name:	DLG PFAS
Contact:	Marcy Nadel
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY, MDN

Sample Receipt	
Total No. of Containers:	26
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Notes:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1500	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/16/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 11:30	Signature: Time:	Signature: Time:
Printed Name: Connie Vara Date: 7/16/21	Printed Name: Date:	Printed Name: Date:
Company: ETA SAL	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No.

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76365-1

Login Number: 76365
List Number: 1
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, 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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 11, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Environment Testing

Laboratory Report Number:

320-76365-1

Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76365-1

Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

Samples were received at 2.2°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

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Laboratory Report Date:

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Dillingham DOT&PF

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

No discrepancies were noted.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

Dillingham DOT&PF

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Method EPA 537(Mod): The "I" qualifier means the transition mass ratios for the indicated analytes were outside of the established ratio limits. The qualitative identification of the analytes has some degree of uncertainty, and the reported values may have some high bias. However, analyst judgement was used to positively identify the analytes.

Method EPA 537(Mod): The continuing calibration verification (CCV) associated with batch 320-508555 recovered 9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid above the upper control limit. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

The case narrative notes that an unspecified sample exhibited matrix interferences for perfluorooctanesulfonic acid (PFOS). The laboratory adjusted the reporting limit (RL) to the level of the matrix interference, and a applied the "G" qualifier. **We note that no record of this is present outside the case narrative and the PFOS results appear unaffected. The generation of this case narrative note is likely erroneous.**

The case narrative notes that the samples *SED-01*, *SED-06*, *SED-07*, and *SED-08* exhibited a light-yellow hue after final extraction and voluming.

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Corrective actions were documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Transition mass ratios were outside established ratio limits for one or more analytes in the samples *SED-02*, *SED-102*, *SED*-06, and *SED-08*. The laboratory applied the I-flag to the affected analytes.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

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Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

b. All applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

Project sample *SB2-45.3-46.0* and the laboratory QC samples spiked from it were prepared outside of the laboratory's standard 14-day holding time.

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

PFAS were not detected in sample *SB2-45.3-46.0*. The non-detect results are assumed to have a low analytical bias and are flagged 'UJ' for reporting purposes. We note that the reference method does not list a specific holding time, and PFAS tend to be highly stable within the soil matrix. It is unlikely that the results are affected. Qualification was applied out of an abundance of caution.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Target PFAS were not detected in the method blank samples associated with this work order.

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Dillingham DOT&PF

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☐ No☒ N/A☐ Comments:

LCS samples were reported for preparation batches 320-508039 and 320-508240.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

LCSDs were not reported; method precision is assessed in section 6.d.iv.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy was demonstrated to meet acceptance criteria.

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Laboratory Report Date:

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CS Site Name:

Dillingham DOT&PF

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

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Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *SB6-6.9-7.9 / SB61-6.9-7.9, SED-02 / SED-102,* and *SED-04 / SED-104* were submitted with this work order.

320-76365-1

Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 50% for all analytes, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

320-76365-1

Laboratory Report Date:

July 26, 2021

CS Site Name:

Dillingham DOT&PF

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

The PFOS result of samples *SED-02*, *SED-102*, *SED*-06, and *SED-08* as well as the PFDA result of sample *SED-06* are affected by transition mass ratio failures. The affected results in the aforementioned samples are considered estimated and have been flagged 'J' to identify the uncertainty.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76675-1
Client Project/Site: DLG PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
8/3/2021 2:41:24 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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

Job ID: 320-76675-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-76675-1

Receipt
The samples were received on 7/23/2021 11:22 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 3.5º C.

LCMS
Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: DLG-MW09-11 (320-76675-6). 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 sample(s).

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgement was used to positively identify the analyte.

Method EPA 537(Mod): Results for sample DLG-MW09-50 (320-76675-9) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-510491.

Method 3535: Samples contain a small amount of brown sediment. DLG-MW05-45 (320-76675-2), DLG-MW105-45 (320-76675-3), DLG-MW05-67 (320-76675-4), DLG-MW09-11 (320-76675-6), DLG-MW09-65 (320-76675-7), DLG-MW109-65 (320-76675-8), DLG-MW09-50 (320-76675-9), DLG-MW04-25 (320-76675-11), DLG-MW104-25 (320-76675-12) and DLG-MW04-53 (320-76675-13) preparation batch 320-510491

Method 3535: Sample extract is golden-yellow in color. DLG-MW09-11 (320-76675-6)
preparation batch 320-510491

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: FB071721 — Lab Sample ID: 320-76675-1

No Detections.

Client Sample ID: DLG-MW05-45 — Lab Sample ID: 320-76675-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.27	J	1.7	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7		1.7	0.17	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW105-45 — Lab Sample ID: 320-76675-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.8		1.6	0.16	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.6	0.46	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW05-67 — Lab Sample ID: 320-76675-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	0.67	J	1.6	0.16	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.59	J	1.6	0.46	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EB-MW05 — Lab Sample ID: 320-76675-5

No Detections.

Client Sample ID: DLG-MW09-11 — Lab Sample ID: 320-76675-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.93	J	1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	2.2		1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.28	J	1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.0		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW09-65 — Lab Sample ID: 320-76675-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.1		1.7	0.48	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.86	J	1.7	0.17	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.0	J	1.7	0.48	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.83	J	1.7	0.45	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW109-65 — Lab Sample ID: 320-76675-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.2		1.8	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.29	J	1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.95	J	1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW09-50 — Lab Sample ID: 320-76675-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	73		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: DLG-MW09-50 (Continued) — Lab Sample ID: 320-76675-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	59		1.8	0.76	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.35	J I	1.8	0.28	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	19		1.8	0.48	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	1100		18	5.2	ng/L	10		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	1100		18	1.8	ng/L	10		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	1300		18	5.1	ng/L	10		EPA 537(Mod)	Total/NA

Client Sample ID: EB-MW09 — Lab Sample ID: 320-76675-10

No Detections.

Client Sample ID: DLG-MW04-25 — Lab Sample ID: 320-76675-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	12		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.8	J	1.9	0.83	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.6		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.5		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.7	J	1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW104-25 — Lab Sample ID: 320-76675-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	13		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.0		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.9		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.7		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.8		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.9		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW04-53 — Lab Sample ID: 320-76675-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	16		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.2		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	4.9		1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.6		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	39		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.5		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EB-MW04 — Lab Sample ID: 320-76675-14

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: FB071721

Date Collected: 07/17/21 19:15
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-1

Matrix: Water

Method: EPA 537(Mod) - 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	0.51	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.74	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.96	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.50	ng/L		07/26/21 20:43	07/28/21 03:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.47	ng/L		07/26/21 20:43	07/28/21 03:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		07/26/21 20:43	07/28/21 03:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.4	1.1	ng/L		07/26/21 20:43	07/28/21 03:30	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/26/21 20:43	07/28/21 03:30	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		07/26/21 20:43	07/28/21 03:30	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.28	ng/L		07/26/21 20:43	07/28/21 03:30	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		07/26/21 20:43	07/28/21 03:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C4 PFHpA	*86*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C5 PFNA	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C2 PFDA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C2 PFUnA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C2 PFDoA	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C2 PFTeDA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C3 PFBS	*79*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
18O2 PFHxS	*83*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C4 PFOS	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
d3-NMeFOSAA	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:30*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW05-45

Date Collected: 07/17/21 16:20
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-2

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.22	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.74	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorodecanoic acid (PFDA)	**0.27**	**J**	1.7	0.27	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**		1.7	0.17	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorohexanesulfonic acid (PFHxS)	**3.3**		1.7	0.49	ng/L		07/26/21 20:43	07/28/21 03:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		07/26/21 20:43	07/28/21 03:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		07/26/21 20:43	07/28/21 03:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		07/26/21 20:43	07/28/21 03:39	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.7	0.21	ng/L		07/26/21 20:43	07/28/21 03:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		07/26/21 20:43	07/28/21 03:39	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.7	0.28	ng/L		07/26/21 20:43	07/28/21 03:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		07/26/21 20:43	07/28/21 03:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C4 PFHpA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C4 PFOA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C5 PFNA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C2 PFDA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C2 PFUnA	*107*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C2 PFDoA	*111*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C2 PFTeDA	*121*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C3 PFBS	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
18O2 PFHxS	*98*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C4 PFOS	*103*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
d3-NMeFOSAA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
d5-NEtFOSAA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*
13C3 HFPO-DA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:39*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW105-45

Date Collected: 07/17/21 16:10
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-3

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.47	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.20	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorooctanoic acid (PFOA)	ND		1.6	0.69	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.22	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.89	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6	1.0	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.59	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorobutanesulfonic acid (PFBS)	**1.8**		1.6	0.16	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorohexanesulfonic acid (PFHxS)	**3.3**		1.6	0.46	ng/L		07/26/21 20:43	07/28/21 03:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6	0.44	ng/L		07/26/21 20:43	07/28/21 03:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.0	0.97	ng/L		07/26/21 20:43	07/28/21 03:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.0	1.0	ng/L		07/26/21 20:43	07/28/21 03:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.6	0.19	ng/L		07/26/21 20:43	07/28/21 03:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.2	1.2	ng/L		07/26/21 20:43	07/28/21 03:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.6	0.26	ng/L		07/26/21 20:43	07/28/21 03:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.32	ng/L		07/26/21 20:43	07/28/21 03:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C4 PFHpA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C4 PFOA	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C5 PFNA	*98*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C2 PFUnA	*107*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C2 PFDoA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C2 PFTeDA	*106*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C3 PFBS	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
18O2 PFHxS	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C4 PFOS	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:48*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW05-67

Date Collected: 07/17/21 19:20
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-4

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.47	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.20	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorooctanoic acid (PFOA)	ND		1.6	0.69	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorononanoic acid (PFNA)	ND		1.6	0.22	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.25	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.89	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.44	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6	1.1	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.59	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorobutanesulfonic acid (PFBS)	**0.67**	**J**	1.6	0.16	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorohexanesulfonic acid (PFHxS)	**0.59**	**J**	1.6	0.46	ng/L		07/26/21 20:43	07/28/21 03:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6	0.44	ng/L		07/26/21 20:43	07/28/21 03:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.0	0.97	ng/L		07/26/21 20:43	07/28/21 03:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.0	1.1	ng/L		07/26/21 20:43	07/28/21 03:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.6	0.19	ng/L		07/26/21 20:43	07/28/21 03:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.2	1.2	ng/L		07/26/21 20:43	07/28/21 03:57	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.6	0.26	ng/L		07/26/21 20:43	07/28/21 03:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.6	0.32	ng/L		07/26/21 20:43	07/28/21 03:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C4 PFHpA	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C4 PFOA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C2 PFDA	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C2 PFUnA	*100*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C2 PFDoA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C2 PFTeDA	*104*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C3 PFBS	*78*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C4 PFOS	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:57*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: EB-MW05

Date Collected: 07/17/21 19:40
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-5

Matrix: Water

Method: EPA 537(Mod) - 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	0.52	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.22	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.76	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.51	ng/L		07/26/21 20:43	07/28/21 04:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		07/26/21 20:43	07/28/21 04:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/26/21 20:43	07/28/21 04:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/26/21 20:43	07/28/21 04:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/26/21 20:43	07/28/21 04:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/26/21 20:43	07/28/21 04:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/26/21 20:43	07/28/21 04:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/26/21 20:43	07/28/21 04:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C5 PFNA	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C2 PFDA	*95*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C2 PFUnA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C2 PFDoA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C3 PFBS	*81*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
18O2 PFHxS	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:06*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW09-11

Date Collected: 07/18/21 15:52
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-6

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**4.8**		1.8	0.52	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluoroheptanoic acid (PFHpA)	**0.93**	**J**	1.8	0.22	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorooctanoic acid (PFOA)	**2.2**		1.8	0.76	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorodecanoic acid (PFDA)	**0.28**	**J**	1.8	0.28	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.98	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorobutanesulfonic acid (PFBS)	**5.0**		1.8	0.18	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorohexanesulfonic acid (PFHxS)	**9.6**		1.8	0.51	ng/L		07/26/21 20:43	07/28/21 04:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.48	ng/L		07/26/21 20:43	07/28/21 04:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/26/21 20:43	07/28/21 04:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/26/21 20:43	07/28/21 04:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		07/26/21 20:43	07/28/21 04:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/26/21 20:43	07/28/21 04:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/26/21 20:43	07/28/21 04:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/26/21 20:43	07/28/21 04:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*56*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C4 PFHpA	*65*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C4 PFOA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C5 PFNA	*109*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C2 PFDA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C2 PFUnA	*101*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C2 PFDoA	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C2 PFTeDA	*49*	**5-*	*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C3 PFBS	*68*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C4 PFOS	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*
13C3 HFPO-DA	*66*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:16*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW09-65

Date Collected: 07/19/21 11:40
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-7

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**2.1**		1.7	0.48	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.71	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.92	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.61	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorobutanesulfonic acid (PFBS)	**0.86**	**J**	1.7	0.17	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorohexanesulfonic acid (PFHxS)	**1.0**	**J**	1.7	0.48	ng/L		07/26/21 20:43	07/28/21 04:25	1
Perfluorooctanesulfonic acid (PFOS)	**0.83**	**J**	1.7	0.45	ng/L		07/26/21 20:43	07/28/21 04:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.2	1.0	ng/L		07/26/21 20:43	07/28/21 04:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.2	1.1	ng/L		07/26/21 20:43	07/28/21 04:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.7	0.20	ng/L		07/26/21 20:43	07/28/21 04:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.3	1.3	ng/L		07/26/21 20:43	07/28/21 04:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.7	0.27	ng/L		07/26/21 20:43	07/28/21 04:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.33	ng/L		07/26/21 20:43	07/28/21 04:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C4 PFHpA	*81*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C4 PFOA	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C5 PFNA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C2 PFDA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C2 PFUnA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C2 PFDoA	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C2 PFTeDA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C3 PFBS	*76*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
18O2 PFHxS	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C4 PFOS	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
d5-NEtFOSAA	*80*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:25*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW109-65

Date Collected: 07/19/21 11:30
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-8

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**2.2**		1.8	0.53	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluoroheptanoic acid (PFHpA)	**0.29**	**J**	1.8	0.23	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.78	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.8	0.18	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorohexanesulfonic acid (PFHxS)	**1.2**	**J**	1.8	0.52	ng/L		07/26/21 20:43	07/28/21 04:52	1
Perfluorooctanesulfonic acid (PFOS)	**0.95**	**J**	1.8	0.49	ng/L		07/26/21 20:43	07/28/21 04:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/26/21 20:43	07/28/21 04:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/26/21 20:43	07/28/21 04:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/26/21 20:43	07/28/21 04:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		07/26/21 20:43	07/28/21 04:52	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/26/21 20:43	07/28/21 04:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		07/26/21 20:43	07/28/21 04:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*75*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C4 PFHpA	*76*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C2 PFDA	*80*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C2 PFUnA	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C2 PFDoA	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C2 PFTeDA	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C3 PFBS	*69*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
18O2 PFHxS	*79*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C4 PFOS	*81*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
d3-NMeFOSAA	*72*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
d5-NEtFOSAA	*78*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*
13C3 HFPO-DA	*66*		*50 - 150*	*07/26/21 20:43*	*07/28/21 04:52*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW09-50

Date Collected: 07/19/21 12:23
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-9

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**73**		1.8	0.22	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorooctanoic acid (PFOA)	**59**		1.8	0.76	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorodecanoic acid (PFDA)	**0.35**	**J I**	1.8	0.28	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/26/21 20:43	07/28/21 05:01	1
Perfluorooctanesulfonic acid (PFOS)	**19**		1.8	0.48	ng/L		07/26/21 20:43	07/28/21 05:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/26/21 20:43	07/28/21 05:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/26/21 20:43	07/28/21 05:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/26/21 20:43	07/28/21 05:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/26/21 20:43	07/28/21 05:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/26/21 20:43	07/28/21 05:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/26/21 20:43	07/28/21 05:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFHpA	*69*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C4 PFOA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C5 PFNA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C2 PFDA	*78*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C2 PFUnA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C2 PFDoA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C2 PFTeDA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C4 PFOS	*83*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
d5-NEtFOSAA	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*
13C3 HFPO-DA	*72*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:01*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**1100**		18	5.2	ng/L		07/26/21 20:43	07/31/21 04:12	10
Perfluorobutanesulfonic acid (PFBS)	**1100**		18	1.8	ng/L		07/26/21 20:43	07/31/21 04:12	10
Perfluorohexanesulfonic acid (PFHxS)	**1300**		18	5.1	ng/L		07/26/21 20:43	07/31/21 04:12	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*102*		*50 - 150*	*07/26/21 20:43*	*07/31/21 04:12*	*10*
13C3 PFBS	*87*		*50 - 150*	*07/26/21 20:43*	*07/31/21 04:12*	*10*
18O2 PFHxS	*87*		*50 - 150*	*07/26/21 20:43*	*07/31/21 04:12*	*10*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: EB-MW09

Date Collected: 07/19/21 12:40
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-10

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.54	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.23	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.79	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.51	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.68	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.53	ng/L		07/26/21 20:43	07/28/21 05:10	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.50	ng/L		07/26/21 20:43	07/28/21 05:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/26/21 20:43	07/28/21 05:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/26/21 20:43	07/28/21 05:10	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.22	ng/L		07/26/21 20:43	07/28/21 05:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		07/26/21 20:43	07/28/21 05:10	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/26/21 20:43	07/28/21 05:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.37	ng/L		07/26/21 20:43	07/28/21 05:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C4 PFOA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C5 PFNA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C2 PFDA	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C2 PFUnA	*117*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C2 PFDoA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C2 PFTeDA	*125*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C3 PFBS	*82*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
18O2 PFHxS	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C4 PFOS	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
d3-NMeFOSAA	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
d5-NEtFOSAA	*101*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:10*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW04-25

Date Collected: 07/21/21 13:00
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-11

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**12**		1.9	0.56	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluoroheptanoic acid (PFHpA)	**3.8**		1.9	0.24	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorooctanoic acid (PFOA)	**1.8**	**J**	1.9	0.83	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorobutanesulfonic acid (PFBS)	**2.6**		1.9	0.19	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorohexanesulfonic acid (PFHxS)	**9.5**		1.9	0.55	ng/L		07/26/21 20:43	07/28/21 05:20	1
Perfluorooctanesulfonic acid (PFOS)	**1.7**	**J**	1.9	0.52	ng/L		07/26/21 20:43	07/28/21 05:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		07/26/21 20:43	07/28/21 05:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		07/26/21 20:43	07/28/21 05:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/26/21 20:43	07/28/21 05:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		07/26/21 20:43	07/28/21 05:20	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/26/21 20:43	07/28/21 05:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/26/21 20:43	07/28/21 05:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*85*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C4 PFHpA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C4 PFOA	*101*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C5 PFNA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C2 PFDA	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C2 PFUnA	*98*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C2 PFDoA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C2 PFTeDA	*108*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
18O2 PFHxS	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C4 PFOS	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:20*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW104-25

Date Collected: 07/21/21 13:10
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-12

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**13**		1.9	0.56	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluoroheptanoic acid (PFHpA)	**4.0**		1.9	0.24	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorooctanoic acid (PFOA)	**1.9**		1.9	0.81	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorobutanesulfonic acid (PFBS)	**2.7**		1.9	0.19	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorohexanesulfonic acid (PFHxS)	**9.8**		1.9	0.55	ng/L		07/26/21 20:43	07/28/21 05:29	1
Perfluorooctanesulfonic acid (PFOS)	**1.9**		1.9	0.52	ng/L		07/26/21 20:43	07/28/21 05:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.1	ng/L		07/26/21 20:43	07/28/21 05:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.2	ng/L		07/26/21 20:43	07/28/21 05:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/26/21 20:43	07/28/21 05:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/26/21 20:43	07/28/21 05:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/26/21 20:43	07/28/21 05:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/26/21 20:43	07/28/21 05:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C4 PFOA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C5 PFNA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C2 PFDA	*95*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C2 PFUnA	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C2 PFDoA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C2 PFTeDA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:29*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW04-53

Date Collected: 07/21/21 17:20
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-13

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**16**		1.9	0.56	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluoroheptanoic acid (PFHpA)	**5.2**		1.9	0.24	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorooctanoic acid (PFOA)	**4.9**		1.9	0.82	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorobutanesulfonic acid (PFBS)	**9.6**		1.9	0.19	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorohexanesulfonic acid (PFHxS)	**39**		1.9	0.55	ng/L		07/26/21 20:43	07/28/21 05:38	1
Perfluorooctanesulfonic acid (PFOS)	**6.5**		1.9	0.52	ng/L		07/26/21 20:43	07/28/21 05:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		07/26/21 20:43	07/28/21 05:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		07/26/21 20:43	07/28/21 05:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/26/21 20:43	07/28/21 05:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.4	ng/L		07/26/21 20:43	07/28/21 05:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/26/21 20:43	07/28/21 05:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/26/21 20:43	07/28/21 05:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*78*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C2 PFDA	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C2 PFUnA	*103*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C2 PFDoA	*98*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C2 PFTeDA	*106*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C3 PFBS	*71*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
18O2 PFHxS	*80*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
d5-NEtFOSAA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:38*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: EB-MW04

Date Collected: 07/21/21 18:00
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-14

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.83	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.55	ng/L		07/26/21 20:43	07/28/21 05:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.53	ng/L		07/26/21 20:43	07/28/21 05:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		07/26/21 20:43	07/28/21 05:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		07/26/21 20:43	07/28/21 05:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/26/21 20:43	07/28/21 05:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		07/26/21 20:43	07/28/21 05:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/26/21 20:43	07/28/21 05:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/26/21 20:43	07/28/21 05:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*87*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C4 PFHpA	*100*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C4 PFOA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C5 PFNA	*100*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C2 PFUnA	*102*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C2 PFDoA	*106*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C2 PFTeDA	*104*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C3 PFBS	*85*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
18O2 PFHxS	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C4 PFOS	*97*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
d5-NEtFOSAA	*98*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*
13C3 HFPO-DA	*83*		*50 - 150*	*07/26/21 20:43*	*07/28/21 05:47*	*1*

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Method: EPA 537(Mod) - 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)
320-76675-1	FB071721	89	86	90	87	93	102	87	108
320-76675-2	DLG-MW05-45	97	99	108	108	108	107	111	121
320-76675-3	DLG-MW105-45	88	93	96	98	91	107	91	106
320-76675-4	DLG-MW05-67	82	94	99	97	88	100	90	104
320-76675-5	EB-MW05	93	89	93	94	95	92	102	112
320-76675-6	DLG-MW09-11	56	65	99	109	108	101	96	49 *5-
320-76675-7	DLG-MW09-65	81	81	89	92	91	93	88	97
320-76675-8	DLG-MW109-65	75	76	91	83	80	82	82	96
320-76675-9	DLG-MW09-50		69	97	91	78	91	92	92
320-76675-9 - DL	DLG-MW09-50	102							
320-76675-10	EB-MW09	94	89	97	102	96	117	108	125
320-76675-11	DLG-MW04-25	85	93	101	99	89	98	99	108
320-76675-12	DLG-MW104-25	81	84	97	92	95	94	93	99
320-76675-13	DLG-MW04-53	78	79	95	97	88	103	98	106
320-76675-14	EB-MW04	87	100	102	100	90	102	106	104
LCS 320-510491/2-A	Lab Control Sample	84	89	97	95	96	110	97	123
LCSD 320-510491/3-A	Lab Control Sample Dup	84	90	92	93	86	98	89	106
MB 320-510491/1-A	Method Blank	93	99	95	104	103	94	105	112

		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)		
320-76675-1	FB071721	79	83	89	82	91	81		
320-76675-2	DLG-MW05-45	88	98	103	102	102	91		
320-76675-3	DLG-MW105-45	82	88	96	90	94	84		
320-76675-4	DLG-MW05-67	78	87	93	87	91	82		
320-76675-5	EB-MW05	81	82	88	87	92	74		
320-76675-6	DLG-MW09-11	68	93	108	93	90	66		
320-76675-7	DLG-MW09-65	76	87	89	85	80	75		
320-76675-8	DLG-MW109-65	69	79	81	72	78	66		
320-76675-9	DLG-MW09-50			83	84	88	72		
320-76675-9 - DL	DLG-MW09-50	87	87						
320-76675-10	EB-MW09	82	90	96	87	101	79		
320-76675-11	DLG-MW04-25	80	89	94	88	96	80		
320-76675-12	DLG-MW104-25	80	85	91	85	90	74		
320-76675-13	DLG-MW04-53	71	80	88	84	90	69		
320-76675-14	EB-MW04	85	94	97	90	98	83		
LCS 320-510491/2-A	Lab Control Sample	86	92	97	95	96	81		
LCSD 320-510491/3-A	Lab Control Sample Dup	80	87	94	91	90	80		
MB 320-510491/1-A	Method Blank	89	91	95	91	95	92		

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

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-510491/1-A
Matrix: Water
Analysis Batch: 511531

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 510491

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/26/21 20:43	07/28/21 03:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/26/21 20:43	07/28/21 03:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/26/21 20:43	07/28/21 03:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/26/21 20:43	07/28/21 03:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		07/26/21 20:43	07/28/21 03:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		07/26/21 20:43	07/28/21 03:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.32	ng/L		07/26/21 20:43	07/28/21 03:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		07/26/21 20:43	07/28/21 03:03	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C4 PFHpA	*99*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C5 PFNA	*104*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C2 PFDA	*103*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C2 PFUnA	*94*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C2 PFDoA	*105*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C3 PFBS	*89*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
18O2 PFHxS	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C4 PFOS	*95*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
d3-NMeFOSAA	*91*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
d5-NEtFOSAA	*95*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*07/26/21 20:43*	*07/28/21 03:03*	*1*

Lab Sample ID: LCS 320-510491/2-A
Matrix: Water
Analysis Batch: 511531

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510491

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	40.1		ng/L		100	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	41.5		ng/L		104	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	43.9		ng/L		110	71 - 133
Perfluorononanoic acid (PFNA)	40.0	39.2		ng/L		98	69 - 130

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-510491/2-A
Matrix: Water
Analysis Batch: 511531

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510491

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	40.0	36.7		ng/L		92	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	33.5		ng/L		84	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	36.3		ng/L		91	72 - 134
Perfluorotridecanoic acid (PFTriA)	40.0	45.8		ng/L		114	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	38.5		ng/L		96	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	36.0		ng/L		102	72 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.1		ng/L		97	68 - 131
Perfluorooctanesulfonic acid (PFOS)	37.1	35.7		ng/L		96	65 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	39.7		ng/L		99	65 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.5		ng/L		101	61 - 135
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	37.3	35.6		ng/L		95	77 - 137
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	45.6		ng/L		114	72 - 132
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	37.7	40.9		ng/L		109	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	34.2		ng/L		91	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*84*		*50 - 150*
13C4 PFHpA	*89*		*50 - 150*
13C4 PFOA	*97*		*50 - 150*
13C5 PFNA	*95*		*50 - 150*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*110*		*50 - 150*
13C2 PFDoA	*97*		*50 - 150*
13C2 PFTeDA	*123*		*50 - 150*
13C3 PFBS	*86*		*50 - 150*
18O2 PFHxS	*92*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
d3-NMeFOSAA	*95*		*50 - 150*
d5-NEtFOSAA	*96*		*50 - 150*
13C3 HFPO-DA	*81*		*50 - 150*

Lab Sample ID: LCSD 320-510491/3-A
Matrix: Water
Analysis Batch: 511531

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 510491

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	40.0	38.4		ng/L		96	72 - 129	4	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.6		ng/L		101	72 - 130	2	30
Perfluorooctanoic acid (PFOA)	40.0	45.3		ng/L		113	71 - 133	3	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-510491/3-A
Matrix: Water
Analysis Batch: 511531

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 510491

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)			40.0	40.0		ng/L		100	69 - 130	2	30
Perfluorodecanoic acid (PFDA)			40.0	39.3		ng/L		98	71 - 129	7	30
Perfluoroundecanoic acid (PFUnA)			40.0	38.8		ng/L		97	69 - 133	15	30
Perfluorododecanoic acid (PFDoA)			40.0	39.5		ng/L		99	72 - 134	8	30
Perfluorotridecanoic acid (PFTriA)			40.0	46.9		ng/L		117	65 - 144	2	30
Perfluorotetradecanoic acid (PFTeA)			40.0	37.8		ng/L		95	71 - 132	2	30
Perfluorobutanesulfonic acid (PFBS)			35.4	37.3		ng/L		106	72 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	38.3		ng/L		105	68 - 131	9	30
Perfluorooctanesulfonic acid (PFOS)			37.1	36.9		ng/L		99	65 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	41.1		ng/L		103	65 - 136	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	39.2		ng/L		98	61 - 135	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	36.8		ng/L		99	77 - 137	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	40.6		ng/L		102	72 - 132	12	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	40.7		ng/L		108	76 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	36.8		ng/L		98	81 - 141	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*84*		*50 - 150*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*92*		*50 - 150*
13C5 PFNA	*93*		*50 - 150*
13C2 PFDA	*86*		*50 - 150*
13C2 PFUnA	*98*		*50 - 150*
13C2 PFDoA	*89*		*50 - 150*
13C2 PFTeDA	*106*		*50 - 150*
13C3 PFBS	*80*		*50 - 150*
18O2 PFHxS	*87*		*50 - 150*
13C4 PFOS	*94*		*50 - 150*
d3-NMeFOSAA	*91*		*50 - 150*
d5-NEtFOSAA	*90*		*50 - 150*
13C3 HFPO-DA	*80*		*50 - 150*

LCMS

Prep Batch: 510491

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76675-1	FB071721	Total/NA	Water	3535	
320-76675-2	DLG-MW05-45	Total/NA	Water	3535	
320-76675-3	DLG-MW105-45	Total/NA	Water	3535	
320-76675-4	DLG-MW05-67	Total/NA	Water	3535	
320-76675-5	EB-MW05	Total/NA	Water	3535	
320-76675-6	DLG-MW09-11	Total/NA	Water	3535	
320-76675-7	DLG-MW09-65	Total/NA	Water	3535	
320-76675-8	DLG-MW109-65	Total/NA	Water	3535	
320-76675-9 - DL	DLG-MW09-50	Total/NA	Water	3535	
320-76675-9	DLG-MW09-50	Total/NA	Water	3535	
320-76675-10	EB-MW09	Total/NA	Water	3535	
320-76675-11	DLG-MW04-25	Total/NA	Water	3535	
320-76675-12	DLG-MW104-25	Total/NA	Water	3535	
320-76675-13	DLG-MW04-53	Total/NA	Water	3535	
320-76675-14	EB-MW04	Total/NA	Water	3535	
MB 320-510491/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-510491/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-510491/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 511531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76675-1	FB071721	Total/NA	Water	EPA 537(Mod)	510491
320-76675-2	DLG-MW05-45	Total/NA	Water	EPA 537(Mod)	510491
320-76675-3	DLG-MW105-45	Total/NA	Water	EPA 537(Mod)	510491
320-76675-4	DLG-MW05-67	Total/NA	Water	EPA 537(Mod)	510491
320-76675-5	EB-MW05	Total/NA	Water	EPA 537(Mod)	510491
320-76675-6	DLG-MW09-11	Total/NA	Water	EPA 537(Mod)	510491
320-76675-7	DLG-MW09-65	Total/NA	Water	EPA 537(Mod)	510491
320-76675-8	DLG-MW109-65	Total/NA	Water	EPA 537(Mod)	510491
320-76675-9	DLG-MW09-50	Total/NA	Water	EPA 537(Mod)	510491
320-76675-10	EB-MW09	Total/NA	Water	EPA 537(Mod)	510491
320-76675-11	DLG-MW04-25	Total/NA	Water	EPA 537(Mod)	510491
320-76675-12	DLG-MW104-25	Total/NA	Water	EPA 537(Mod)	510491
320-76675-13	DLG-MW04-53	Total/NA	Water	EPA 537(Mod)	510491
320-76675-14	EB-MW04	Total/NA	Water	EPA 537(Mod)	510491
MB 320-510491/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	510491
LCS 320-510491/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	510491
LCSD 320-510491/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	510491

Analysis Batch: 511857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76675-9 - DL	DLG-MW09-50	Total/NA	Water	EPA 537(Mod)	510491

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: FB071721
Date Collected: 07/17/21 19:15
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			285.3 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 03:30	AP	TAL SAC

Client Sample ID: DLG-MW05-45
Date Collected: 07/17/21 16:20
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			288.7 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 03:39	AP	TAL SAC

Client Sample ID: DLG-MW105-45
Date Collected: 07/17/21 16:10
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			310.2 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 03:48	AP	TAL SAC

Client Sample ID: DLG-MW05-67
Date Collected: 07/17/21 19:20
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			309.4 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 03:57	AP	TAL SAC

Client Sample ID: EB-MW05
Date Collected: 07/17/21 19:40
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			280.6 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 04:06	AP	TAL SAC

Client Sample ID: DLG-MW09-11
Date Collected: 07/18/21 15:52
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			280.5 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 04:16	AP	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW09-65
Lab Sample ID: 320-76675-7
Date Collected: 07/19/21 11:40
Matrix: Water
Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			299.7 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 04:25	AP	TAL SAC

Client Sample ID: DLG-MW109-65
Lab Sample ID: 320-76675-8
Date Collected: 07/19/21 11:30
Matrix: Water
Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.8 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 04:52	AP	TAL SAC

Client Sample ID: DLG-MW09-50
Lab Sample ID: 320-76675-9
Date Collected: 07/19/21 12:23
Matrix: Water
Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		278.8 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			511857	07/31/21 04:12	S1M	TAL SAC
Total/NA	Prep	3535			278.8 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 05:01	AP	TAL SAC

Client Sample ID: EB-MW09
Lab Sample ID: 320-76675-10
Date Collected: 07/19/21 12:40
Matrix: Water
Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			268.5 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 05:10	AP	TAL SAC

Client Sample ID: DLG-MW04-25
Lab Sample ID: 320-76675-11
Date Collected: 07/21/21 13:00
Matrix: Water
Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.3 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 05:20	AP	TAL SAC

Client Sample ID: DLG-MW104-25
Lab Sample ID: 320-76675-12
Date Collected: 07/21/21 13:10
Matrix: Water
Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.1 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 05:29	AP	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW04-53

Lab Sample ID: 320-76675-13

Date Collected: 07/21/21 17:20

Matrix: Water

Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259.6 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 05:38	AP	TAL SAC

Client Sample ID: EB-MW04

Lab Sample ID: 320-76675-14

Date Collected: 07/21/21 18:00

Matrix: Water

Date Received: 07/23/21 11:22

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			257.1 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511531	07/28/21 05:47	AP	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Laboratory: Eurofins TestAmerica, Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76675-1	FB071721	Water	07/17/21 19:15	07/23/21 11:22
320-76675-2	DLG-MW05-45	Water	07/17/21 16:20	07/23/21 11:22
320-76675-3	DLG-MW105-45	Water	07/17/21 16:10	07/23/21 11:22
320-76675-4	DLG-MW05-67	Water	07/17/21 19:20	07/23/21 11:22
320-76675-5	EB-MW05	Water	07/17/21 19:40	07/23/21 11:22
320-76675-6	DLG-MW09-11	Water	07/18/21 15:52	07/23/21 11:22
320-76675-7	DLG-MW09-65	Water	07/19/21 11:40	07/23/21 11:22
320-76675-8	DLG-MW109-65	Water	07/19/21 11:30	07/23/21 11:22
320-76675-9	DLG-MW09-50	Water	07/19/21 12:23	07/23/21 11:22
320-76675-10	EB-MW09	Water	07/19/21 12:40	07/23/21 11:22
320-76675-11	DLG-MW04-25	Water	07/21/21 13:00	07/23/21 11:22
320-76675-12	DLG-MW104-25	Water	07/21/21 13:10	07/23/21 11:22
320-76675-13	DLG-MW04-53	Water	07/21/21 17:20	07/23/21 11:22
320-76675-14	EB-MW04	Water	07/21/21 18:00	07/23/21 11:22

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Alltucker

Turn Around Time: [X] Normal [ ] Rush
Please Specify

Quote No:
MSA Number: TBD
J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS + 18							Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
FB071721		1915	7/17/21	X							2	groundwater
DLG-MW05-45		1620	↓	X							↓	↓
DLG-MW05-45		1610	↓	X							↓	↓
DLG-MW05-67		1920	↓	X							↓	↓
EB-MW05		1940	↓	X							↓	↓
DLG-MW09-11		1552	7/18/21	X							↓	↓
DLG-MW09-65		1140	7/19/21	X							↓	↓
DLG-MW109-65		1130	↓	X							↓	↓
DLG-MW09-50		1223	↓	X							↓	↓
~~DLG-MW~~ EB-MW09		1240	↓	X							↓	↓

320-76675 Chain of Custody

Project Information	
Number:	102581-009
Name:	DLG PFAS
Contact:	Marcey Nadeau
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY DHF SAH

Sample Receipt	
Total No. of Containers:	28
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

	Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature / Time	[signature] Time: 1500	[signature] Time: 1122 SO 7/23/21	[signature] SO 7/23/21 Time:
Printed Name / Date	Veselina Yakimova Date: 7/21/21	Salvador Ocampo Date: 7/23/21	Printed Name: Date:
Company	Shannon & Wilson	Eurofins SO 7/23/21 SO 7/23/21	Company:

	Received By: 1.	Received By: 2.	Received By: 3.
Signature / Time	[signature] Time: 1122	Signature: Time:	Signature: Time:
Printed Name / Date	Salvador Ocampo Date: 7/23/21	Printed Name: Date:	Printed Name: Date:
Company	Eurofins	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.5°C

No. ____________

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David McCracken

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW04-25		1300	7/21/21	X	2	groundwater
DLG-MWD4-25		1310		X		
DLG-MW04-53		1720		X		
EB-MW04-M		1800		X		

Project Information	
Number:	102581-009
Name:	DLG PFAS
Contact:	Marcy Nadeau
Ongoing Project?	Yes [X] No [ ]
Sampler:	VT, SAH

Sample Receipt	
Total No. of Containers:	28
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Notes:

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: Time: 1950	Signature: Time: 1122	Signature: Time:
Printed Name: Date: 7/22/21	Printed Name: Date: 7/23/21	Printed Name: Date:
Company: Shannon & Wilson	Company: ~~EDSac~~ So 7/23/21	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1122	Signature: Time:	Signature: Time:
Printed Name: Date: 7/23/21	Printed Name: Date:	Printed Name: Date:
Company: ETASac	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.5°C

No.

8/3/2021

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76675-1

Login Number: 76675
List Number: 1
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, 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.	True	seal
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	gel pack only
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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 31, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

TestAmerica

Laboratory Report Number:

320-76675-1

Laboratory Report Date:

August 3, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76675-1

Laboratory Report Date:

August 3, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   Samples were received at 3.5°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

   PFAS samples do not require preservation beyond the temperature requirements.

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Laboratory Report Date:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

Dillingham DOT&PF

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The case narrative indicated:

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: *DLG-MW09-11*. 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 sample(s).

Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgement was used to positively identify the analyte. This applies to the following sample: *DLG-MW09-50* (PFDA).

Method EPA 537(Mod): Results for sample *DLG-MW09-50* were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-510491.

Method 3535: Samples contain a small amount of brown sediment. *DLG-MW05-45, DLG-MW105-45, DLG-MW05-67, DLG-MW09-11, DLG-MW09-65, DLG-MW109-65, DLG-MW09-50, DLG-MW04-25, DLG-MW104-25,* and *DLG-MW04-53.* Preparation batch 320-510491

Method 3535: Sample extract is golden-yellow in color. *DLG-MW09-11*. Preparation batch 320-510491

c. Were all corrective actions documented?

Yes☐ No☒ N/A☐ Comments:

Corrective actions were not documented.

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Laboratory Report Date:

August 3, 2021

CS Site Name:

Dillingham DOT&PF

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Transition mass ratios were outside QA/QC limits; associated samples may be biased high. Sample *DLG-MW09-50* (PFDA) is affected. Due to this uncertainty, the analyte result in the aforementioned sample is considered estimated with no direction of bias and has been flagged 'J' in the analytical database.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not included in this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

The data quality/usability is not affected.

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6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples are affected; see above.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☒ N/A☐ Comments:

There was insufficient volume to perform an MS/MSD.

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Dillingham DOT&PF

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform an MS/MSD. See LCS/LCSD to determine laboratory accuracy.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform an MS/MSD. See LCS/LCSD to determine laboratory precision.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

There was insufficient volume to perform an MS/MSD.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

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Dillingham DOT&PF

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

Percent recovery in project sample *DLG-MW09-11* was below laboratory limits for 13C2 PFTeDA. Due to this IDA recovery failure, the associated non-detect result for PFTeA is considered estimated with no direction of bias and has been flagged 'UJ' in the analytical database.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required. A field blank was taken.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

The field blank had no detections.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

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Dillingham DOT&PF

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *DLG-MW05-45/DLG-MW105-45, DLG-MW09-65/DLG-MW109-65,* and *DLG-MW04-25/DLG-MW104-25* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate sample was within the recommended DQO of 30% for all analytes, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☒ No☐ N/A☐ Comments:

EB-MW05, EB-MW09, and *EB-MW04* were submitted with this work order. Additionally, field blank sample *FB071721* was submitted with this work order.

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Laboratory Report Date:

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CS Site Name:

Dillingham DOT&PF

i. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76677-1
Client Project/Site: DLG-PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
7/31/2021 1:09:02 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Qualifiers

LCMS

Qualifier	Qualifier Description
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Job ID: 320-76677-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-76677-1

Receipt
The samples were received on 7/23/2021 11:22 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 3.5º C.

LCMS
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB10-26.8-32.0 — Lab Sample ID: 320-76677-1

No Detections.

Client Sample ID: SB101-26.8-32.0 — Lab Sample ID: 320-76677-2

No Detections.

Client Sample ID: SB10-36.0-37.1 — Lab Sample ID: 320-76677-3

No Detections.

Client Sample ID: SB11-0.3-1.2 — Lab Sample ID: 320-76677-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.069	J	0.21	0.054	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.25		0.21	0.023	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.32		0.21	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.7		0.21	0.044	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB11-2.3-3.3 — Lab Sample ID: 320-76677-5

No Detections.

Client Sample ID: SB111-2.3-3.3 — Lab Sample ID: 320-76677-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.093	J	0.23	0.060	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.16	J	0.23	0.025	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.47		0.23	0.055	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.080	J I	0.23	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.7		0.23	0.049	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB11-22.5-25.4 — Lab Sample ID: 320-76677-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	0.24		0.21	0.055	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.048	J	0.21	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB11-31.4-32.0 — Lab Sample ID: 320-76677-8

No Detections.

Client Sample ID: SB12-0.3-0.8 — Lab Sample ID: 320-76677-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.065	J	0.22	0.034	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.047	J I	0.22	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.097	J	0.22	0.032	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.22	I	0.22	0.047	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB12-15.0-16.0 — Lab Sample ID: 320-76677-10

No Detections.

Client Sample ID: SB-121-15.0-16.0 — Lab Sample ID: 320-76677-11

No Detections.

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB-12-35.0-35.7 — Lab Sample ID: 320-76677-12

No Detections.

Client Sample ID: SB-12-40.0-40.6 — Lab Sample ID: 320-76677-13

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB10-26.8-32.0
Date Collected: 07/15/21 13:26
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-1
Matrix: Solid
Percent Solids: 92.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.055	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.050	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.044	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.031	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.038	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.030	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.045	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.21	0.050	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.036	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.041	ug/Kg	☼	07/26/21 18:34	07/28/21 04:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C4 PFOA	*92*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C2 PFDA	*80*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C2 PFUnA	*90*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C2 PFDoA	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C2 PFTeDA	*73*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C4 PFOS	*87*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:07*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.3**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**92.7**		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB101-26.8-32.0
Date Collected: 07/15/21 13:36
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-2
Matrix: Solid
Percent Solids: 90.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.035	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.041	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.031	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 04:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C4 PFOA	*83*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C5 PFNA	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C2 PFDA	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C2 PFUnA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C2 PFDoA	*78*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C3 PFBS	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
18O2 PFHxS	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C4 PFOS	*91*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:35*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.8**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**90.2**		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB10-36.0-37.1
Date Collected: 07/15/21 16:59
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-3
Matrix: Solid
Percent Solids: 85.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.034	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.058	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.024	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.053	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.023	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.047	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.22	0.025	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.22	0.053	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.22	0.045	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.034	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 04:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*80*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C4 PFHpA	*76*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C4 PFOA	*76*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C5 PFNA	*76*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C2 PFDA	*74*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C2 PFUnA	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C2 PFDoA	*74*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C2 PFTeDA	*66*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C3 PFBS	*65*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
18O2 PFHxS	*70*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C4 PFOS	*76*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
d3-NMeFOSAA	*76*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:45*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**14.3**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**85.7**		0.1	0.1	%			07/26/21 12:38	1

Client Sample ID: SB11-0.3-1.2
Date Collected: 07/17/21 09:34
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-4
Matrix: Solid
Percent Solids: 94.1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorooctanoic acid (PFOA)	**0.069**	**J**	0.21	0.054	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorononanoic acid (PFNA)	**0.25**		0.21	0.023	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorodecanoic acid (PFDA)	**0.32**		0.21	0.049	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.031	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.038	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.030	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Perfluorooctanesulfonic acid (PFOS)	**2.7**		0.21	0.044	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.21	0.049	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.036	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.040	ug/Kg	☼	07/26/21 18:34	07/28/21 04:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*70*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C4 PFHpA	*68*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C4 PFOA	*69*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C5 PFNA	*70*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C2 PFDA	*64*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C2 PFUnA	*71*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C2 PFDoA	*71*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C2 PFTeDA	*63*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C3 PFBS	*66*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
18O2 PFHxS	*69*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C4 PFOS	*73*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
d3-NMeFOSAA	*63*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
d5-NEtFOSAA	*70*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*
13C3 HFPO-DA	*66*		*50 - 150*	*07/26/21 18:34*	*07/28/21 04:54*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**5.9**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**94.1**		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB11-2.3-3.3
Date Collected: 07/17/21 10:58
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-5
Matrix: Solid
Percent Solids: 81.8

Method: EPA 537(Mod) - 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	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.045	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.063	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.026	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.057	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.050	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.036	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.025	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.044	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.045	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.035	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.24	0.051	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.24	0.027	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.24	0.057	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.049	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.037	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.046	ug/Kg	☼	07/26/21 18:34	07/28/21 05:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C4 PFHpA	*85*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C4 PFOA	*83*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C5 PFNA	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C2 PFDA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C2 PFUnA	*94*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C2 PFDoA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C3 PFBS	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
18O2 PFHxS	*78*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C4 PFOS	*90*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
d3-NMeFOSAA	*96*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
d5-NEtFOSAA	*85*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:03*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.2**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**81.8**		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB111-2.3-3.3
Date Collected: 07/17/21 10:48
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-6
Matrix: Solid
Percent Solids: 82.8

Method: EPA 537(Mod) - 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	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorooctanoic acid (PFOA)	**0.093**	**J**	0.23	0.060	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorononanoic acid (PFNA)	**0.16**	**J**	0.23	0.025	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorodecanoic acid (PFDA)	**0.47**		0.23	0.055	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluoroundecanoic acid (PFUnA)	**0.080**	**J I**	0.23	0.048	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.034	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.024	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.033	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Perfluorooctanesulfonic acid (PFOS)	**1.7**		0.23	0.049	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.23	0.026	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.23	0.055	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.23	0.040	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.23	0.047	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.23	0.035	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.044	ug/Kg	☼	07/26/21 18:34	07/28/21 05:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C4 PFHpA	*71*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C4 PFOA	*71*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C5 PFNA	*71*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C2 PFDA	*77*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C2 PFUnA	*77*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C2 PFDoA	*73*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C3 PFBS	*68*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
18O2 PFHxS	*75*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C4 PFOS	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
d3-NMeFOSAA	*66*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
d5-NEtFOSAA	*70*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*
13C3 HFPO-DA	*70*		*50 - 150*	*07/26/21 18:34*	*07/28/21 05:13*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**17.2**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**82.8**		0.1	0.1	%			07/26/21 12:38	1

Client Sample ID: SB11-22.5-25.4

Date Collected: 07/17/21 13:36
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-7

Matrix: Solid
Percent Solids: 90.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorooctanoic acid (PFOA)	**0.24**		0.21	0.055	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.050	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.043	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.031	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.038	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.039	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorohexanesulfonic acid (PFHxS)	**0.048**	**J**	0.21	0.030	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.044	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.21	0.050	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.036	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21	0.042	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.032	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.040	ug/Kg	☼	07/26/21 18:34	07/28/21 23:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C4 PFHpA	*86*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C4 PFOA	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C2 PFDA	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C2 PFUnA	*89*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C2 PFDoA	*78*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C2 PFTeDA	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C3 PFBS	*78*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
18O2 PFHxS	*79*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C4 PFOS	*84*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
d5-NEtFOSAA	*88*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 23:44*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.5**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**90.5**		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB11-31.4-32.0
Date Collected: 07/17/21 15:08
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-8
Matrix: Solid
Percent Solids: 88.5

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.032	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.039	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.054	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.049	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.043	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.031	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.038	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.039	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.030	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.044	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.049	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.036	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.042	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.032	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.040	ug/Kg	☼	07/26/21 18:34	07/29/21 12:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C4 PFHpA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C4 PFOA	*86*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C5 PFNA	*80*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C2 PFUnA	*91*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C2 PFDoA	*87*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C3 PFBS	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
18O2 PFHxS	*80*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C4 PFOS	*89*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
d5-NEtFOSAA	*81*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:07*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**11.5**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**88.5**		0.1	0.1	%			07/26/21 12:38	1

Client Sample ID: SB12-0.3-0.8
Date Collected: 07/19/21 15:10
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-9
Matrix: Solid
Percent Solids: 81.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.065**	**J**	0.22	0.034	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluoroheptanoic acid (PFHpA)	**0.047**	**J I**	0.22	0.042	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.058	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.024	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.053	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.023	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.041	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.042	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorohexanesulfonic acid (PFHxS)	**0.097**	**J**	0.22	0.032	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Perfluorooctanesulfonic acid (PFOS)	**0.22**	**I**	0.22	0.047	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.22	0.025	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.22	0.053	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.038	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.22	0.045	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.034	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.043	ug/Kg	☼	07/26/21 18:34	07/29/21 00:03	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C4 PFHpA	*85*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C5 PFNA	*84*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C2 PFUnA	*88*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C2 PFDoA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C2 PFTeDA	*77*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C3 PFBS	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
18O2 PFHxS	*84*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C4 PFOS	*81*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
d3-NMeFOSAA	*76*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
d5-NEtFOSAA	*81*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*
13C3 HFPO-DA	*89*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:03*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**18.7**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**81.3**		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB12-15.0-16.0
Date Collected: 07/19/21 16:48
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-10
Matrix: Solid
Percent Solids: 77.1

Method: EPA 537(Mod) - 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	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.048	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.067	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.028	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.060	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.053	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.038	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorotridecanoic acid (PFTriA)	ND		0.25	0.026	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.047	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.048	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.037	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.054	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.25	0.029	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.25	0.060	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.25	0.044	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.052	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.25	0.039	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.049	ug/Kg	☼	07/26/21 18:34	07/29/21 00:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C4 PFHpA	*73*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C4 PFOA	*75*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C5 PFNA	*72*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C2 PFDA	*75*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C2 PFUnA	*78*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C2 PFDoA	*73*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C2 PFTeDA	*76*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C3 PFBS	*71*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
18O2 PFHxS	*74*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C4 PFOS	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
d5-NEtFOSAA	*74*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:12*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**22.9**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**77.1**		0.1	0.1	%			07/26/21 12:38	1

Client Sample ID: SB-121-15.0-16.0
Date Collected: 07/19/21 16:58
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-11
Matrix: Solid
Percent Solids: 75.3

Method: EPA 537(Mod) - 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	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.045	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.063	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.026	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.057	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.050	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.036	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.025	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.044	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.045	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.034	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.24	0.051	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.24	0.027	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.24	0.057	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.042	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.049	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.037	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.046	ug/Kg	☼	07/26/21 18:34	07/29/21 00:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C4 PFHpA	*75*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C4 PFOA	*72*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C5 PFNA	*73*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C2 PFDA	*70*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C2 PFUnA	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C2 PFDoA	*70*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C2 PFTeDA	*64*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C3 PFBS	*68*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
18O2 PFHxS	*72*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C4 PFOS	*77*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
d5-NEtFOSAA	*77*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*
13C3 HFPO-DA	*78*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:21*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**24.7**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**75.3**		0.1	0.1	%			07/26/21 12:38	1

Client Sample ID: SB-12-35.0-35.7

Date Collected: 07/19/21 17:06
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-12

Matrix: Solid
Percent Solids: 92.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.035	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.041	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.031	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg	☼	07/26/21 18:34	07/29/21 12:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C4 PFHpA	*81*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C5 PFNA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C2 PFDA	*83*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C2 PFUnA	*88*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C2 PFDoA	*83*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C3 PFBS	*72*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
18O2 PFHxS	*78*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
d3-NMeFOSAA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
d5-NEtFOSAA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*07/26/21 18:34*	*07/29/21 12:16*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.3**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**92.7**		0.1	0.1	%			07/26/21 12:38	1

Client Sample ID: SB-12-40.0-40.6

Date Collected: 07/19/21 18:32
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-13

Matrix: Solid
Percent Solids: 90.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.034	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.041	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorooctanoic acid (PFOA)	ND		0.22	0.058	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorononanoic acid (PFNA)	ND		0.22	0.024	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorodecanoic acid (PFDA)	ND		0.22	0.052	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.046	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.033	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.023	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.040	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.041	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.032	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.22	0.047	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.22	0.025	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.22	0.052	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.22	0.038	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.22	0.045	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.22	0.034	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.042	ug/Kg	☼	07/26/21 18:34	07/29/21 00:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C4 PFHpA	*88*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C4 PFOA	*84*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C5 PFNA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C2 PFDA	*79*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C2 PFUnA	*86*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C2 PFDoA	*86*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C2 PFTeDA	*76*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C3 PFBS	*76*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
18O2 PFHxS	*77*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C4 PFOS	*81*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
d5-NEtFOSAA	*86*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/26/21 18:34*	*07/29/21 00:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**10**		0.1	0.1	%			07/26/21 12:38	1
Percent Solids	**90.0**		0.1	0.1	%			07/26/21 12:38	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Method: EPA 537(Mod) - 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)
320-76677-1	SB10-26.8-32.0	96	83	92	85	80	90	81	73
320-76677-1 MS	SB10-26.8-32.0	90	84	83	81	82	89	79	80
320-76677-1 MSD	SB10-26.8-32.0	95	84	89	82	83	94	85	85
320-76677-2	SB101-26.8-32.0	89	79	83	84	84	89	78	79
320-76677-3	SB10-36.0-37.1	80	76	76	76	74	84	74	66
320-76677-4	SB11-0.3-1.2	70	68	69	70	64	71	71	63
320-76677-5	SB11-2.3-3.3	94	85	83	82	89	94	89	93
320-76677-6	SB111-2.3-3.3	81	71	71	71	77	77	73	75
320-76677-7	SB11-22.5-25.4	91	86	82	83	82	89	78	81
320-76677-8	SB11-31.4-32.0	92	82	86	80	83	91	87	79
320-76677-9	SB12-0.3-0.8	96	85	85	84	83	88	82	77
320-76677-10	SB12-15.0-16.0	83	73	75	72	75	78	73	76
320-76677-11	SB-121-15.0-16.0	82	75	72	73	70	79	70	64
320-76677-12	SB-12-35.0-35.7	88	81	85	82	83	88	83	79
320-76677-13	SB-12-40.0-40.6	94	88	84	82	79	86	86	76
LCS 320-510461/2-A	Lab Control Sample	89	77	82	79	77	82	76	80
MB 320-510461/1-A	Method Blank	92	86	77	83	81	90	82	79

		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)
320-76677-1	SB10-26.8-32.0	80	85	87	86	89	84
320-76677-1 MS	SB10-26.8-32.0	72	82	84	85	86	82
320-76677-1 MSD	SB10-26.8-32.0	76	80	95	89	98	84
320-76677-2	SB101-26.8-32.0	81	81	91	89	91	80
320-76677-3	SB10-36.0-37.1	65	70	76	76	84	75
320-76677-4	SB11-0.3-1.2	66	69	73	63	70	66
320-76677-5	SB11-2.3-3.3	82	78	90	96	85	84
320-76677-6	SB111-2.3-3.3	68	75	81	66	70	70
320-76677-7	SB11-22.5-25.4	78	79	84	79	88	82
320-76677-8	SB11-31.4-32.0	79	80	89	84	81	80
320-76677-9	SB12-0.3-0.8	79	84	81	76	81	89
320-76677-10	SB12-15.0-16.0	71	74	82	73	74	79
320-76677-11	SB-121-15.0-16.0	68	72	77	73	77	78
320-76677-12	SB-12-35.0-35.7	72	78	88	82	82	80
320-76677-13	SB-12-40.0-40.6	76	77	81	80	86	82
LCS 320-510461/2-A	Lab Control Sample	75	83	88	80	76	77
MB 320-510461/1-A	Method Blank	75	81	87	74	83	82

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

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-510461/1-A
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 510461

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.0232	J	0.20	0.023	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.035	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.041	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.031	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		07/26/21 18:34	07/28/21 03:48	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C4 PFHpA	*86*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C4 PFOA	*77*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C2 PFDA	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C2 PFUnA	*90*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C2 PFDoA	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C3 PFBS	*75*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
18O2 PFHxS	*81*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C4 PFOS	*87*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
d3-NMeFOSAA	*74*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
d5-NEtFOSAA	*83*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/26/21 18:34*	*07/28/21 03:48*	*1*

Lab Sample ID: LCS 320-510461/2-A
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510461

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	1.95		ug/Kg		98	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	2.17		ug/Kg		108	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.05		ug/Kg		102	69 - 133
Perfluorononanoic acid (PFNA)	2.00	2.04		ug/Kg		102	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-510461/2-A
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 510461

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	2.00	2.01		ug/Kg		101	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.10		ug/Kg		105	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	2.16		ug/Kg		108	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	2.18		ug/Kg		109	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.90		ug/Kg		95	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.99		ug/Kg		112	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.83		ug/Kg		100	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.78		ug/Kg		96	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.08		ug/Kg		104	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.21		ug/Kg		110	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.74		ug/Kg		94	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	1.90		ug/Kg		95	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.62		ug/Kg		86	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.74		ug/Kg		93	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*89*		*50 - 150*
13C4 PFHpA	*77*		*50 - 150*
13C4 PFOA	*82*		*50 - 150*
13C5 PFNA	*79*		*50 - 150*
13C2 PFDA	*77*		*50 - 150*
13C2 PFUnA	*82*		*50 - 150*
13C2 PFDoA	*76*		*50 - 150*
13C2 PFTeDA	*80*		*50 - 150*
13C3 PFBS	*75*		*50 - 150*
18O2 PFHxS	*83*		*50 - 150*
13C4 PFOS	*88*		*50 - 150*
d3-NMeFOSAA	*80*		*50 - 150*
d5-NEtFOSAA	*76*		*50 - 150*
13C3 HFPO-DA	*77*		*50 - 150*

Lab Sample ID: 320-76677-1 MS
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: SB10-26.8-32.0
Prep Type: Total/NA
Prep Batch: 510461

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND		2.04	1.94		ug/Kg	☼	95	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		2.04	2.21		ug/Kg	☼	108	71 - 131
Perfluorooctanoic acid (PFOA)	ND		2.04	2.03		ug/Kg	☼	100	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76677-1 MS
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: SB10-26.8-32.0
Prep Type: Total/NA
Prep Batch: 510461

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	ND		2.04	2.07		ug/Kg	☼	102	72 - 129
Perfluorodecanoic acid (PFDA)	ND		2.04	2.07		ug/Kg	☼	102	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND		2.04	2.28		ug/Kg	☼	112	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		2.04	2.22		ug/Kg	☼	109	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		2.04	2.19		ug/Kg	☼	108	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		2.04	1.98		ug/Kg	☼	97	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND		1.80	1.86		ug/Kg	☼	103	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	ND		1.85	1.71		ug/Kg	☼	93	67 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		1.89	1.97		ug/Kg	☼	104	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.04	2.19		ug/Kg	☼	108	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.04	2.02		ug/Kg	☼	99	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.90	1.82		ug/Kg	☼	96	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.04	1.81		ug/Kg	☼	89	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.92	1.72		ug/Kg	☼	90	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.92	1.91		ug/Kg	☼	100	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*90*		*50 - 150*
13C4 PFHpA	*84*		*50 - 150*
13C4 PFOA	*83*		*50 - 150*
13C5 PFNA	*81*		*50 - 150*
13C2 PFDA	*82*		*50 - 150*
13C2 PFUnA	*89*		*50 - 150*
13C2 PFDoA	*79*		*50 - 150*
13C2 PFTeDA	*80*		*50 - 150*
13C3 PFBS	*72*		*50 - 150*
18O2 PFHxS	*82*		*50 - 150*
13C4 PFOS	*84*		*50 - 150*
d3-NMeFOSAA	*85*		*50 - 150*
d5-NEtFOSAA	*86*		*50 - 150*
13C3 HFPO-DA	*82*		*50 - 150*

Lab Sample ID: 320-76677-1 MSD
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: SB10-26.8-32.0
Prep Type: Total/NA
Prep Batch: 510461

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND		2.13	2.15		ug/Kg	☼	101	70 - 132	10	30
Perfluoroheptanoic acid (PFHpA)	ND		2.13	2.25		ug/Kg	☼	105	71 - 131	2	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76677-1 MSD
Matrix: Solid
Analysis Batch: 510877

Client Sample ID: SB10-26.8-32.0
Prep Type: Total/NA
Prep Batch: 510461

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	ND		2.13	2.22		ug/Kg	☼	104	69 - 133	9	30
Perfluorononanoic acid (PFNA)	ND		2.13	2.46		ug/Kg	☼	115	72 - 129	17	30
Perfluorodecanoic acid (PFDA)	ND		2.13	2.15		ug/Kg	☼	101	69 - 133	4	30
Perfluoroundecanoic acid (PFUnA)	ND		2.13	2.35		ug/Kg	☼	110	64 - 136	3	30
Perfluorododecanoic acid (PFDoA)	ND		2.13	2.13		ug/Kg	☼	100	69 - 135	4	30
Perfluorotridecanoic acid (PFTriA)	ND		2.13	2.21		ug/Kg	☼	104	66 - 139	1	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.13	2.07		ug/Kg	☼	97	69 - 133	5	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.88	2.06		ug/Kg	☼	109	72 - 128	10	30
Perfluorohexanesulfonic acid (PFHxS)	ND		1.94	1.99		ug/Kg	☼	103	67 - 130	15	30
Perfluorooctanesulfonic acid (PFOS)	ND		1.98	1.94		ug/Kg	☼	98	68 - 136	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.13	2.40		ug/Kg	☼	112	63 - 144	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.13	1.93		ug/Kg	☼	91	61 - 139	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.99	1.86		ug/Kg	☼	93	75 - 135	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.13	2.10		ug/Kg	☼	99	77 - 137	15	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.01	1.67		ug/Kg	☼	83	76 - 136	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.01	1.83		ug/Kg	☼	91	79 - 139	4	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*95*		*50 - 150*
13C4 PFHpA	*84*		*50 - 150*
13C4 PFOA	*89*		*50 - 150*
13C5 PFNA	*82*		*50 - 150*
13C2 PFDA	*83*		*50 - 150*
13C2 PFUnA	*94*		*50 - 150*
13C2 PFDoA	*85*		*50 - 150*
13C2 PFTeDA	*85*		*50 - 150*
13C3 PFBS	*76*		*50 - 150*
18O2 PFHxS	*80*		*50 - 150*
13C4 PFOS	*95*		*50 - 150*
d3-NMeFOSAA	*89*		*50 - 150*
d5-NEtFOSAA	*98*		*50 - 150*
13C3 HFPO-DA	*84*		*50 - 150*

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

LCMS

Prep Batch: 510461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76677-1	SB10-26.8-32.0	Total/NA	Solid	SHAKE	
320-76677-2	SB101-26.8-32.0	Total/NA	Solid	SHAKE	
320-76677-3	SB10-36.0-37.1	Total/NA	Solid	SHAKE	
320-76677-4	SB11-0.3-1.2	Total/NA	Solid	SHAKE	
320-76677-5	SB11-2.3-3.3	Total/NA	Solid	SHAKE	
320-76677-6	SB111-2.3-3.3	Total/NA	Solid	SHAKE	
320-76677-7	SB11-22.5-25.4	Total/NA	Solid	SHAKE	
320-76677-8	SB11-31.4-32.0	Total/NA	Solid	SHAKE	
320-76677-9	SB12-0.3-0.8	Total/NA	Solid	SHAKE	
320-76677-10	SB12-15.0-16.0	Total/NA	Solid	SHAKE	
320-76677-11	SB-121-15.0-16.0	Total/NA	Solid	SHAKE	
320-76677-12	SB-12-35.0-35.7	Total/NA	Solid	SHAKE	
320-76677-13	SB-12-40.0-40.6	Total/NA	Solid	SHAKE	
MB 320-510461/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-510461/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76677-1 MS	SB10-26.8-32.0	Total/NA	Solid	SHAKE	
320-76677-1 MSD	SB10-26.8-32.0	Total/NA	Solid	SHAKE	

Analysis Batch: 510877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76677-1	SB10-26.8-32.0	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-2	SB101-26.8-32.0	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-3	SB10-36.0-37.1	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-4	SB11-0.3-1.2	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-5	SB11-2.3-3.3	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-6	SB111-2.3-3.3	Total/NA	Solid	EPA 537(Mod)	510461
MB 320-510461/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	510461
LCS 320-510461/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-1 MS	SB10-26.8-32.0	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-1 MSD	SB10-26.8-32.0	Total/NA	Solid	EPA 537(Mod)	510461

Analysis Batch: 511152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76677-7	SB11-22.5-25.4	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-9	SB12-0.3-0.8	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-10	SB12-15.0-16.0	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-11	SB-121-15.0-16.0	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-13	SB-12-40.0-40.6	Total/NA	Solid	EPA 537(Mod)	510461

Analysis Batch: 511264

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76677-8	SB11-31.4-32.0	Total/NA	Solid	EPA 537(Mod)	510461
320-76677-12	SB-12-35.0-35.7	Total/NA	Solid	EPA 537(Mod)	510461

General Chemistry

Analysis Batch: 510292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76677-1	SB10-26.8-32.0	Total/NA	Solid	D 2216	
320-76677-2	SB101-26.8-32.0	Total/NA	Solid	D 2216	
320-76677-3	SB10-36.0-37.1	Total/NA	Solid	D 2216	

General Chemistry (Continued)

Analysis Batch: 510292 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76677-4	SB11-0.3-1.2	Total/NA	Solid	D 2216	
320-76677-5	SB11-2.3-3.3	Total/NA	Solid	D 2216	
320-76677-6	SB111-2.3-3.3	Total/NA	Solid	D 2216	
320-76677-7	SB11-22.5-25.4	Total/NA	Solid	D 2216	
320-76677-8	SB11-31.4-32.0	Total/NA	Solid	D 2216	
320-76677-9	SB12-0.3-0.8	Total/NA	Solid	D 2216	
320-76677-10	SB12-15.0-16.0	Total/NA	Solid	D 2216	
320-76677-11	SB-121-15.0-16.0	Total/NA	Solid	D 2216	
320-76677-12	SB-12-35.0-35.7	Total/NA	Solid	D 2216	
320-76677-13	SB-12-40.0-40.6	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB10-26.8-32.0
Lab Sample ID: 320-76677-1
Date Collected: 07/15/21 13:26
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB10-26.8-32.0
Lab Sample ID: 320-76677-1
Date Collected: 07/15/21 13:26
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 92.7

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	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			510877	07/28/21 04:07	K1S	TAL SAC

Client Sample ID: SB101-26.8-32.0
Lab Sample ID: 320-76677-2
Date Collected: 07/15/21 13:36
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB101-26.8-32.0
Lab Sample ID: 320-76677-2
Date Collected: 07/15/21 13:36
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 90.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.59 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			510877	07/28/21 04:35	K1S	TAL SAC

Client Sample ID: SB10-36.0-37.1
Lab Sample ID: 320-76677-3
Date Collected: 07/15/21 16:59
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB10-36.0-37.1
Lab Sample ID: 320-76677-3
Date Collected: 07/15/21 16:59
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.30 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			510877	07/28/21 04:45	K1S	TAL SAC

Client Sample ID: SB11-0.3-1.2
Lab Sample ID: 320-76677-4
Date Collected: 07/17/21 09:34
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB11-0.3-1.2
Lab Sample ID: 320-76677-4
Date Collected: 07/17/21 09:34
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.17 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			510877	07/28/21 04:54	K1S	TAL SAC

Client Sample ID: SB11-2.3-3.3
Lab Sample ID: 320-76677-5
Date Collected: 07/17/21 10:58
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB11-2.3-3.3
Lab Sample ID: 320-76677-5
Date Collected: 07/17/21 10:58
Matrix: Solid
Date Received: 07/23/21 11:22
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			5.13 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			510877	07/28/21 05:03	K1S	TAL SAC

Client Sample ID: SB111-2.3-3.3
Lab Sample ID: 320-76677-6
Date Collected: 07/17/21 10:48
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB111-2.3-3.3
Lab Sample ID: 320-76677-6
Date Collected: 07/17/21 10:48
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 82.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.30 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			510877	07/28/21 05:13	K1S	TAL SAC

Client Sample ID: SB11-22.5-25.4
Lab Sample ID: 320-76677-7
Date Collected: 07/17/21 13:36
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB11-22.5-25.4
Lab Sample ID: 320-76677-7
Date Collected: 07/17/21 13:36
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 90.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.35 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511152	07/28/21 23:44	S1M	TAL SAC

Client Sample ID: SB11-31.4-32.0
Lab Sample ID: 320-76677-8
Date Collected: 07/17/21 15:08
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB11-31.4-32.0
Lab Sample ID: 320-76677-8
Date Collected: 07/17/21 15:08
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 88.5

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.54 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511264	07/29/21 12:07	GWO	TAL SAC

Client Sample ID: SB12-0.3-0.8
Lab Sample ID: 320-76677-9
Date Collected: 07/19/21 15:10
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB12-0.3-0.8
Lab Sample ID: 320-76677-9
Date Collected: 07/19/21 15:10
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 81.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.61 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511152	07/29/21 00:03	S1M	TAL SAC

Client Sample ID: SB12-15.0-16.0
Lab Sample ID: 320-76677-10
Date Collected: 07/19/21 16:48
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB12-15.0-16.0
Lab Sample ID: 320-76677-10
Date Collected: 07/19/21 16:48
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 77.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.15 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511152	07/29/21 00:12	S1M	TAL SAC

Client Sample ID: SB-121-15.0-16.0
Lab Sample ID: 320-76677-11
Date Collected: 07/19/21 16:58
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB-121-15.0-16.0
Lab Sample ID: 320-76677-11
Date Collected: 07/19/21 16:58
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 75.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.59 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511152	07/29/21 00:21	S1M	TAL SAC

Client Sample ID: SB-12-35.0-35.7
Lab Sample ID: 320-76677-12
Date Collected: 07/19/21 17:06
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Client Sample ID: SB-12-35.0-35.7
Lab Sample ID: 320-76677-12
Date Collected: 07/19/21 17:06
Matrix: Solid
Date Received: 07/23/21 11:22
Percent Solids: 92.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.41 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511264	07/29/21 12:16	GWO	TAL SAC

Client Sample ID: SB-12-40.0-40.6
Lab Sample ID: 320-76677-13
Date Collected: 07/19/21 18:32
Matrix: Solid
Date Received: 07/23/21 11:22

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			510292	07/26/21 12:38	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Client Sample ID: SB-12-40.0-40.6
Date Collected: 07/19/21 18:32
Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-13
Matrix: Solid
Percent Solids: 90.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.11 g	10.0 mL	510461	07/26/21 18:34	AM	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511152	07/29/21 00:40	S1M	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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 Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76677-1	SB10-26.8-32.0	Solid	07/15/21 13:26	07/23/21 11:22
320-76677-2	SB101-26.8-32.0	Solid	07/15/21 13:36	07/23/21 11:22
320-76677-3	SB10-36.0-37.1	Solid	07/15/21 16:59	07/23/21 11:22
320-76677-4	SB11-0.3-1.2	Solid	07/17/21 09:34	07/23/21 11:22
320-76677-5	SB11-2.3-3.3	Solid	07/17/21 10:58	07/23/21 11:22
320-76677-6	SB111-2.3-3.3	Solid	07/17/21 10:48	07/23/21 11:22
320-76677-7	SB11-22.5-25.4	Solid	07/17/21 13:36	07/23/21 11:22
320-76677-8	SB11-31.4-32.0	Solid	07/17/21 15:08	07/23/21 11:22
320-76677-9	SB12-0.3-0.8	Solid	07/19/21 15:10	07/23/21 11:22
320-76677-10	SB12-15.0-16.0	Solid	07/19/21 16:48	07/23/21 11:22
320-76677-11	SB-121-15.0-16.0	Solid	07/19/21 16:58	07/23/21 11:22
320-76677-12	SB-12-35.0-35.7	Solid	07/19/21 17:06	07/23/21 11:22
320-76677-13	SB-12-40.0-40.6	Solid	07/19/21 18:32	07/23/21 11:22

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Acklucker

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	MSA Number: TBD
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB10-26.8-32.0		1326	7/1/21	X	1	soil
SB101-26.8-32.0		1336	↓	X		
SB10-36.0-37.1		1659	↓	X		
SB11-0.3-1.2		0934	7/7/21	X		
SB11-2.3-3.3		1058		X		
SB111-2.3-3.3		1048		X		
SB11-22.5-25.4		1336		X		
SB11-31.4-32.0		1508	↓	X		
SB12-0.3-0.8		1510	7/9/21	X		
SB12-15.0-16.0		1648	↓	X	↓	↓

320-76677 Chain of Custody

Project Information	
Number:	102581-009
Name:	DLG-PFAS
Contact:	Marcy Nadel
Ongoing Project?	Yes [X] No [ ]
Sampler:	DHF

Sample Receipt	
Total No. of Containers:	13
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	goldstreak

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature:	Signature:	Signature:
Time: 1500	Time: 1122	Time:
Printed Name: Veselina Yakimova	Printed Name: Salvador Oropeza	Printed Name:
Date: 7/22/21	Date: 7/23/21	Date:
Company: Shannon & Wilson	Company: ESDAC	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature:	Signature:	Signature:
Time: 1122	Time:	Time:
Printed Name: Salvador Oropeza	Printed Name:	Printed Name:
Date: 7/23/21	Date:	Date:
Company: ESDAC	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.5°C

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Alletucker

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	MSA Number: TBD
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS+18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB-121-15.0-16.0		1658	7/19/21	X	2	soil
SB-12-35.0-35.7		1706	7/19/21	X	↓	↓
SB-12-40.0-40.6		1832	7/19/21	X	↓	↓

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	13
Name:	DLG PFAS	COC Seals/Intact? Y/N/NA	
Contact:	Marey Nadeau	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	DAF	Delivery Method:	goldstreak

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1500	Signature: [signature] Time: 1122	Signature: So 7/23/21 Time:
Printed Name: Veselina Yakimova Date: 7/22/21	Printed Name: Salvador Arpeza Date: 7/23/21	Printed Name: Date:
Company: Shannon & Wilson	Company: ETASac So 7/23/21	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 1122	Signature: Time:	Signature: Time:
Printed Name: Salvador Arpeza Date: 7/23/21	Printed Name: Date:	Printed Name: Date:
Company: ETASac	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

3.5c No.

7/31/2021

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76677-1

Login Number: 76677
List Number: 1
Creator: Cahill, Nicholas P

List Source: Eurofins TestAmerica, 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.	True	SEAL
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	gel packs only
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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 11, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Environment Testing

Laboratory Report Number:

320-76677-1

Laboratory Report Date:

July 31, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76677-1

Laboratory Report Date:

July 31, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   Samples were received at 3.5°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

   Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

No discrepancies were noted.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Method EPA 537(Mod): The transition mass ratio for several analytes was outside of the established ratio limits in one or more samples. The "I" flag was applied to affected results.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The qualitative identification of an analyte has some degree of uncertainty, and the reported values may have some high bias. However, analyst judgment was used to positively identify the affected analytes.

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5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

The data quality/usability is not affected; see above.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) was detected at an estimated concentration in the method blank sample associated with preparation batch 320-510461.

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iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

NMeFOSAA was not detected in any of the project samples associated with this work order. The results are therefore unaffected by the method blank detection.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Data qualification was unnecessary; see above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

An LCS was reported with preparation batch 320-510461. See MS/MSD discussion for assessment of method precision.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

An LCSD was not reported; method precision is assessed in section 6.d.iv.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy was demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

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ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

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v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *SB10-26.8-32.0 / SB101-26.8-32.0, SB11-2.3-3.3 / SB111-2.3-3.3,* and *SB12-15.0-16.0 / SB-121-15.0-16.0* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

PFAS were not detected in the field duplicate pairs *SB10-26.8-32.0 / SB101-26.8-32.0* and *SB12-15.0-16.0 / SB-121-15.0-16.0*; therefore, the relative precision could not be assessed.

The relative precision demonstrated between the detected results of the field duplicate samples *SB11-2.3-3.3* and *SB111-2.3-3.3* was within the recommended DQO of 50% for all analytes, except perfluorooctanesulfonic acid (PFOS) and perfluorodecanoic acid (PFDA).

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

The PFOS and PFDA results of the field duplicate samples *SB11-2.3-3.3* and *SB111-2.3-3.3* are considered estimated due to the RPD failures. Detected results are flagged ‘J’ while non-detect results ‘UJ’ to identify the imprecision.

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g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

The transition mass ratio was outside of established limits for the perfluoroundecanoic acid (PFUnA) result of sample *SB111-2.3-3.3* and the PFOS and perfluoroheptanoic acid (PFHpA) results of sample *SB12-0.3-0.8*. The affected results in the aforementioned samples are considered estimated and have been flagged 'J' to identify the uncertainty.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76864-1
Client Project/Site: DLG-PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
8/8/2021 6:24:51 AM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Job ID: 320-76864-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-76864-1

Receipt
The samples were received on 7/28/2021 3:23 PM. 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 4.6º C.

LCMS
Method EPA 537(Mod): Results for sampleSB13-0-0.5 (320-76864-1) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method EPA 537(Mod): The low level continuing calibration verification (CCVL) associated with batch 320-512078 recovered above the upper control limit for Hexafluoropropylene Oxide Dimer Acid (HFPO-DA). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. SB13-0-0.5 (320-76864-1), SB13-35-37.5 (320-76864-3), SB13-135-137.5 (320-76864-4), SB14-0-0.8 (320-76864-5), SB14-40.6-41.8 (320-76864-6), SB14-140.6-141.8 (320-76864-7) and (CCVL 320-512078/2)

Method EPA 537(Mod): The “I” qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limit. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgement was used to positively identify the analyte.
SB13-10.9-11.4 (320-76864-2)

Method EPA 537(Mod): The matrix spike (MS) recoveries for DONA preparation batch 320-511701 and analytical batch 320-512447 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: (320-76864-A-8-B MS). 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 sample.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-0-0.5 — Lab Sample ID: 320-76864-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.26		0.20	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.12	J	0.20	0.053	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.21		0.20	0.038	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.5		0.20	0.029	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	32		1.0	0.22	ug/Kg	5	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB13-10.9-11.4 — Lab Sample ID: 320-76864-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	6.4		0.33	0.051	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.5		0.33	0.063	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.5		0.33	0.088	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.57		0.33	0.063	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	25		0.33	0.048	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.6	I	0.33	0.071	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB13-35-37.5 — Lab Sample ID: 320-76864-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.042	J	0.21	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.15	J	0.21	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.38		0.21	0.045	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB13-135-137.5 — Lab Sample ID: 320-76864-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.054	J	0.21	0.033	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.16	J	0.21	0.031	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.35		0.21	0.046	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB14-0-0.8 — Lab Sample ID: 320-76864-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.037	J	0.19	0.030	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.28		0.19	0.028	ug/Kg	1	☼	EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.5		0.19	0.042	ug/Kg	1	☼	EPA 537(Mod)	Total/NA

Client Sample ID: SB14-40.6-41.8 — Lab Sample ID: 320-76864-6

No Detections.

Client Sample ID: SB14-140.6-141.8 — Lab Sample ID: 320-76864-7

No Detections.

Client Sample ID: SB14-21.2-21.7 — Lab Sample ID: 320-76864-8

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-0-0.5
Date Collected: 07/22/21 08:25
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-1
Matrix: Solid
Percent Solids: 95.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.26**		0.20	0.031	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorooctanoic acid (PFOA)	**0.12**	**J**	0.20	0.053	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorobutanesulfonic acid (PFBS)	**0.21**		0.20	0.038	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Perfluorohexanesulfonic acid (PFHxS)	**3.5**		0.20	0.029	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.035	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.041	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.031	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg	☼	07/30/21 11:43	08/01/21 10:55	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*117*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C4 PFHpA	*78*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C4 PFOA	*94*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C5 PFNA	*74*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C2 PFDA	*115*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C2 PFUnA	*96*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C2 PFDoA	*74*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C2 PFTeDA	*77*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C3 PFBS	*99*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
18O2 PFHxS	*92*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C4 PFOS	*99*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
d5-NEtFOSAA	*83*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*
13C3 HFPO-DA	*93*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:55*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**32**		1.0	0.22	ug/Kg	☼	07/30/21 11:43	08/02/21 22:04	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*107*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:04*	*5*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**4.3**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**95.7**		0.1	0.1	%			07/29/21 14:17	1

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-10.9-11.4
Date Collected: 07/22/21 11:15
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-2
Matrix: Solid
Percent Solids: 60.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**6.4**		0.33	0.051	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluoroheptanoic acid (PFHpA)	**1.5**		0.33	0.063	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorooctanoic acid (PFOA)	**3.5**		0.33	0.088	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorononanoic acid (PFNA)	ND		0.33	0.036	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorodecanoic acid (PFDA)	ND		0.33	0.079	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluoroundecanoic acid (PFUnA)	ND		0.33	0.069	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorododecanoic acid (PFDoA)	ND		0.33	0.050	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorotridecanoic acid (PFTriA)	ND		0.33	0.035	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.33	0.061	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorobutanesulfonic acid (PFBS)	**0.57**		0.33	0.063	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorohexanesulfonic acid (PFHxS)	**25**		0.33	0.048	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Perfluorooctanesulfonic acid (PFOS)	**1.6**	I	0.33	0.071	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.33	0.038	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.33	0.079	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.33	0.058	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.33	0.068	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.33	0.051	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.33	0.065	ug/Kg	☼	07/30/21 11:43	08/02/21 22:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*134*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C4 PFHpA	*72*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C4 PFOA	*81*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C5 PFNA	*58*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C2 PFDA	*86*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C2 PFUnA	*76*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C2 PFDoA	*54*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C3 PFBS	*116*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
18O2 PFHxS	*88*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C4 PFOS	*73*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
d3-NMeFOSAA	*59*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
d5-NEtFOSAA	*55*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*
13C3 HFPO-DA	*89*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:13*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**40.0**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**60.0**		0.1	0.1	%			07/29/21 14:17	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-35-37.5
Date Collected: 07/22/21 11:20
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-3
Matrix: Solid
Percent Solids: 92.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.042**	**J**	0.21	0.033	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.056	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.044	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.032	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.039	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorohexanesulfonic acid (PFHxS)	**0.15**	**J**	0.21	0.031	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Perfluorooctanesulfonic acid (PFOS)	**0.38**		0.21	0.045	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21	0.043	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.033	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.041	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C4 PFHpA	*76*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C4 PFOA	*80*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C5 PFNA	*83*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C2 PFDA	*100*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C2 PFUnA	*98*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C2 PFDoA	*84*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C2 PFTeDA	*83*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C4 PFOS	*93*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
d5-NEtFOSAA	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*
13C3 HFPO-DA	*72*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:14*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.8**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**92.2**		0.1	0.1	%			07/29/21 14:17	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-135-137.5
Date Collected: 07/22/21 11:10
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-4
Matrix: Solid
Percent Solids: 93.0

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.054**	**J**	0.21	0.033	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.056	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.045	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.032	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.039	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorohexanesulfonic acid (PFHxS)	**0.16**	**J**	0.21	0.031	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Perfluorooctanesulfonic acid (PFOS)	**0.35**		0.21	0.046	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21	0.043	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.033	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.041	ug/Kg	☼	07/30/21 11:43	08/01/21 11:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C4 PFOA	*84*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C5 PFNA	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C2 PFDA	*99*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C2 PFUnA	*98*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C2 PFDoA	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C2 PFTeDA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C3 PFBS	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C4 PFOS	*99*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
d3-NMeFOSAA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*
13C3 HFPO-DA	*66*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:23*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**7.0**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**93.0**		0.1	0.1	%			07/29/21 14:17	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB14-0-0.8

Date Collected: 07/22/21 12:10
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-5

Matrix: Solid
Percent Solids: 94.2

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.037**	**J**	0.19	0.030	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorooctanoic acid (PFOA)	ND		0.19	0.052	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorononanoic acid (PFNA)	ND		0.19	0.021	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorodecanoic acid (PFDA)	ND		0.19	0.047	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.041	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorododecanoic acid (PFDoA)	ND		0.19	0.029	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19	0.020	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19	0.036	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorohexanesulfonic acid (PFHxS)	**0.28**		0.19	0.028	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Perfluorooctanesulfonic acid (PFOS)	**4.5**		0.19	0.042	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.19	0.022	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.19	0.047	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.19	0.034	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.19	0.040	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.19	0.030	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.038	ug/Kg	☼	07/30/21 11:43	08/01/21 11:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C4 PFHpA	*71*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C4 PFOA	*76*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C5 PFNA	*73*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C2 PFDA	*90*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C2 PFUnA	*90*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C2 PFDoA	*75*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C2 PFTeDA	*71*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C3 PFBS	*77*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
18O2 PFHxS	*73*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C4 PFOS	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*
13C3 HFPO-DA	*68*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:33*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**5.8**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**94.2**		0.1	0.1	%			07/29/21 14:17	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB14-40.6-41.8
Date Collected: 07/22/21 16:25
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-6
Matrix: Solid
Percent Solids: 77.4

Method: EPA 537(Mod) - 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	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluoroheptanoic acid (PFHpA)	ND		0.25	0.048	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorooctanoic acid (PFOA)	ND		0.25	0.067	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorononanoic acid (PFNA)	ND		0.25	0.028	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorodecanoic acid (PFDA)	ND		0.25	0.061	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluoroundecanoic acid (PFUnA)	ND		0.25	0.053	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorododecanoic acid (PFDoA)	ND		0.25	0.038	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorotridecanoic acid (PFTriA)	ND		0.25	0.027	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.25	0.047	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.25	0.048	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.25	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.25	0.054	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.25	0.029	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.25	0.061	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.25	0.044	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25	0.052	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.25	0.039	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.25	0.049	ug/Kg	☼	07/30/21 11:43	08/01/21 11:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*104*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C2 PFDA	*108*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C2 PFUnA	*97*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C2 PFDoA	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C2 PFTeDA	*82*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C3 PFBS	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
18O2 PFHxS	*90*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C4 PFOS	*107*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*
13C3 HFPO-DA	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:42*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**22.6**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**77.4**		0.1	0.1	%			07/29/21 14:17	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB14-140.6-141.8
Date Collected: 07/22/21 16:15
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-7
Matrix: Solid
Percent Solids: 77.7

Method: EPA 537(Mod) - 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	0.038	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.046	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorooctanoic acid (PFOA)	ND		0.24	0.065	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorononanoic acid (PFNA)	ND		0.24	0.027	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorodecanoic acid (PFDA)	ND		0.24	0.059	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.051	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorododecanoic acid (PFDoA)	ND		0.24	0.037	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.026	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.045	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.046	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.035	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.24	0.053	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.24	0.028	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.24	0.059	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.24	0.043	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.050	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.24	0.038	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.048	ug/Kg	☼	07/30/21 11:43	08/01/21 11:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*106*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C4 PFHpA	*96*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C4 PFOA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C5 PFNA	*93*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C2 PFDA	*101*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C2 PFUnA	*95*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C2 PFDoA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C2 PFTeDA	*88*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C3 PFBS	*94*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
18O2 PFHxS	*92*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C4 PFOS	*110*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
d3-NMeFOSAA	*97*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*07/30/21 11:43*	*08/01/21 11:52*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**22.3**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**77.7**		0.1	0.1	%			07/29/21 14:17	1

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB14-21.2-21.7

Date Collected: 07/22/21 16:45
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-8

Matrix: Solid
Percent Solids: 90.3

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.033	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorooctanoic acid (PFOA)	ND		0.21	0.056	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorodecanoic acid (PFDA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.044	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.032	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.039	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.031	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.21	0.045	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.21	0.037	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21	0.043	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.21	0.033	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	F1	0.21	0.041	ug/Kg	☼	07/30/21 11:43	08/02/21 22:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C4 PFHpA	*80*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C4 PFOA	*79*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C2 PFDA	*92*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C2 PFUnA	*96*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C2 PFDoA	*88*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C2 PFTeDA	*88*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C3 PFBS	*80*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
18O2 PFHxS	*79*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C4 PFOS	*93*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
d5-NEtFOSAA	*83*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*
13C3 HFPO-DA	*74*		*50 - 150*	*07/30/21 11:43*	*08/02/21 22:22*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**9.7**		0.1	0.1	%			07/29/21 14:17	1
Percent Solids	**90.3**		0.1	0.1	%			07/29/21 14:17	1

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
320-76864-1	SB13-0-0.5	117	78	94	74	115	96	74	77
320-76864-1 - DL	SB13-0-0.5								
320-76864-2	SB13-10.9-11.4	134	72	81	58	86	76	54	71
320-76864-3	SB13-35-37.5	95	76	80	83	100	98	84	83
320-76864-4	SB13-135-137.5	94	79	84	86	99	98	85	89
320-76864-5	SB14-0-0.8	91	71	76	73	90	90	75	71
320-76864-6	SB14-40.6-41.8	104	89	95	90	108	97	86	82
320-76864-7	SB14-140.6-141.8	106	96	89	93	101	95	89	88
320-76864-8	SB14-21.2-21.7	96	80	79	85	92	96	88	88
320-76864-8 MS	SB14-21.2-21.7	62	53	55	58	59	61	58	51
320-76864-8 MSD	SB14-21.2-21.7	90	78	82	81	92	91	86	77
LCS 320-511701/2-A	Lab Control Sample	100	94	87	97	99	99	95	95
MB 320-511701/1-A	Method Blank	89	78	83	85	94	88	86	85

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-76864-1	SB13-0-0.5	99	92	99	89	83	93		
320-76864-1 - DL	SB13-0-0.5			107					
320-76864-2	SB13-10.9-11.4	116	88	73	59	55	89		
320-76864-3	SB13-35-37.5	80	85	93	79	86	72		
320-76864-4	SB13-135-137.5	85	86	99	89	94	66		
320-76864-5	SB14-0-0.8	77	73	85	90	87	68		
320-76864-6	SB14-40.6-41.8	85	90	107	93	91	86		
320-76864-7	SB14-140.6-141.8	94	92	110	97	97	84		
320-76864-8	SB14-21.2-21.7	80	79	93	84	83	74		
320-76864-8 MS	SB14-21.2-21.7	57	58	65	49 *5-	60	49 *5-		
320-76864-8 MSD	SB14-21.2-21.7	85	84	92	78	83	72		
LCS 320-511701/2-A	Lab Control Sample	88	88	97	96	87	78		
MB 320-511701/1-A	Method Blank	83	86	88	86	94	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

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-511701/1-A
Matrix: Solid
Analysis Batch: 512078

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 511701

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.038	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorooctanoic acid (PFOA)	ND		0.20	0.053	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorononanoic acid (PFNA)	ND		0.20	0.022	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorodecanoic acid (PFDA)	ND		0.20	0.048	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.042	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.030	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.021	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.037	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.038	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.029	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.20	0.043	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		0.20	0.035	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.041	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		0.20	0.031	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg		07/30/21 11:43	08/01/21 10:27	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C4 PFHpA	*78*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C4 PFOA	*83*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C5 PFNA	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C2 PFDA	*94*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C2 PFUnA	*88*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C2 PFDoA	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C2 PFTeDA	*85*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C3 PFBS	*83*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
18O2 PFHxS	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C4 PFOS	*88*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
d3-NMeFOSAA	*86*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*
13C3 HFPO-DA	*73*		*50 - 150*	*07/30/21 11:43*	*08/01/21 10:27*	*1*

Lab Sample ID: LCS 320-511701/2-A
Matrix: Solid
Analysis Batch: 512447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 511701

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	2.00	1.71		ug/Kg		86	70 - 132
Perfluoroheptanoic acid (PFHpA)	2.00	1.85		ug/Kg		92	71 - 131
Perfluorooctanoic acid (PFOA)	2.00	2.01		ug/Kg		101	69 - 133
Perfluorononanoic acid (PFNA)	2.00	1.87		ug/Kg		93	72 - 129

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-511701/2-A
Matrix: Solid
Analysis Batch: 512447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 511701

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	2.00	1.70		ug/Kg		85	69 - 133
Perfluoroundecanoic acid (PFUnA)	2.00	2.03		ug/Kg		102	64 - 136
Perfluorododecanoic acid (PFDoA)	2.00	1.93		ug/Kg		97	69 - 135
Perfluorotridecanoic acid (PFTriA)	2.00	1.89		ug/Kg		95	66 - 139
Perfluorotetradecanoic acid (PFTeA)	2.00	1.83		ug/Kg		92	69 - 133
Perfluorobutanesulfonic acid (PFBS)	1.77	1.72		ug/Kg		97	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.74		ug/Kg		95	67 - 130
Perfluorooctanesulfonic acid (PFOS)	1.86	1.72		ug/Kg		93	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.90		ug/Kg		95	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.06		ug/Kg		103	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	1.86	1.71		ug/Kg		92	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	1.95		ug/Kg		97	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	1.88	1.92		ug/Kg		102	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.67		ug/Kg		88	79 - 139

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*100*		*50 - 150*
13C4 PFHpA	*94*		*50 - 150*
13C4 PFOA	*87*		*50 - 150*
13C5 PFNA	*97*		*50 - 150*
13C2 PFDA	*99*		*50 - 150*
13C2 PFUnA	*99*		*50 - 150*
13C2 PFDoA	*95*		*50 - 150*
13C2 PFTeDA	*95*		*50 - 150*
13C3 PFBS	*88*		*50 - 150*
18O2 PFHxS	*88*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
d3-NMeFOSAA	*96*		*50 - 150*
d5-NEtFOSAA	*87*		*50 - 150*
13C3 HFPO-DA	*78*		*50 - 150*

Lab Sample ID: 320-76864-8 MS
Matrix: Solid
Analysis Batch: 512447

Client Sample ID: SB14-21.2-21.7
Prep Type: Total/NA
Prep Batch: 511701

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	ND		2.17	1.94		ug/Kg	☼	89	70 - 132
Perfluoroheptanoic acid (PFHpA)	ND		2.17	2.07		ug/Kg	☼	95	71 - 131
Perfluorooctanoic acid (PFOA)	ND		2.17	2.14		ug/Kg	☼	99	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76864-8 MS
Matrix: Solid
Analysis Batch: 512447

Client Sample ID: SB14-21.2-21.7
Prep Type: Total/NA
Prep Batch: 511701

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorononanoic acid (PFNA)	ND		2.17	2.02		ug/Kg	☼	93	72 - 129
Perfluorodecanoic acid (PFDA)	ND		2.17	1.95		ug/Kg	☼	90	69 - 133
Perfluoroundecanoic acid (PFUnA)	ND		2.17	2.20		ug/Kg	☼	101	64 - 136
Perfluorododecanoic acid (PFDoA)	ND		2.17	1.93		ug/Kg	☼	89	69 - 135
Perfluorotridecanoic acid (PFTriA)	ND		2.17	2.06		ug/Kg	☼	95	66 - 139
Perfluorotetradecanoic acid (PFTeA)	ND		2.17	2.16		ug/Kg	☼	99	69 - 133
Perfluorobutanesulfonic acid (PFBS)	ND		1.92	1.80		ug/Kg	☼	94	72 - 128
Perfluorohexanesulfonic acid (PFHxS)	ND		1.98	1.82		ug/Kg	☼	92	67 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		2.02	1.89		ug/Kg	☼	94	68 - 136
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.17	2.51		ug/Kg	☼	116	63 - 144
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.17	2.01		ug/Kg	☼	93	61 - 139
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.02	1.75		ug/Kg	☼	86	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.17	2.10		ug/Kg	☼	97	77 - 137
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.05	1.78		ug/Kg	☼	87	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	F1	2.05	1.61	F1	ug/Kg	☼	78	79 - 139

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*62*		*50 - 150*
13C4 PFHpA	*53*		*50 - 150*
13C4 PFOA	*55*		*50 - 150*
13C5 PFNA	*58*		*50 - 150*
13C2 PFDA	*59*		*50 - 150*
13C2 PFUnA	*61*		*50 - 150*
13C2 PFDoA	*58*		*50 - 150*
13C2 PFTeDA	*51*		*50 - 150*
13C3 PFBS	*57*		*50 - 150*
18O2 PFHxS	*58*		*50 - 150*
13C4 PFOS	*65*		*50 - 150*
d3-NMeFOSAA	*49*	*5-	*50 - 150*
d5-NEtFOSAA	*60*		*50 - 150*
13C3 HFPO-DA	*49*	*5-	*50 - 150*

Lab Sample ID: 320-76864-8 MSD
Matrix: Solid
Analysis Batch: 512447

Client Sample ID: SB14-21.2-21.7
Prep Type: Total/NA
Prep Batch: 511701

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	ND		2.18	1.95		ug/Kg	☼	89	70 - 132	0	30
Perfluoroheptanoic acid (PFHpA)	ND		2.18	2.16		ug/Kg	☼	99	71 - 131	4	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76864-8 MSD
Matrix: Solid
Analysis Batch: 512447

Client Sample ID: SB14-21.2-21.7
Prep Type: Total/NA
Prep Batch: 511701

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	ND		2.18	2.08		ug/Kg	☼	95	69 - 133	3	30
Perfluorononanoic acid (PFNA)	ND		2.18	2.18		ug/Kg	☼	100	72 - 129	8	30
Perfluorodecanoic acid (PFDA)	ND		2.18	1.96		ug/Kg	☼	90	69 - 133	0	30
Perfluoroundecanoic acid (PFUnA)	ND		2.18	2.21		ug/Kg	☼	102	64 - 136	1	30
Perfluorododecanoic acid (PFDoA)	ND		2.18	2.09		ug/Kg	☼	96	69 - 135	8	30
Perfluorotridecanoic acid (PFTriA)	ND		2.18	2.13		ug/Kg	☼	98	66 - 139	3	30
Perfluorotetradecanoic acid (PFTeA)	ND		2.18	2.08		ug/Kg	☼	95	69 - 133	4	30
Perfluorobutanesulfonic acid (PFBS)	ND		1.92	1.79		ug/Kg	☼	93	72 - 128	1	30
Perfluorohexanesulfonic acid (PFHxS)	ND		1.98	1.90		ug/Kg	☼	96	67 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	ND		2.02	1.78		ug/Kg	☼	88	68 - 136	6	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.18	2.36		ug/Kg	☼	109	63 - 144	6	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.18	2.12		ug/Kg	☼	97	61 - 139	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.03	1.72		ug/Kg	☼	85	75 - 135	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		2.18	2.08		ug/Kg	☼	96	77 - 137	1	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.05	2.00		ug/Kg	☼	98	76 - 136	12	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	F1	2.05	1.66		ug/Kg	☼	81	79 - 139	4	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*90*		*50 - 150*
13C4 PFHpA	*78*		*50 - 150*
13C4 PFOA	*82*		*50 - 150*
13C5 PFNA	*81*		*50 - 150*
13C2 PFDA	*92*		*50 - 150*
13C2 PFUnA	*91*		*50 - 150*
13C2 PFDoA	*86*		*50 - 150*
13C2 PFTeDA	*77*		*50 - 150*
13C3 PFBS	*85*		*50 - 150*
18O2 PFHxS	*84*		*50 - 150*
13C4 PFOS	*92*		*50 - 150*
d3-NMeFOSAA	*78*		*50 - 150*
d5-NEtFOSAA	*83*		*50 - 150*
13C3 HFPO-DA	*72*		*50 - 150*

QC Sample Results

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76864-1 DU
Matrix: Solid
Analysis Batch: 511355

Client Sample ID: SB13-0-0.5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	4.3			4.9		%				12	20
Percent Solids	95.7			95.1		%				0.6	20

LCMS

Prep Batch: 511701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76864-1	SB13-0-0.5	Total/NA	Solid	SHAKE	
320-76864-1 - DL	SB13-0-0.5	Total/NA	Solid	SHAKE	
320-76864-2	SB13-10.9-11.4	Total/NA	Solid	SHAKE	
320-76864-3	SB13-35-37.5	Total/NA	Solid	SHAKE	
320-76864-4	SB13-135-137.5	Total/NA	Solid	SHAKE	
320-76864-5	SB14-0-0.8	Total/NA	Solid	SHAKE	
320-76864-6	SB14-40.6-41.8	Total/NA	Solid	SHAKE	
320-76864-7	SB14-140.6-141.8	Total/NA	Solid	SHAKE	
320-76864-8	SB14-21.2-21.7	Total/NA	Solid	SHAKE	
MB 320-511701/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-511701/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
320-76864-8 MS	SB14-21.2-21.7	Total/NA	Solid	SHAKE	
320-76864-8 MSD	SB14-21.2-21.7	Total/NA	Solid	SHAKE	

Analysis Batch: 512078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76864-1	SB13-0-0.5	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-3	SB13-35-37.5	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-4	SB13-135-137.5	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-5	SB14-0-0.8	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-6	SB14-40.6-41.8	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-7	SB14-140.6-141.8	Total/NA	Solid	EPA 537(Mod)	511701
MB 320-511701/1-A	Method Blank	Total/NA	Solid	EPA 537(Mod)	511701

Analysis Batch: 512447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76864-1 - DL	SB13-0-0.5	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-2	SB13-10.9-11.4	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-8	SB14-21.2-21.7	Total/NA	Solid	EPA 537(Mod)	511701
LCS 320-511701/2-A	Lab Control Sample	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-8 MS	SB14-21.2-21.7	Total/NA	Solid	EPA 537(Mod)	511701
320-76864-8 MSD	SB14-21.2-21.7	Total/NA	Solid	EPA 537(Mod)	511701

General Chemistry

Analysis Batch: 511355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76864-1	SB13-0-0.5	Total/NA	Solid	D 2216	
320-76864-2	SB13-10.9-11.4	Total/NA	Solid	D 2216	
320-76864-3	SB13-35-37.5	Total/NA	Solid	D 2216	
320-76864-4	SB13-135-137.5	Total/NA	Solid	D 2216	
320-76864-5	SB14-0-0.8	Total/NA	Solid	D 2216	
320-76864-6	SB14-40.6-41.8	Total/NA	Solid	D 2216	
320-76864-7	SB14-140.6-141.8	Total/NA	Solid	D 2216	
320-76864-8	SB14-21.2-21.7	Total/NA	Solid	D 2216	
320-76864-1 DU	SB13-0-0.5	Total/NA	Solid	D 2216	

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-0-0.5
Date Collected: 07/22/21 08:25
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-1
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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB13-0-0.5
Date Collected: 07/22/21 08:25
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-1
Matrix: Solid
Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.22 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512078	08/01/21 10:55	GWO	TAL SAC
Total/NA	Prep	SHAKE	DL		5.22 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	5			512447	08/02/21 22:04	S1M	TAL SAC

Client Sample ID: SB13-10.9-11.4
Date Collected: 07/22/21 11:15
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-2
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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB13-10.9-11.4
Date Collected: 07/22/21 11:15
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-2
Matrix: Solid
Percent Solids: 60.0

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	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512447	08/02/21 22:13	S1M	TAL SAC

Client Sample ID: SB13-35-37.5
Date Collected: 07/22/21 11:20
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-3
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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB13-35-37.5
Date Collected: 07/22/21 11:20
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-3
Matrix: Solid
Percent Solids: 92.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.13 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512078	08/01/21 11:14	GWO	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB13-135-137.5
Lab Sample ID: 320-76864-4
Date Collected: 07/22/21 11:10
Matrix: Solid
Date Received: 07/28/21 15:23

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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB13-135-137.5
Lab Sample ID: 320-76864-4
Date Collected: 07/22/21 11:10
Matrix: Solid
Date Received: 07/28/21 15:23
Percent Solids: 93.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.07 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512078	08/01/21 11:23	GWO	TAL SAC

Client Sample ID: SB14-0-0.8
Lab Sample ID: 320-76864-5
Date Collected: 07/22/21 12:10
Matrix: Solid
Date Received: 07/28/21 15:23

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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB14-0-0.8
Lab Sample ID: 320-76864-5
Date Collected: 07/22/21 12:10
Matrix: Solid
Date Received: 07/28/21 15:23
Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.46 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512078	08/01/21 11:33	GWO	TAL SAC

Client Sample ID: SB14-40.6-41.8
Lab Sample ID: 320-76864-6
Date Collected: 07/22/21 16:25
Matrix: Solid
Date Received: 07/28/21 15:23

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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB14-40.6-41.8
Lab Sample ID: 320-76864-6
Date Collected: 07/22/21 16:25
Matrix: Solid
Date Received: 07/28/21 15:23
Percent Solids: 77.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.10 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512078	08/01/21 11:42	GWO	TAL SAC

Client Sample ID: SB14-140.6-141.8
Lab Sample ID: 320-76864-7
Date Collected: 07/22/21 16:15
Matrix: Solid
Date Received: 07/28/21 15:23

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			511355	07/29/21 14:17	TCS	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Client Sample ID: SB14-140.6-141.8

Lab Sample ID: 320-76864-7
Date Collected: 07/22/21 16:15
Matrix: Solid
Date Received: 07/28/21 15:23
Percent Solids: 77.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.26 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512078	08/01/21 11:52	GWO	TAL SAC

Client Sample ID: SB14-21.2-21.7

Lab Sample ID: 320-76864-8
Date Collected: 07/22/21 16:45
Matrix: Solid
Date Received: 07/28/21 15:23

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			511355	07/29/21 14:17	TCS	TAL SAC

Client Sample ID: SB14-21.2-21.7

Lab Sample ID: 320-76864-8
Date Collected: 07/22/21 16:45
Matrix: Solid
Date Received: 07/28/21 15:23
Percent Solids: 90.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			5.26 g	10.0 mL	511701	07/30/21 11:43	RAC	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			512447	08/02/21 22:22	S1M	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Laboratory: Eurofins TestAmerica, Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

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 Moisture
D 2216		Solid	Percent Solids

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
D 2216	Percent Moisture	ASTM	TAL SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	TAL SAC

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76864-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76864-1	SB13-0-0.5	Solid	07/22/21 08:25	07/28/21 15:23
320-76864-2	SB13-10.9-11.4	Solid	07/22/21 11:15	07/28/21 15:23
320-76864-3	SB13-35-37.5	Solid	07/22/21 11:20	07/28/21 15:23
320-76864-4	SB13-135-137.5	Solid	07/22/21 11:10	07/28/21 15:23
320-76864-5	SB14-0-0.8	Solid	07/22/21 12:10	07/28/21 15:23
320-76864-6	SB14-40.6-41.8	Solid	07/22/21 16:25	07/28/21 15:23
320-76864-7	SB14-140.6-141.8	Solid	07/22/21 16:15	07/28/21 15:23
320-76864-8	SB14-21.2-21.7	Solid	07/22/21 16:45	07/28/21 15:23

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory: Test America
Attn: David Alltucker

Turn Around Time: [X] Normal [ ] Rush
Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18							Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB13-0-0.5		0825	7/22/21	↓							1	Soil
SB13-10.9-11.4		1115	↓	↓							↓	
SB13-35-37.5		1120	↓	↓							↓	
SB13-135-137.5		1110	↓	↓							↓	
SB14-0-0.8		1210	↓	↓							↓	
SB14-40.6-41.8		1625	↓	↓							↓	
SB14-140.6-141.8		1615	↓	↓							↓	
SB14-21.2-21.7		1645	↓	↓							↓	

320-76864 Chain of Custody

Project Information	
Number:	102581-009
Name:	DLG-PFAS
Contact:	Marcy Nadel
Ongoing Project?	Yes [X] No [ ]
Sampler:	VTY, ALP

Sample Receipt	
Total No. of Containers:	8
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	4.6
Delivery Method:	goldstreak

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1000	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/25/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 1323	Signature: Time:	Signature: Time:
Printed Name: David Ha Date: 7/26/21	Printed Name: Date:	Printed Name: Date:
Company: ETA	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No.

8/8/2021

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76864-1

Login Number: 76864
List Number: 1
Creator: Her, David A

List Source: Eurofins TestAmerica, 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.	True	SEAL
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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 11, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Environment Testing

Laboratory Report Number:

320-76864-1

Laboratory Report Date:

August 8, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76864-1

Laboratory Report Date:

August 8, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

Samples were received at 4.6°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

No discrepancies were noted.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The PFAS results for sample *SB13-0-0.5* were reported from the analysis of a diluted extract. The sample was diluted due to the high concentration of one or more target analytes in the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

The low-level continuing calibration verification (CCVL) associated with batch 320-512078 exhibited elevated recovery for Hexafluoropropylene Oxide Dimer Acid (HFPO-DA). The samples associated with this CCVL did not contain detectable concentrations of the affected analytes; therefore, the data have been reported.

The transition mass ratio for perfluorooctanesulfonic acid (PFOS) was outside of the established ratio limit in sample *SB13-10.9-11.4*.

Method EPA 537(Mod): The matrix spike (MS) recovery for DONA preparation batch 320-511701 and analytical batch 320-512447 was outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: (320-76864-A-8-B MS). 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 sample.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

The transition mass ratio was outside of acceptable limits for PFOS in the sample *SB13-10.9-11.4.* The laboratory notes that the qualitative identification of this analyte has some degree of uncertainty and that the reported value may have some high bias.

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5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

The data quality/usability is not affected; see above.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

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iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Target PFAS were not detected in the method blank sample associated with this work order.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

Qualification was not required; see above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

An LCS was reported with preparation batch 320-511701. See MS/MSD discussion for assessment of method precision.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

An LCSD was not reported; method precision is assessed in section 6.d.iv.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy was demonstrated to be within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

The recovery of 4,8-dioxa-3H-perfluorononanoic acid (ADONA) was below the laboratory's lower control limit in the MS sample associated with preparation batch 320-511701.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

The MS sample associated with preparation batch 320-511701 was spiked from the field sample *SB14-21.2-21.7*. The ADONA result of the parent sample may be affected by low method recovery.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

Due to the MS recovery failure, the ADONA result for parent sample *SB14-21.2-21.7* is considered an estimated non-detection and has been flagged 'UJ' for reporting purposes.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is affected; see above.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

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ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The recovery of the IDAs d3-NMeFOSAA and 13C3 HFPO-DA were below the laboratory's lower control limits in the MS sample associated with preparation batch 320-511701.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

IDA recovery failures in laboratory QC samples are not considered to affect data quality if the analytes associated with those IDAs are recovered within acceptable limits.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

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v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *SB13-35-37.5 / SB13-135-137.5* and *SB14-40.6-41.8 / SB14-140.6-141.8* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 50% for all analytes, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.

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i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

The PFOS result of sample *SB13-10.9-11.4* was affected by a transition mass ratio failure. This result has been flagged 'J' to identify the uncertainty.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-76865-1
Client Project/Site: DLG PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
8/11/2021 5:13:48 PM
Jill Kellmann, Client Service Manager
(916)374-4402
Jill.Kellmann@Eurofinset.com

Designee for

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Job ID: 320-76865-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Receipt
The samples were received on 7/28/2021 3:23 PM. 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 4.6º C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): Sample DLG-MW03-45 (320-76865-14), one of the two containers has a date of 7/21/25, however, the COC and 2nd container has a date of 7/25/21. Sample was logged in and labeled according to date on COC.

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-511473.

Method 3535: The following samples were observed to contain a thin layer of sediment at the bottom of the bottle prior to extraction: DLG-MW10-55 (320-76865-1), DLG-MW10-38 (320-76865-2), DLG-MW11-34 (320-76865-3), DLG-MW111-34 (320-76865-4), DLG-MW11-79 (320-76865-5), DLG-MW02-40 (320-76865-8), DLG-MW102-40 (320-76865-9), DLG-MW02-50 (320-76865-10), DLG-MW03-28 (320-76865-11), DLG-MW103-28 (320-76865-12), DLG-MW03-75 (320-76865-13) and DLG-MW03-45 (320-76865-14).

Method 3535: The following samples were observed to be brown in color prior to extraction: DLG-MW10-55 (320-76865-1), DLG-MW10-38 (320-76865-2), DLG-MW11-34 (320-76865-3), DLG-MW111-34 (320-76865-4), DLG-MW11-79 (320-76865-5) and DLG-MW03-75 (320-76865-13).

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW10-55 — Lab Sample ID: 320-76865-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.72	J	1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.32	J	1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.32	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.81	J	1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.90	J	1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW10-38 — Lab Sample ID: 320-76865-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.93	J	1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.83	J	1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.37	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.0	J	1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW11-34 — Lab Sample ID: 320-76865-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	21		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	15		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	23		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.62	J	1.9	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	30		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	5.5		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW111-34 — Lab Sample ID: 320-76865-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	20		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	15		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	24		1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	29		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.2		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW11-79 — Lab Sample ID: 320-76865-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.65	J	1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EB-MW11 — Lab Sample ID: 320-76865-6

No Detections.

Client Sample ID: FB13 — Lab Sample ID: 320-76865-7

No Detections.

Client Sample ID: DLG-MW02-40 — Lab Sample ID: 320-76865-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	97		1.8	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.1		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	5.2		1.8	0.78	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	96		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client Sample ID: DLG-MW02-40 (Continued) — Lab Sample ID: 320-76865-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	110		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW102-40 — Lab Sample ID: 320-76865-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	100		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.4		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	5.5		1.9	0.80	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	92		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	110		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW02-50 — Lab Sample ID: 320-76865-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.8		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.3		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.7		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW03-28 — Lab Sample ID: 320-76865-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	200		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	120		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	39		1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	34		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	160		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.5		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW103-28 — Lab Sample ID: 320-76865-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	190		1.8	0.53	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	130		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	37		1.8	0.78	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.37	J	1.8	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	32		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	170		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.6		1.8	0.50	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW03-75 — Lab Sample ID: 320-76865-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	130		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	30		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	34		1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	44		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	190		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	88		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW03-45 — Lab Sample ID: 320-76865-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	7.9		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.9		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: DLG-MW03-45 (Continued)

Lab Sample ID: 320-76865-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	6.5		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.0		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	10		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW10-55

Date Collected: 07/22/21 10:15
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-1

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.72**	**J**	1.9	0.55	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluoroheptanoic acid (PFHpA)	**0.32**	**J**	1.9	0.24	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.81	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorobutanesulfonic acid (PFBS)	**0.32**	**J**	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorohexanesulfonic acid (PFHxS)	**0.81**	**J**	1.9	0.54	ng/L		07/30/21 04:28	07/31/21 06:24	1
Perfluorooctanesulfonic acid (PFOS)	**0.90**	**J**	1.9	0.51	ng/L		07/30/21 04:28	07/31/21 06:24	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.1	ng/L		07/30/21 04:28	07/31/21 06:24	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 06:24	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 06:24	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 06:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 06:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*104*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C4 PFHpA	*83*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C4 PFOA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C5 PFNA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C2 PFDA	*104*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C2 PFUnA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C2 PFDoA	*80*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C3 PFBS	*88*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
18O2 PFHxS	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C4 PFOS	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
d5-NEtFOSAA	*87*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:24*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 22:13	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*74*		*50 - 150*	*07/30/21 04:28*	*07/31/21 22:13*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW10-38

Date Collected: 07/22/21 11:45
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-2

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.93**	**J**	1.9	0.56	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorooctanoic acid (PFOA)	**0.83**	**J**	1.9	0.82	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorobutanesulfonic acid (PFBS)	**0.37**	**J**	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorohexanesulfonic acid (PFHxS)	**1.0**	**J**	1.9	0.55	ng/L		07/30/21 04:28	07/31/21 06:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 06:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 06:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		07/30/21 04:28	07/31/21 06:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 06:33	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/30/21 04:28	07/31/21 06:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/30/21 04:28	07/31/21 06:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*106*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C4 PFOA	*90*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C5 PFNA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C2 PFDA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C2 PFUnA	*107*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C2 PFDoA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C2 PFTeDA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C3 PFBS	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
18O2 PFHxS	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C4 PFOS	*107*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
d3-NMeFOSAA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
d5-NEtFOSAA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:33*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.4	ng/L		07/30/21 04:28	07/31/21 22:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 22:23*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW11-34

Date Collected: 07/22/21 18:10
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-3

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**21**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluoroheptanoic acid (PFHpA)	**15**		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorooctanoic acid (PFOA)	**23**		1.9	0.80	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorononanoic acid (PFNA)	**0.62**	**J**	1.9	0.25	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorohexanesulfonic acid (PFHxS)	**30**		1.9	0.54	ng/L		07/30/21 04:28	07/31/21 06:43	1
Perfluorooctanesulfonic acid (PFOS)	**5.5**		1.9	0.51	ng/L		07/30/21 04:28	07/31/21 06:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/30/21 04:28	07/31/21 06:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 06:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 06:43	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 06:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 06:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*115*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C4 PFOA	*99*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C5 PFNA	*90*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C2 PFDA	*125*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C2 PFUnA	*116*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C2 PFDoA	*111*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C2 PFTeDA	*114*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C3 PFBS	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
18O2 PFHxS	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C4 PFOS	*121*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
d3-NMeFOSAA	*108*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
d5-NEtFOSAA	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*
13C3 HFPO-DA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:43*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 22:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*82*		*50 - 150*	*07/30/21 04:28*	*07/31/21 22:32*	*1*

Client Sample ID: DLG-MW111-34

Date Collected: 07/22/21 18:00
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-4

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**20**		1.9	0.56	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluoroheptanoic acid (PFHpA)	**15**		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorooctanoic acid (PFOA)	**24**		1.9	0.82	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorobutanesulfonic acid (PFBS)	**1.0**	**J**	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorohexanesulfonic acid (PFHxS)	**29**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 06:52	1
Perfluorooctanesulfonic acid (PFOS)	**6.2**		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 06:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 06:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		07/30/21 04:28	07/31/21 06:52	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 06:52	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/30/21 04:28	07/31/21 06:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/30/21 04:28	07/31/21 06:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*120*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C4 PFHpA	*80*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C4 PFOA	*101*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C5 PFNA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C2 PFDA	*128*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C2 PFUnA	*127*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C2 PFDoA	*118*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C2 PFTeDA	*123*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C3 PFBS	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
18O2 PFHxS	*101*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C4 PFOS	*117*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
d3-NMeFOSAA	*117*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
d5-NEtFOSAA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*
13C3 HFPO-DA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 06:52*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.4	ng/L		07/30/21 04:28	07/31/21 22:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*87*		*50 - 150*	*07/30/21 04:28*	*07/31/21 22:42*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW11-79

Date Collected: 07/22/21 22:05
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-5

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.65**	**J**	1.9	0.55	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.81	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		07/30/21 04:28	07/31/21 07:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/30/21 04:28	07/31/21 07:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/30/21 04:28	07/31/21 07:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 07:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 07:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 07:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 07:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C4 PFHpA	*82*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C5 PFNA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C2 PFDA	*113*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C2 PFUnA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C2 PFDoA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C2 PFTeDA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C3 PFBS	*90*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C4 PFOS	*110*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
d3-NMeFOSAA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
d5-NEtFOSAA	*92*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*
13C3 HFPO-DA	*83*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:01*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 22:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*85*		*50 - 150*	*07/30/21 04:28*	*07/31/21 22:51*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: EB-MW11

Date Collected: 07/22/21 22:30
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-6

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.87	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.28	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.74	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.58	ng/L		07/30/21 04:28	07/31/21 07:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.55	ng/L		07/30/21 04:28	07/31/21 07:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.1	1.2	ng/L		07/30/21 04:28	07/31/21 07:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.1	1.3	ng/L		07/30/21 04:28	07/31/21 07:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		07/30/21 04:28	07/31/21 07:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.33	ng/L		07/30/21 04:28	07/31/21 07:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.41	ng/L		07/30/21 04:28	07/31/21 07:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*111*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C4 PFHpA	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C5 PFNA	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C2 PFDA	*106*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C2 PFUnA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C2 PFDoA	*106*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C2 PFTeDA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C3 PFBS	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C4 PFOS	*106*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
d3-NMeFOSAA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*
13C3 HFPO-DA	*86*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:11*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.1	1.5	ng/L		07/30/21 04:28	07/31/21 23:00	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*87*		*50 - 150*	*07/30/21 04:28*	*07/31/21 23:00*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: FB13

Date Collected: 07/22/21 11:45
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-7

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	ng/L		07/30/21 04:28	07/31/21 07:20	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/30/21 04:28	07/31/21 07:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/30/21 04:28	07/31/21 07:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 07:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 07:20	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 07:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 07:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*102*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C4 PFHpA	*92*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C4 PFOA	*96*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C5 PFNA	*96*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C2 PFDA	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C2 PFUnA	*102*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C2 PFDoA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C2 PFTeDA	*104*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C3 PFBS	*90*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C4 PFOS	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*
13C3 HFPO-DA	*85*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:20*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 23:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*81*		*50 - 150*	*07/30/21 04:28*	*07/31/21 23:10*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW02-40

Date Collected: 07/24/21 16:10
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-8

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**97**		1.8	0.53	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluoroheptanoic acid (PFHpA)	**8.1**		1.8	0.23	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorooctanoic acid (PFOA)	**5.2**		1.8	0.78	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.25	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorobutanesulfonic acid (PFBS)	**96**		1.8	0.18	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorohexanesulfonic acid (PFHxS)	**110**		1.8	0.52	ng/L		07/30/21 04:28	07/31/21 07:48	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.49	ng/L		07/30/21 04:28	07/31/21 07:48	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/30/21 04:28	07/31/21 07:48	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/30/21 04:28	07/31/21 07:48	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/30/21 04:28	07/31/21 07:48	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/30/21 04:28	07/31/21 07:48	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		07/30/21 04:28	07/31/21 07:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*110*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C4 PFHpA	*81*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C4 PFOA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C5 PFNA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C2 PFDA	*114*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C2 PFUnA	*113*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C2 PFDoA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C2 PFTeDA	*111*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C3 PFBS	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C4 PFOS	*112*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
d3-NMeFOSAA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:48*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		07/30/21 04:28	07/31/21 23:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*83*		*50 - 150*	*07/30/21 04:28*	*07/31/21 23:29*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW102-40

Date Collected: 07/24/21 16:00
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-9

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**100**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluoroheptanoic acid (PFHpA)	**9.4**		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorooctanoic acid (PFOA)	**5.5**		1.9	0.80	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorobutanesulfonic acid (PFBS)	**92**		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorohexanesulfonic acid (PFHxS)	**110**		1.9	0.54	ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/30/21 04:28	07/31/21 07:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/30/21 04:28	07/31/21 07:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 07:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 07:58	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 07:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 07:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*102*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C4 PFHpA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C4 PFOA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C2 PFDA	*113*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C2 PFUnA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C2 PFDoA	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C2 PFTeDA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C3 PFBS	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
18O2 PFHxS	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C4 PFOS	*102*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
d5-NEtFOSAA	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*
13C3 HFPO-DA	*76*		*50 - 150*	*07/30/21 04:28*	*07/31/21 07:58*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 23:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*77*		*50 - 150*	*07/30/21 04:28*	*07/31/21 23:38*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW02-50

Date Collected: 07/24/21 18:20
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-10

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**2.8**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorobutanesulfonic acid (PFBS)	**7.3**		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorohexanesulfonic acid (PFHxS)	**4.7**		1.9	0.54	ng/L		07/30/21 04:28	07/31/21 08:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	ng/L		07/30/21 04:28	07/31/21 08:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/30/21 04:28	07/31/21 08:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 08:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 08:07	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 08:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 08:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*107*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C4 PFOA	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C5 PFNA	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C2 PFDA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C2 PFUnA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C2 PFDoA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C2 PFTeDA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C3 PFBS	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
18O2 PFHxS	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C4 PFOS	*107*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
d3-NMeFOSAA	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
d5-NEtFOSAA	*96*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*
13C3 HFPO-DA	*76*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:07*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 23:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*79*		*50 - 150*	*07/30/21 04:28*	*07/31/21 23:47*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW03-28

Date Collected: 07/25/21 10:00
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-11

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**200**		1.9	0.56	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluoroheptanoic acid (PFHpA)	**120**		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorooctanoic acid (PFOA)	**39**		1.9	0.82	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorobutanesulfonic acid (PFBS)	**34**		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorohexanesulfonic acid (PFHxS)	**160**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 08:17	1
Perfluorooctanesulfonic acid (PFOS)	**8.5**		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 08:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 08:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 08:17	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 08:17	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/30/21 04:28	07/31/21 08:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 08:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*111*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C4 PFHpA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C4 PFOA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C5 PFNA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C2 PFDA	*118*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C2 PFUnA	*116*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C2 PFDoA	*108*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C2 PFTeDA	*112*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C3 PFBS	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
18O2 PFHxS	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C4 PFOS	*116*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
d3-NMeFOSAA	*108*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
d5-NEtFOSAA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*
13C3 HFPO-DA	*84*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:17*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 23:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*87*		*50 - 150*	*07/30/21 04:28*	*07/31/21 23:57*	*1*

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW103-28

Date Collected: 07/25/21 09:50
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-12

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**190**		1.8	0.53	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluoroheptanoic acid (PFHpA)	**130**		1.8	0.23	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorooctanoic acid (PFOA)	**37**		1.8	0.78	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorononanoic acid (PFNA)	**0.37**	**J**	1.8	0.25	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	1.0	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.67	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorobutanesulfonic acid (PFBS)	**32**		1.8	0.18	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorohexanesulfonic acid (PFHxS)	**170**		1.8	0.52	ng/L		07/30/21 04:28	07/31/21 08:26	1
Perfluorooctanesulfonic acid (PFOS)	**9.6**		1.8	0.50	ng/L		07/30/21 04:28	07/31/21 08:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/30/21 04:28	07/31/21 08:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/30/21 04:28	07/31/21 08:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		07/30/21 04:28	07/31/21 08:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		07/30/21 04:28	07/31/21 08:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.37	ng/L		07/30/21 04:28	07/31/21 08:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*111*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C4 PFHpA	*79*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C4 PFOA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C5 PFNA	*92*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C2 PFDA	*119*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C2 PFUnA	*119*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C2 PFDoA	*105*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C2 PFTeDA	*120*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C3 PFBS	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
18O2 PFHxS	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C4 PFOS	*115*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
d3-NMeFOSAA	*117*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
d5-NEtFOSAA	*112*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:26*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.7	1.4	ng/L		07/30/21 04:28	08/01/21 00:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*86*		*50 - 150*	*07/30/21 04:28*	*08/01/21 00:06*	*1*

Client Sample ID: DLG-MW03-75

Date Collected: 07/25/21 16:09
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-13

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**130**		1.9	0.56	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluoroheptanoic acid (PFHpA)	**30**		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorooctanoic acid (PFOA)	**34**		1.9	0.82	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorobutanesulfonic acid (PFBS)	**44**		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorohexanesulfonic acid (PFHxS)	**190**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 08:35	1
Perfluorooctanesulfonic acid (PFOS)	**88**		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 08:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 08:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		07/30/21 04:28	07/31/21 08:35	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 08:35	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/30/21 04:28	07/31/21 08:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/30/21 04:28	07/31/21 08:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*104*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C4 PFHpA	*76*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C4 PFOA	*85*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C2 PFDA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C2 PFUnA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C2 PFDoA	*96*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C2 PFTeDA	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C3 PFBS	*86*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
18O2 PFHxS	*85*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C4 PFOS	*102*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
d3-NMeFOSAA	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
d5-NEtFOSAA	*95*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*
13C3 HFPO-DA	*75*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:35*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		07/30/21 04:28	08/01/21 00:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*83*		*50 - 150*	*07/30/21 04:28*	*08/01/21 00:16*	*1*

Client Sample ID: DLG-MW03-45

Date Collected: 07/25/21 18:27
Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-14

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**7.9**		1.9	0.56	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluoroheptanoic acid (PFHpA)	**3.9**		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorooctanoic acid (PFOA)	**6.5**		1.9	0.81	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorobutanesulfonic acid (PFBS)	**1.0**	**J**	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorohexanesulfonic acid (PFHxS)	**5.0**		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 08:45	1
Perfluorooctanesulfonic acid (PFOS)	**10**		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 08:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.1	ng/L		07/30/21 04:28	07/31/21 08:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.2	ng/L		07/30/21 04:28	07/31/21 08:45	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 08:45	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		07/30/21 04:28	07/31/21 08:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 08:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*111*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C4 PFHpA	*89*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C4 PFOA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C5 PFNA	*101*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C2 PFDA	*122*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C2 PFUnA	*116*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C2 PFDoA	*114*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C2 PFTeDA	*119*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C3 PFBS	*97*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
18O2 PFHxS	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C4 PFOS	*127*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
d3-NMeFOSAA	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
d5-NEtFOSAA	*109*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*
13C3 HFPO-DA	*88*		*50 - 150*	*07/30/21 04:28*	*07/31/21 08:45*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	08/01/21 00:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*82*		*50 - 150*	*07/30/21 04:28*	*08/01/21 00:25*	*1*

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Method: EPA 537(Mod) - 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)
320-76865-1	DLG-MW10-55	104	83	97	91	104	93	80	84
320-76865-1 - RA	DLG-MW10-55								
320-76865-2	DLG-MW10-38	106	89	90	91	105	107	94	97
320-76865-2 - RA	DLG-MW10-38								
320-76865-3	DLG-MW11-34	115	84	99	90	125	116	111	114
320-76865-3 - RA	DLG-MW11-34								
320-76865-4	DLG-MW111-34	120	80	101	97	128	127	118	123
320-76865-4 - RA	DLG-MW111-34								
320-76865-5	DLG-MW11-79	105	82	91	93	113	109	91	84
320-76865-5 - RA	DLG-MW11-79								
320-76865-6	EB-MW11	111	95	93	98	106	109	106	105
320-76865-6 - RA	EB-MW11								
320-76865-7	FB13	102	92	96	96	100	102	97	104
320-76865-7 - RA	FB13								
320-76865-8	DLG-MW02-40	110	81	94	94	114	113	103	111
320-76865-8 - RA	DLG-MW02-40								
320-76865-9	DLG-MW102-40	102	84	91	88	113	105	95	103
320-76865-9 - RA	DLG-MW102-40								
320-76865-10	DLG-MW02-50	107	89	95	95	109	105	94	93
320-76865-10 - RA	DLG-MW02-50								
320-76865-11	DLG-MW03-28	111	91	103	103	118	116	108	112
320-76865-11 - RA	DLG-MW03-28								
320-76865-12	DLG-MW103-28	111	79	103	92	119	119	105	120
320-76865-12 - RA	DLG-MW103-28								
320-76865-13	DLG-MW03-75	104	76	85	88	109	109	96	98
320-76865-13 - RA	DLG-MW03-75								
320-76865-14	DLG-MW03-45	111	89	94	101	122	116	114	119
320-76865-14 - RA	DLG-MW03-45								
LCS 320-511473/2-A	Lab Control Sample	102	90	87	91	97	97	93	98
LCS 320-511473/2-A - RA	Lab Control Sample								
LCSD 320-511473/3-A	Lab Control Sample Dup	115	98	98	107	105	110	100	106
LCSD 320-511473/3-A - RA	Lab Control Sample Dup								
MB 320-511473/1-A	Method Blank	103	96	93	92	103	100	98	94
MB 320-511473/1-A - RA	Method Blank								

		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)		
320-76865-1	DLG-MW10-55	88	89	98	90	87	82		
320-76865-1 - RA	DLG-MW10-55						74		
320-76865-2	DLG-MW10-38	89	91	107	94	94	82		
320-76865-2 - RA	DLG-MW10-38						84		
320-76865-3	DLG-MW11-34	100	100	121	108	100	93		
320-76865-3 - RA	DLG-MW11-34						82		
320-76865-4	DLG-MW111-34	98	101	117	117	109	93		
320-76865-4 - RA	DLG-MW111-34						87		
320-76865-5	DLG-MW11-79	90	85	110	94	92	83		
320-76865-5 - RA	DLG-MW11-79						85		
320-76865-6	EB-MW11	95	93	106	94	103	86		
320-76865-6 - RA	EB-MW11						87		

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Matrix: Water

Prep Type: Total/NA

		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)		
320-76865-7	FB13	90	93	109	93	97	85		
320-76865-7 - RA	FB13						81		
320-76865-8	DLG-MW02-40	91	93	112	97	103	84		
320-76865-8 - RA	DLG-MW02-40						83		
320-76865-9	DLG-MW102-40	95	94	102	100	89	76		
320-76865-9 - RA	DLG-MW102-40						77		
320-76865-10	DLG-MW02-50	94	93	107	98	96	76		
320-76865-10 - RA	DLG-MW02-50						79		
320-76865-11	DLG-MW03-28	95	105	116	108	105	84		
320-76865-11 - RA	DLG-MW03-28						87		
320-76865-12	DLG-MW103-28	89	97	115	117	112	79		
320-76865-12 - RA	DLG-MW103-28						86		
320-76865-13	DLG-MW03-75	86	85	102	97	95	75		
320-76865-13 - RA	DLG-MW03-75						83		
320-76865-14	DLG-MW03-45	97	98	127	100	109	88		
320-76865-14 - RA	DLG-MW03-45						82		
LCS 320-511473/2-A	Lab Control Sample	84	87	97	95	90			
LCS 320-511473/2-A - RA	Lab Control Sample						82		
LCSD 320-511473/3-A	Lab Control Sample Dup	99	105	109	100	95			
LCSD 320-511473/3-A - RA	Lab Control Sample Dup						90		
MB 320-511473/1-A	Method Blank	92	92	103	93	98			
MB 320-511473/1-A - RA	Method Blank						91		

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: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-511473/1-A
Matrix: Water
Analysis Batch: 511868

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 511473

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		07/30/21 04:28	07/31/21 05:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		07/30/21 04:28	07/31/21 05:56	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/30/21 04:28	07/31/21 05:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/30/21 04:28	07/31/21 05:56	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		07/30/21 04:28	07/31/21 05:56	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.32	ng/L		07/30/21 04:28	07/31/21 05:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		07/30/21 04:28	07/31/21 05:56	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C4 PFHpA	*96*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C5 PFNA	*92*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C2 PFDA	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C2 PFUnA	*100*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C2 PFDoA	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C2 PFTeDA	*94*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C3 PFBS	*92*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
18O2 PFHxS	*92*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
13C4 PFOS	*103*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
d3-NMeFOSAA	*93*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*
d5-NEtFOSAA	*98*		*50 - 150*	*07/30/21 04:28*	*07/31/21 05:56*	*1*

Lab Sample ID: LCS 320-511473/2-A
Matrix: Water
Analysis Batch: 511868

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 511473

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	37.3		ng/L		93	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	40.1		ng/L		100	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	42.1		ng/L		105	71 - 133
Perfluorononanoic acid (PFNA)	40.0	41.2		ng/L		103	69 - 130
Perfluorodecanoic acid (PFDA)	40.0	35.8		ng/L		89	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	42.0		ng/L		105	69 - 133

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-511473/2-A
Matrix: Water
Analysis Batch: 511868

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 511473

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluorododecanoic acid (PFDoA)			40.0	42.0		ng/L		105	72 - 134		
Perfluorotridecanoic acid (PFTriA)			40.0	40.6		ng/L		101	65 - 144		
Perfluorotetradecanoic acid (PFTeA)			40.0	38.0		ng/L		95	71 - 132		
Perfluorobutanesulfonic acid (PFBS)			35.4	37.9		ng/L		107	72 - 130		
Perfluorohexanesulfonic acid (PFHxS)			36.4	36.9		ng/L		101	68 - 131		
Perfluorooctanesulfonic acid (PFOS)			37.1	36.4		ng/L		98	65 - 140		
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	38.6		ng/L		96	65 - 136		
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	40.2		ng/L		100	61 - 135		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	34.6		ng/L		93	77 - 137		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	37.8		ng/L		100	76 - 136		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	35.0		ng/L		93	81 - 141		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*102*		*50 - 150*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*87*		*50 - 150*
13C5 PFNA	*91*		*50 - 150*
13C2 PFDA	*97*		*50 - 150*
13C2 PFUnA	*97*		*50 - 150*
13C2 PFDoA	*93*		*50 - 150*
13C2 PFTeDA	*98*		*50 - 150*
13C3 PFBS	*84*		*50 - 150*
18O2 PFHxS	*87*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
d3-NMeFOSAA	*95*		*50 - 150*
d5-NEtFOSAA	*90*		*50 - 150*

Lab Sample ID: LCSD 320-511473/3-A
Matrix: Water
Analysis Batch: 511868

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 511473

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)			40.0	33.7		ng/L		84	72 - 129	10	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.2		ng/L		96	72 - 130	5	30
Perfluorooctanoic acid (PFOA)			40.0	38.5		ng/L		96	71 - 133	9	30
Perfluorononanoic acid (PFNA)			40.0	39.0		ng/L		98	69 - 130	5	30
Perfluorodecanoic acid (PFDA)			40.0	36.5		ng/L		91	71 - 129	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	42.5		ng/L		106	69 - 133	1	30
Perfluorododecanoic acid (PFDoA)			40.0	41.5		ng/L		104	72 - 134	1	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-511473/3-A
Matrix: Water
Analysis Batch: 511868

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 511473

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotridecanoic acid (PFTriA)			40.0	42.3		ng/L		106	65 - 144	4	30
Perfluorotetradecanoic acid (PFTeA)			40.0	40.2		ng/L		101	71 - 132	6	30
Perfluorobutanesulfonic acid (PFBS)			35.4	34.3		ng/L		97	72 - 130	10	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	32.1		ng/L		88	68 - 131	14	30
Perfluorooctanesulfonic acid (PFOS)			37.1	34.1		ng/L		92	65 - 140	6	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	41.7		ng/L		104	65 - 136	8	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	42.6		ng/L		107	61 - 135	6	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	33.6		ng/L		90	77 - 137	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	38.2		ng/L		101	76 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	31.8		ng/L		84	81 - 141	9	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*115*		*50 - 150*
13C4 PFHpA	*98*		*50 - 150*
13C4 PFOA	*98*		*50 - 150*
13C5 PFNA	*107*		*50 - 150*
13C2 PFDA	*105*		*50 - 150*
13C2 PFUnA	*110*		*50 - 150*
13C2 PFDoA	*100*		*50 - 150*
13C2 PFTeDA	*106*		*50 - 150*
13C3 PFBS	*99*		*50 - 150*
18O2 PFHxS	*105*		*50 - 150*
13C4 PFOS	*109*		*50 - 150*
d3-NMeFOSAA	*100*		*50 - 150*
d5-NEtFOSAA	*95*		*50 - 150*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Lab Sample ID: MB 320-511473/1-A
Matrix: Water
Analysis Batch: 512068

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 511473

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA	ND		4.0	1.5	ng/L		07/30/21 04:28	07/31/21 21:45	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA - RA	*91*		*50 - 150*	*07/30/21 04:28*	*07/31/21 21:45*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA (Continued)

Lab Sample ID: LCS 320-511473/2-A
Matrix: Water
Analysis Batch: 512068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 511473

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA			40.0	39.4		ng/L		98	72 - 132		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA - RA	*82*		*50 - 150*

Lab Sample ID: LCSD 320-511473/3-A
Matrix: Water
Analysis Batch: 512068

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 511473

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) - RA			40.0	41.9		ng/L		105	72 - 132	6	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C3 HFPO-DA - RA	*90*		*50 - 150*

LCMS

Prep Batch: 511473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76865-1	DLG-MW10-55	Total/NA	Water	3535	
320-76865-1 - RA	DLG-MW10-55	Total/NA	Water	3535	
320-76865-2	DLG-MW10-38	Total/NA	Water	3535	
320-76865-2 - RA	DLG-MW10-38	Total/NA	Water	3535	
320-76865-3 - RA	DLG-MW11-34	Total/NA	Water	3535	
320-76865-3	DLG-MW11-34	Total/NA	Water	3535	
320-76865-4	DLG-MW111-34	Total/NA	Water	3535	
320-76865-4 - RA	DLG-MW111-34	Total/NA	Water	3535	
320-76865-5 - RA	DLG-MW11-79	Total/NA	Water	3535	
320-76865-5	DLG-MW11-79	Total/NA	Water	3535	
320-76865-6	EB-MW11	Total/NA	Water	3535	
320-76865-6 - RA	EB-MW11	Total/NA	Water	3535	
320-76865-7	FB13	Total/NA	Water	3535	
320-76865-7 - RA	FB13	Total/NA	Water	3535	
320-76865-8 - RA	DLG-MW02-40	Total/NA	Water	3535	
320-76865-8	DLG-MW02-40	Total/NA	Water	3535	
320-76865-9	DLG-MW102-40	Total/NA	Water	3535	
320-76865-9 - RA	DLG-MW102-40	Total/NA	Water	3535	
320-76865-10	DLG-MW02-50	Total/NA	Water	3535	
320-76865-10 - RA	DLG-MW02-50	Total/NA	Water	3535	
320-76865-11	DLG-MW03-28	Total/NA	Water	3535	
320-76865-11 - RA	DLG-MW03-28	Total/NA	Water	3535	
320-76865-12	DLG-MW103-28	Total/NA	Water	3535	
320-76865-12 - RA	DLG-MW103-28	Total/NA	Water	3535	
320-76865-13 - RA	DLG-MW03-75	Total/NA	Water	3535	
320-76865-13	DLG-MW03-75	Total/NA	Water	3535	
320-76865-14	DLG-MW03-45	Total/NA	Water	3535	
320-76865-14 - RA	DLG-MW03-45	Total/NA	Water	3535	
MB 320-511473/1-A - RA	Method Blank	Total/NA	Water	3535	
MB 320-511473/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-511473/2-A - RA	Lab Control Sample	Total/NA	Water	3535	
LCS 320-511473/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-511473/3-A	Lab Control Sample Dup	Total/NA	Water	3535	
LCSD 320-511473/3-A - RA	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 511868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76865-1	DLG-MW10-55	Total/NA	Water	EPA 537(Mod)	511473
320-76865-2	DLG-MW10-38	Total/NA	Water	EPA 537(Mod)	511473
320-76865-3	DLG-MW11-34	Total/NA	Water	EPA 537(Mod)	511473
320-76865-4	DLG-MW111-34	Total/NA	Water	EPA 537(Mod)	511473
320-76865-5	DLG-MW11-79	Total/NA	Water	EPA 537(Mod)	511473
320-76865-6	EB-MW11	Total/NA	Water	EPA 537(Mod)	511473
320-76865-7	FB13	Total/NA	Water	EPA 537(Mod)	511473
320-76865-8	DLG-MW02-40	Total/NA	Water	EPA 537(Mod)	511473
320-76865-9	DLG-MW102-40	Total/NA	Water	EPA 537(Mod)	511473
320-76865-10	DLG-MW02-50	Total/NA	Water	EPA 537(Mod)	511473
320-76865-11	DLG-MW03-28	Total/NA	Water	EPA 537(Mod)	511473
320-76865-12	DLG-MW103-28	Total/NA	Water	EPA 537(Mod)	511473
320-76865-13	DLG-MW03-75	Total/NA	Water	EPA 537(Mod)	511473
320-76865-14	DLG-MW03-45	Total/NA	Water	EPA 537(Mod)	511473

LCMS (Continued)

Analysis Batch: 511868 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-511473/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	511473
LCS 320-511473/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	511473
LCSD 320-511473/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	511473

Analysis Batch: 512068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76865-1 - RA	DLG-MW10-55	Total/NA	Water	EPA 537(Mod)	511473
320-76865-2 - RA	DLG-MW10-38	Total/NA	Water	EPA 537(Mod)	511473
320-76865-3 - RA	DLG-MW11-34	Total/NA	Water	EPA 537(Mod)	511473
320-76865-4 - RA	DLG-MW111-34	Total/NA	Water	EPA 537(Mod)	511473
320-76865-5 - RA	DLG-MW11-79	Total/NA	Water	EPA 537(Mod)	511473
320-76865-6 - RA	EB-MW11	Total/NA	Water	EPA 537(Mod)	511473
320-76865-7 - RA	FB13	Total/NA	Water	EPA 537(Mod)	511473
320-76865-8 - RA	DLG-MW02-40	Total/NA	Water	EPA 537(Mod)	511473
320-76865-9 - RA	DLG-MW102-40	Total/NA	Water	EPA 537(Mod)	511473
320-76865-10 - RA	DLG-MW02-50	Total/NA	Water	EPA 537(Mod)	511473
320-76865-11 - RA	DLG-MW03-28	Total/NA	Water	EPA 537(Mod)	511473
320-76865-12 - RA	DLG-MW103-28	Total/NA	Water	EPA 537(Mod)	511473
320-76865-13 - RA	DLG-MW03-75	Total/NA	Water	EPA 537(Mod)	511473
320-76865-14 - RA	DLG-MW03-45	Total/NA	Water	EPA 537(Mod)	511473
MB 320-511473/1-A - RA	Method Blank	Total/NA	Water	EPA 537(Mod)	511473
LCS 320-511473/2-A - RA	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	511473
LCSD 320-511473/3-A - RA	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	511473

Client Sample ID: DLG-MW10-55
Lab Sample ID: 320-76865-1

Date Collected: 07/22/21 10:15
Matrix: Water
Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			262.9 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 06:24	K1S	TAL SAC
Total/NA	Prep	3535	RA		262.9 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 22:13	K1S	TAL SAC

Client Sample ID: DLG-MW10-38
Lab Sample ID: 320-76865-2

Date Collected: 07/22/21 11:45
Matrix: Water
Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259.2 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 06:33	K1S	TAL SAC
Total/NA	Prep	3535	RA		259.2 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 22:23	K1S	TAL SAC

Client Sample ID: DLG-MW11-34
Lab Sample ID: 320-76865-3

Date Collected: 07/22/21 18:10
Matrix: Water
Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.8 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 06:43	K1S	TAL SAC
Total/NA	Prep	3535	RA		265.8 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 22:32	K1S	TAL SAC

Client Sample ID: DLG-MW111-34
Lab Sample ID: 320-76865-4

Date Collected: 07/22/21 18:00
Matrix: Water
Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 06:52	K1S	TAL SAC
Total/NA	Prep	3535	RA		259 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 22:42	K1S	TAL SAC

Client Sample ID: DLG-MW11-79
Lab Sample ID: 320-76865-5

Date Collected: 07/22/21 22:05
Matrix: Water
Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.3 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 07:01	K1S	TAL SAC
Total/NA	Prep	3535	RA		263.3 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 22:51	K1S	TAL SAC

Client Sample ID: EB-MW11

Lab Sample ID: 320-76865-6

Date Collected: 07/22/21 22:30

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			245.3 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 07:11	K1S	TAL SAC
Total/NA	Prep	3535	RA		245.3 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 23:00	K1S	TAL SAC

Client Sample ID: FB13

Lab Sample ID: 320-76865-7

Date Collected: 07/22/21 11:45

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.6 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 07:20	K1S	TAL SAC
Total/NA	Prep	3535	RA		265.6 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 23:10	K1S	TAL SAC

Client Sample ID: DLG-MW02-40

Lab Sample ID: 320-76865-8

Date Collected: 07/24/21 16:10

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.9 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 07:48	K1S	TAL SAC
Total/NA	Prep	3535	RA		272.9 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 23:29	K1S	TAL SAC

Client Sample ID: DLG-MW102-40

Lab Sample ID: 320-76865-9

Date Collected: 07/24/21 16:00

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			264 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 07:58	K1S	TAL SAC
Total/NA	Prep	3535	RA		264 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 23:38	K1S	TAL SAC

Client Sample ID: DLG-MW02-50

Lab Sample ID: 320-76865-10

Date Collected: 07/24/21 18:20

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.8 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 08:07	K1S	TAL SAC
Total/NA	Prep	3535	RA		265.8 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 23:47	K1S	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Client Sample ID: DLG-MW03-28

Lab Sample ID: 320-76865-11

Date Collected: 07/25/21 10:00

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			260.4 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 08:17	K1S	TAL SAC
Total/NA	Prep	3535	RA		260.4 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	07/31/21 23:57	K1S	TAL SAC

Client Sample ID: DLG-MW103-28

Lab Sample ID: 320-76865-12

Date Collected: 07/25/21 09:50

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.5 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 08:26	K1S	TAL SAC
Total/NA	Prep	3535	RA		272.5 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	08/01/21 00:06	K1S	TAL SAC

Client Sample ID: DLG-MW03-75

Lab Sample ID: 320-76865-13

Date Collected: 07/25/21 16:09

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258.6 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 08:35	K1S	TAL SAC
Total/NA	Prep	3535	RA		258.6 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	08/01/21 00:16	K1S	TAL SAC

Client Sample ID: DLG-MW03-45

Lab Sample ID: 320-76865-14

Date Collected: 07/25/21 18:27

Matrix: Water

Date Received: 07/28/21 15:23

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			511868	07/31/21 08:45	K1S	TAL SAC
Total/NA	Prep	3535	RA		261 mL	10.0 mL	511473	07/30/21 04:28	EG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	RA	1			512068	08/01/21 00:25	K1S	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Laboratory: Eurofins TestAmerica, Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-76865-1	DLG-MW10-55	Water	07/22/21 10:15	07/28/21 15:23
320-76865-2	DLG-MW10-38	Water	07/22/21 11:45	07/28/21 15:23
320-76865-3	DLG-MW11-34	Water	07/22/21 18:10	07/28/21 15:23
320-76865-4	DLG-MW111-34	Water	07/22/21 18:00	07/28/21 15:23
320-76865-5	DLG-MW11-79	Water	07/22/21 22:05	07/28/21 15:23
320-76865-6	EB-MW11	Water	07/22/21 22:30	07/28/21 15:23
320-76865-7	FB13	Water	07/22/21 11:45	07/28/21 15:23
320-76865-8	DLG-MW02-40	Water	07/24/21 16:10	07/28/21 15:23
320-76865-9	DLG-MW102-40	Water	07/24/21 16:00	07/28/21 15:23
320-76865-10	DLG-MW02-50	Water	07/24/21 18:20	07/28/21 15:23
320-76865-11	DLG-MW03-28	Water	07/25/21 10:00	07/28/21 15:23
320-76865-12	DLG-MW103-28	Water	07/25/21 09:50	07/28/21 15:23
320-76865-13	DLG-MW03-75	Water	07/25/21 16:09	07/28/21 15:23
320-76865-14	DLG-MW03-45	Water	07/25/21 18:27	07/28/21 15:23

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Page 1 of 2

Laboratory Test America
Attn: Davia Acketucker

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x 19	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW10-55		1015	7/22/21	X	2	groundwater
DLG-MW10-38		1145		X		
DLG-MW11-34		1810		X		
DLG-MW111-34		1800		X		
DLG-MW11-79		2205		X		
EB-MW11		2230		X		
FB13		1145		X		
DLG-MW02-40		1610	7/24/21	X		
DLG-MW02-40		1600		X		
DLG-MW02-50		1820		X		

320-76865 Chain of Custody

Project Information	
Number:	102581-009
Name:	DLG PFAS
Contact:	Korey Hodel
Ongoing Project?	Yes [X] No [ ]
Sampler:	VT4, ALF, SAH

Sample Receipt	
Total No. of Containers:	28
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	4.6
Delivery Method:	goldstreak

Notes:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1000	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 7/26/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 1523	Signature: Time:	Signature: Time:
Printed Name: [illegible] Date: 7/26/21	Printed Name: Date:	Printed Name: Date:
Company: BTEL	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Acktucker

Turn Around Time:	Quote No:	MSA Number:	J-Flags:
[X] Normal [ ] Rush		TBD	[X] Yes [ ] No
Please Specify			

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS x18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW03-28		1000	7/25/21	X	2	groundwater
DLG-MW03-28		0950	↓	X	↓	↓
DLG-MW03-75		1609		X		
DLG-MW03-45		1827		X		

Project Information		Sample Receipt	
Number:	102501-009	Total No. of Containers:	28
Name:	DLG PFAS	COC Seals/Intact? Y/N/NA	
Contact:	Marcy Nadeau	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	
Sampler:	VTY, ALF, MDW	Delivery Method:	goldstreak

Notes:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1600	Signature: Time:	Signature: Time:
Printed Name: Veselina Yabrinova Date: 7/26/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 15:23	Signature: Time:	Signature: Time:
Printed Name: David Ackt Date: 7/28/21	Printed Name: Date:	Printed Name: Date:
Company: ETA	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

• 1 of 2 Containers date ~~7/25/21~~ 7/21/25 SO 7/28/21 SO 7/28/21

No.

8/11/2021

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-76865-1

Login Number: 76865
List Number: 1
Creator: Her, David A

List Source: Eurofins TestAmerica, 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.	False	Refer to Job Narrative for details.
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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 31, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Environment Testing

Laboratory Report Number:

320-76865-1

Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-76865-1

Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

Samples were received at 4.6°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

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Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☒ No☐ N/A☐ Comments:

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): Sample DLG-MW03-45, one of the two containers has a date of 7/21/25, however, the COC and 2nd container has a date of 7/25/21. Sample was logged in and labeled according to date on COC (7/25/21). This is the correct date and the results are not affected.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-511473.

Method 3535: The following samples were observed to contain a thin layer of sediment at the bottom of the bottle prior to extraction: DLG-MW10-55, DLG-MW10-38, DLG-MW11-34, DLG-MW111-34, DLG-MW11-79, DLG-MW02-40, DLG-MW102-40, DLG-MW02-50, DLG-MW03-28, DLG-MW103-28, DLG-MW03-75, and DLG-MW03-45.

Method 3535: The following samples were observed to be brown in color prior to extraction: DLG-MW10-55, DLG-MW10-38, DLG-MW11-34, DLG-MW111-34, DLG-MW11-79, and DLG-MW03-75.

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Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not necessary.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Data quality/usability is unaffected.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not submitted with this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

Data quality or usability is not affected.

320-76865-1

Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Target PFAS were not detected in the method blank samples associated with this work order.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

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Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to meet acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☒ N/A☐ Comments:

There was insufficient volume to perform a MS/MSD; see 4.b.

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ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD. The LCS/LCSD is used to determine laboratory accuracy.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☐ Comments:

There was insufficient volume to perform a MS/MSD. The LCS/LCSD is used to determine laboratory precision.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. See LCS/LCSD section (6.b) for accuracy and precision quality.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

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ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required. However, a field blank sample was taken.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

No analytes were detected in the field blank.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

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v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *DLG-MW11-34/DLG-MW111-34, DLG-MW02-40/DLG-MW102-40,* and *DLG-MW03-28/DLG-MW103-28* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 30% for all analytes, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☒ No☐ N/A☐ Comments:

EB-MW11 was submitted with this work order.

320-76865-1

Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

i. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

No analytes were detected in the sample.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-77044-1
Client Project/Site: Dillingham Airport

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
8/11/2021 5:24:07 PM
Jill Kellmann, Client Service Manager
(916)374-4402
Jill.Kellmann@Eurofinset.com

Designee for

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Job ID: 320-77044-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Receipt
The samples were received on 8/2/2021 2:40 PM. 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 5.6º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Sample DLG-MW14-180 (320-77044-11) and 2006-MW11-30 (320-77044-12) did have a collection time listed on the COC.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): EVENTS-MW1-25 (320-77044-9), DLG-MW14-180 (320-77044-11) and 2006-MW11-30 (320-77044-12).

Sample EVENTS-MW1-25 (320-77044-9)- Client label time listed as 14:12 for 2 of 2 containers while the COC lists 14:16. Logged in according to the COC.

Sample DLG-MW14-180 (320-77044-11)- Client label time listed as 14:16 for 2 of 2 containers while the COC is blank. Logged in according to the COC.

Sample 2006-MW11-30 (320-77044-12)- Client label time listed as 9:40 for 2 of 2 containers while the COC is blank. Logged in according to the COC.

LCMS
Method EPA 537(Mod): Results for sample 2006-MW08-20 (320-77044-6) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: EVENTS-MW1-25 (320-77044-9). 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 sample(s).

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

Organic Prep
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-512846.

Method 3535: The following samples were observed to be light orange in color and contained sediment prior to extraction: DLG-MW01-45 (320-77044-2), EVENTS-MW1-25 (320-77044-9) and DLG-MW14-80 (320-77044-10). Preparation batch 320-512846

Method 3535: The following samples were observed to be dark orange in color prior to extraction: DLG-MW12-80 (320-77044-8) and 2006-MW11-30 (320-77044-12). Preparation batch 320-512846

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW01-30 — Lab Sample ID: 320-77044-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	24		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	8.9		1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	11		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	120		1.9	0.54	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	28		1.9	0.51	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW01-45 — Lab Sample ID: 320-77044-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.85	J	1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.43	J	1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.81	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.46	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	4.8		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.8	J	1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW14-50 — Lab Sample ID: 320-77044-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	63		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.7		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		1.9	0.83	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	36		1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	24		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW14-150 — Lab Sample ID: 320-77044-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	64		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.9		1.8	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		1.8	0.74	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	37		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	25		1.8	0.50	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EB-MW14-50 — Lab Sample ID: 320-77044-5

No Detections.

Client Sample ID: 2006-MW08-20 — Lab Sample ID: 320-77044-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	58		1.7	0.50	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	21		1.7	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	59		1.7	0.74	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	4.8		1.7	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.75	J	1.7	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.0		1.7	0.17	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	260		1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	1100		17	4.7	ng/L	10		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW12-40 — Lab Sample ID: 320-77044-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.0	J	1.7	0.50	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.7		1.7	0.17	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.6	J	1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW12-80 — Lab Sample ID: 320-77044-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	11		1.9	0.56	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.6		1.9	0.24	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	11		1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.33	J	1.9	0.30	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.74	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.9		1.9	0.55	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.8		1.9	0.52	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: EVENTS-MW1-25 — Lab Sample ID: 320-77044-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	46		2.0	0.57	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	17		2.0	0.25	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	44		2.0	0.84	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.84	J	2.0	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.1	J	2.0	0.56	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW14-80 — Lab Sample ID: 320-77044-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	36		1.8	0.52	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7		1.8	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.1		1.8	0.77	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	22		1.8	0.18	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	24		1.8	0.51	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.7		1.8	0.49	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: DLG-MW14-180 — Lab Sample ID: 320-77044-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	40		2.2	0.62	ng/L	1		EPA 537(Mod)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7		2.2	0.27	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	3.3		2.2	0.92	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	22		2.2	0.22	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	26		2.2	0.61	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	8.1		2.2	0.58	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: 2006-MW11-30 — Lab Sample ID: 320-77044-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.36	J	1.9	0.30	ng/L	1		EPA 537(Mod)	Total/NA

Client Sample ID: GAC-POST — Lab Sample ID: 320-77044-13

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW01-30

Date Collected: 07/26/21 11:12
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-1

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**24**		1.9	0.55	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluoroheptanoic acid (PFHpA)	**3.8**		1.9	0.24	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorooctanoic acid (PFOA)	**8.9**		1.9	0.81	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorobutanesulfonic acid (PFBS)	**11**		1.9	0.19	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorohexanesulfonic acid (PFHxS)	**120**		1.9	0.54	ng/L		08/04/21 04:42	08/06/21 08:44	1
Perfluorooctanesulfonic acid (PFOS)	**28**		1.9	0.51	ng/L		08/04/21 04:42	08/06/21 08:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		08/04/21 04:42	08/06/21 08:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		08/04/21 04:42	08/06/21 08:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		08/04/21 04:42	08/06/21 08:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		08/04/21 04:42	08/06/21 08:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.30	ng/L		08/04/21 04:42	08/06/21 08:44	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		08/04/21 04:42	08/06/21 08:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C4 PFHpA	*94*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C4 PFOA	*89*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C5 PFNA	*89*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C2 PFDA	*93*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C2 PFUnA	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C2 PFDoA	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C3 PFBS	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
18O2 PFHxS	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C4 PFOS	*85*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
d3-NMeFOSAA	*69*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
d5-NEtFOSAA	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:44*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW01-45

Date Collected: 07/26/21 12:18
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-2

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**0.85**	**J**	1.9	0.56	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluoroheptanoic acid (PFHpA)	**0.43**	**J**	1.9	0.24	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorooctanoic acid (PFOA)	**1.4**	**J**	1.9	0.81	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorobutanesulfonic acid (PFBS)	**0.46**	**J**	1.9	0.19	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorohexanesulfonic acid (PFHxS)	**4.8**		1.9	0.55	ng/L		08/04/21 04:42	08/06/21 08:53	1
Perfluorooctanesulfonic acid (PFOS)	**1.8**	**J**	1.9	0.52	ng/L		08/04/21 04:42	08/06/21 08:53	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.1	ng/L		08/04/21 04:42	08/06/21 08:53	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.2	ng/L		08/04/21 04:42	08/06/21 08:53	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		08/04/21 04:42	08/06/21 08:53	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		08/04/21 04:42	08/06/21 08:53	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		08/04/21 04:42	08/06/21 08:53	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		08/04/21 04:42	08/06/21 08:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C4 PFHpA	*95*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C4 PFOA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C5 PFNA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C2 PFDA	*79*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C2 PFUnA	*77*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C2 PFDoA	*72*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C2 PFTeDA	*69*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C3 PFBS	*77*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
18O2 PFHxS	*85*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C4 PFOS	*78*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
d3-NMeFOSAA	*61*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
d5-NEtFOSAA	*77*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:53*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW14-50

Date Collected: 07/26/21 18:57
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-3

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**63**		1.9	0.56	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluoroheptanoic acid (PFHpA)	**5.7**		1.9	0.24	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorooctanoic acid (PFOA)	**2.1**		1.9	0.83	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.54	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorobutanesulfonic acid (PFBS)	**36**		1.9	0.19	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorohexanesulfonic acid (PFHxS)	**24**		1.9	0.56	ng/L		08/04/21 04:42	08/06/21 09:02	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.53	ng/L		08/04/21 04:42	08/06/21 09:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		08/04/21 04:42	08/06/21 09:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		08/04/21 04:42	08/06/21 09:02	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		08/04/21 04:42	08/06/21 09:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		08/04/21 04:42	08/06/21 09:02	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		08/04/21 04:42	08/06/21 09:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		08/04/21 04:42	08/06/21 09:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C4 PFHpA	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C4 PFOA	*89*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C5 PFNA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C2 PFDA	*96*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C2 PFUnA	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C2 PFDoA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C2 PFTeDA	*78*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C3 PFBS	*83*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
18O2 PFHxS	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C4 PFOS	*85*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
d3-NMeFOSAA	*68*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
d5-NEtFOSAA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*
13C3 HFPO-DA	*79*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:02*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW14-150

Date Collected: 07/26/21 18:47
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-4

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**64**		1.8	0.51	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluoroheptanoic acid (PFHpA)	**5.9**		1.8	0.22	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorooctanoic acid (PFOA)	**2.0**		1.8	0.74	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.27	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.96	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorobutanesulfonic acid (PFBS)	**37**		1.8	0.18	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorohexanesulfonic acid (PFHxS)	**25**		1.8	0.50	ng/L		08/04/21 04:42	08/06/21 09:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	0.47	ng/L		08/04/21 04:42	08/06/21 09:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		08/04/21 04:42	08/06/21 09:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.4	1.1	ng/L		08/04/21 04:42	08/06/21 09:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.21	ng/L		08/04/21 04:42	08/06/21 09:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		08/04/21 04:42	08/06/21 09:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.28	ng/L		08/04/21 04:42	08/06/21 09:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		08/04/21 04:42	08/06/21 09:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C4 PFHpA	*96*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C4 PFOA	*96*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C5 PFNA	*94*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C2 PFDA	*89*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C2 PFUnA	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C2 PFDoA	*83*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C3 PFBS	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
18O2 PFHxS	*89*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C4 PFOS	*86*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
d3-NMeFOSAA	*73*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
d5-NEtFOSAA	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*
13C3 HFPO-DA	*85*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:11*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: EB-MW14-50

Date Collected: 07/26/21 19:40
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-5

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.1	0.60	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluoroheptanoic acid (PFHpA)	ND		2.1	0.26	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorooctanoic acid (PFOA)	ND		2.1	0.88	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorononanoic acid (PFNA)	ND		2.1	0.28	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorodecanoic acid (PFDA)	ND		2.1	0.32	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluoroundecanoic acid (PFUnA)	ND		2.1	1.1	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorododecanoic acid (PFDoA)	ND		2.1	0.57	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorotridecanoic acid (PFTriA)	ND		2.1	1.3	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.1	0.76	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.1	0.21	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.1	0.59	ng/L		08/04/21 04:42	08/06/21 09:20	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.1	0.56	ng/L		08/04/21 04:42	08/06/21 09:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.2	1.2	ng/L		08/04/21 04:42	08/06/21 09:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.2	1.3	ng/L		08/04/21 04:42	08/06/21 09:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.1	0.25	ng/L		08/04/21 04:42	08/06/21 09:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.2	1.6	ng/L		08/04/21 04:42	08/06/21 09:20	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.1	0.33	ng/L		08/04/21 04:42	08/06/21 09:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.1	0.42	ng/L		08/04/21 04:42	08/06/21 09:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*108*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C4 PFHpA	*101*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C4 PFOA	*102*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C5 PFNA	*94*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C2 PFDA	*103*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C2 PFUnA	*108*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C2 PFDoA	*95*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C2 PFTeDA	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C3 PFBS	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
18O2 PFHxS	*98*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C4 PFOS	*95*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
d3-NMeFOSAA	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
d5-NEtFOSAA	*103*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*
13C3 HFPO-DA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:20*	*1*

Client Sample ID: 2006-MW08-20

Date Collected: 07/27/21 11:03
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-6

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**58**		1.7	0.50	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluoroheptanoic acid (PFHpA)	**21**		1.7	0.22	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorooctanoic acid (PFOA)	**59**		1.7	0.74	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorononanoic acid (PFNA)	**4.8**		1.7	0.23	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorodecanoic acid (PFDA)	**0.75**	**J**	1.7	0.27	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorobutanesulfonic acid (PFBS)	**9.0**		1.7	0.17	ng/L		08/04/21 04:42	08/06/21 09:29	1
Perfluorohexanesulfonic acid (PFHxS)	**260**		1.7	0.49	ng/L		08/04/21 04:42	08/06/21 09:29	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		08/04/21 04:42	08/06/21 09:29	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		08/04/21 04:42	08/06/21 09:29	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.7	0.21	ng/L		08/04/21 04:42	08/06/21 09:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		08/04/21 04:42	08/06/21 09:29	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.7	0.28	ng/L		08/04/21 04:42	08/06/21 09:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		08/04/21 04:42	08/06/21 09:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*93*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C4 PFHpA	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C4 PFOA	*97*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C5 PFNA	*75*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C2 PFDA	*97*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C2 PFUnA	*81*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C2 PFDoA	*75*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C2 PFTeDA	*73*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C3 PFBS	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
18O2 PFHxS	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C4 PFOS	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
d3-NMeFOSAA	*65*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
d5-NEtFOSAA	*73*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:29*	*1*

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**1100**		17	4.7	ng/L		08/04/21 04:42	08/08/21 15:44	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*82*		*50 - 150*	*08/04/21 04:42*	*08/08/21 15:44*	*10*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW12-40

Date Collected: 07/28/21 18:52
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-7

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**1.0**	**J**	1.7	0.50	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.22	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.73	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.27	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorobutanesulfonic acid (PFBS)	**1.7**		1.7	0.17	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorohexanesulfonic acid (PFHxS)	**1.6**	**J**	1.7	0.49	ng/L		08/04/21 04:42	08/06/21 09:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.47	ng/L		08/04/21 04:42	08/06/21 09:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		08/04/21 04:42	08/06/21 09:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		08/04/21 04:42	08/06/21 09:38	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.7	0.21	ng/L		08/04/21 04:42	08/06/21 09:38	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		08/04/21 04:42	08/06/21 09:38	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.7	0.28	ng/L		08/04/21 04:42	08/06/21 09:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		08/04/21 04:42	08/06/21 09:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C4 PFHpA	*86*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C4 PFOA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C5 PFNA	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C2 PFDA	*89*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C2 PFUnA	*93*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C2 PFDoA	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C3 PFBS	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
18O2 PFHxS	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C4 PFOS	*83*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
d3-NMeFOSAA	*68*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
d5-NEtFOSAA	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*
13C3 HFPO-DA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 09:38*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW12-80

Date Collected: 07/28/21 20:16
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-8

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**11**		1.9	0.56	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluoroheptanoic acid (PFHpA)	**5.6**		1.9	0.24	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorooctanoic acid (PFOA)	**11**		1.9	0.82	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorodecanoic acid (PFDA)	**0.33**	**J**	1.9	0.30	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorobutanesulfonic acid (PFBS)	**0.74**	**J**	1.9	0.19	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorohexanesulfonic acid (PFHxS)	**7.9**		1.9	0.55	ng/L		08/04/21 04:42	08/06/21 10:06	1
Perfluorooctanesulfonic acid (PFOS)	**4.8**		1.9	0.52	ng/L		08/04/21 04:42	08/06/21 10:06	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		08/04/21 04:42	08/06/21 10:06	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		08/04/21 04:42	08/06/21 10:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		08/04/21 04:42	08/06/21 10:06	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.4	ng/L		08/04/21 04:42	08/06/21 10:06	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		08/04/21 04:42	08/06/21 10:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		08/04/21 04:42	08/06/21 10:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C4 PFHpA	*94*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C4 PFOA	*86*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C5 PFNA	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C2 PFDA	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C2 PFUnA	*78*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C2 PFDoA	*74*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C2 PFTeDA	*67*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C3 PFBS	*76*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
18O2 PFHxS	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C4 PFOS	*74*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
d3-NMeFOSAA	*67*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
d5-NEtFOSAA	*79*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*
13C3 HFPO-DA	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:06*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: EVENTS-MW1-25

Date Collected: 07/29/21 14:16
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-9

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**46**		2.0	0.57	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluoroheptanoic acid (PFHpA)	**17**		2.0	0.25	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorooctanoic acid (PFOA)	**44**		2.0	0.84	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorononanoic acid (PFNA)	**0.84**	**J**	2.0	0.27	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.30	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.54	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.72	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorohexanesulfonic acid (PFHxS)	**1.1**	**J**	2.0	0.56	ng/L		08/04/21 04:42	08/06/21 10:15	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.53	ng/L		08/04/21 04:42	08/06/21 10:15	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		08/04/21 04:42	08/06/21 10:15	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		08/04/21 04:42	08/06/21 10:15	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		08/04/21 04:42	08/06/21 10:15	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		08/04/21 04:42	08/06/21 10:15	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.31	ng/L		08/04/21 04:42	08/06/21 10:15	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.39	ng/L		08/04/21 04:42	08/06/21 10:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*67*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C4 PFHpA	*72*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C4 PFOA	*73*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C5 PFNA	*77*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C2 PFDA	*77*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C2 PFUnA	*68*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C2 PFDoA	*58*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C2 PFTeDA	*41*	**5-*	*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C3 PFBS	*63*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
18O2 PFHxS	*62*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C4 PFOS	*51*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
d3-NMeFOSAA	*54*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
d5-NEtFOSAA	*60*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*
13C3 HFPO-DA	*69*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:15*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW14-80

Date Collected: 07/30/21 09:37
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-10

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**36**		1.8	0.52	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluoroheptanoic acid (PFHpA)	**3.7**		1.8	0.23	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorooctanoic acid (PFOA)	**3.1**		1.8	0.77	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.28	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.50	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.66	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorobutanesulfonic acid (PFBS)	**22**		1.8	0.18	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorohexanesulfonic acid (PFHxS)	**24**		1.8	0.51	ng/L		08/04/21 04:42	08/06/21 10:24	1
Perfluorooctanesulfonic acid (PFOS)	**8.7**		1.8	0.49	ng/L		08/04/21 04:42	08/06/21 10:24	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		08/04/21 04:42	08/06/21 10:24	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		08/04/21 04:42	08/06/21 10:24	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.8	0.22	ng/L		08/04/21 04:42	08/06/21 10:24	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.4	ng/L		08/04/21 04:42	08/06/21 10:24	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.8	0.29	ng/L		08/04/21 04:42	08/06/21 10:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		08/04/21 04:42	08/06/21 10:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*74*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C4 PFHpA	*72*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C4 PFOA	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C5 PFNA	*86*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C2 PFDA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C2 PFUnA	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C2 PFDoA	*66*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C2 PFTeDA	*59*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C3 PFBS	*75*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
18O2 PFHxS	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C4 PFOS	*81*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
d3-NMeFOSAA	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
d5-NEtFOSAA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:24*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW14-180

Date Collected: 07/30/21 00:00
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-11

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**40**		2.2	0.62	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluoroheptanoic acid (PFHpA)	**3.7**		2.2	0.27	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorooctanoic acid (PFOA)	**3.3**		2.2	0.92	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorononanoic acid (PFNA)	ND		2.2	0.29	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorodecanoic acid (PFDA)	ND		2.2	0.33	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2	1.2	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorododecanoic acid (PFDoA)	ND		2.2	0.59	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorotridecanoic acid (PFTriA)	ND		2.2	1.4	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.2	0.79	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorobutanesulfonic acid (PFBS)	**22**		2.2	0.22	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorohexanesulfonic acid (PFHxS)	**26**		2.2	0.61	ng/L		08/04/21 04:42	08/06/21 10:33	1
Perfluorooctanesulfonic acid (PFOS)	**8.1**		2.2	0.58	ng/L		08/04/21 04:42	08/06/21 10:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.4	1.3	ng/L		08/04/21 04:42	08/06/21 10:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.4	1.4	ng/L		08/04/21 04:42	08/06/21 10:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.2	0.26	ng/L		08/04/21 04:42	08/06/21 10:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.3	1.6	ng/L		08/04/21 04:42	08/06/21 10:33	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.2	0.34	ng/L		08/04/21 04:42	08/06/21 10:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.2	0.43	ng/L		08/04/21 04:42	08/06/21 10:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C4 PFHpA	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C4 PFOA	*99*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C5 PFNA	*103*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C2 PFDA	*110*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C2 PFUnA	*96*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C2 PFDoA	*93*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C2 PFTeDA	*63*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C3 PFBS	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
18O2 PFHxS	*93*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C4 PFOS	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
d3-NMeFOSAA	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*
13C3 HFPO-DA	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:33*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: 2006-MW11-30

Date Collected: 07/30/21 00:00
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-12

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.56	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorooctanoic acid (PFOA)	ND		1.9	0.82	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorodecanoic acid (PFDA)	**0.36**	**J**	1.9	0.30	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.71	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.55	ng/L		08/04/21 04:42	08/06/21 10:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		08/04/21 04:42	08/06/21 10:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		08/04/21 04:42	08/06/21 10:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		08/04/21 04:42	08/06/21 10:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.9	0.23	ng/L		08/04/21 04:42	08/06/21 10:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.5	ng/L		08/04/21 04:42	08/06/21 10:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.9	0.31	ng/L		08/04/21 04:42	08/06/21 10:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		08/04/21 04:42	08/06/21 10:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*81*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C4 PFHpA	*83*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C4 PFOA	*94*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C5 PFNA	*87*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C2 PFDA	*98*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C2 PFUnA	*97*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C2 PFDoA	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C2 PFTeDA	*79*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C3 PFBS	*82*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
18O2 PFHxS	*83*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C4 PFOS	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
d3-NMeFOSAA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
d5-NEtFOSAA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*
13C3 HFPO-DA	*81*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:42*	*1*

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: GAC-POST

Date Collected: 07/30/21 20:56
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-13

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.49	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorooctanoic acid (PFOA)	ND		1.7	0.71	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.92	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.46	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.61	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7	0.48	ng/L		08/04/21 04:42	08/06/21 10:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7	0.45	ng/L		08/04/21 04:42	08/06/21 10:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.2	1.0	ng/L		08/04/21 04:42	08/06/21 10:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.2	1.1	ng/L		08/04/21 04:42	08/06/21 10:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.7	0.20	ng/L		08/04/21 04:42	08/06/21 10:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.4	1.3	ng/L		08/04/21 04:42	08/06/21 10:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.7	0.27	ng/L		08/04/21 04:42	08/06/21 10:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		08/04/21 04:42	08/06/21 10:51	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C4 PFHpA	*100*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C4 PFOA	*94*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C5 PFNA	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C2 PFDA	*95*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C2 PFUnA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C2 PFDoA	*79*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C2 PFTeDA	*76*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C3 PFBS	*88*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
18O2 PFHxS	*98*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C4 PFOS	*86*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
d3-NMeFOSAA	*69*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
d5-NEtFOSAA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*
13C3 HFPO-DA	*86*		*50 - 150*	*08/04/21 04:42*	*08/06/21 10:51*	*1*

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Method: EPA 537(Mod) - 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)
320-77044-1	DLG-MW01-30	91	94	89	89	93	88	92	80
320-77044-2	DLG-MW01-45	87	95	84	84	79	77	72	69
320-77044-3	DLG-MW14-50	93	88	89	91	96	88	84	78
320-77044-4	DLG-MW14-150	87	96	96	94	89	87	83	75
320-77044-5	EB-MW14-50	108	101	102	94	103	108	95	92
320-77044-6	2006-MW08-20	93	90	97	75	97	81	75	73
320-77044-6 - DL	2006-MW08-20								
320-77044-7	DLG-MW12-40	84	86	91	92	89	93	87	75
320-77044-8	DLG-MW12-80	84	94	86	87	90	78	74	67
320-77044-9	EVENTS-MW1-25	67	72	73	77	77	68	58	41 *5-
320-77044-10	DLG-MW14-80	74	72	90	86	91	82	66	59
320-77044-11	DLG-MW14-180	90	90	99	103	110	96	93	63
320-77044-12	2006-MW11-30	81	83	94	87	98	97	88	79
320-77044-13	GAC-POST	95	100	94	92	95	91	79	76
LCS 320-512846/2-A	Lab Control Sample	89	99	88	93	99	91	84	84
LCSD 320-512846/3-A	Lab Control Sample Dup	87	98	86	87	95	95	91	77
MB 320-512846/1-A	Method Blank	96	104	96	100	107	97	92	80

		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)		
320-77044-1	DLG-MW01-30	84	90	85	69	88	82		
320-77044-2	DLG-MW01-45	77	85	78	61	77	80		
320-77044-3	DLG-MW14-50	83	92	85	68	80	79		
320-77044-4	DLG-MW14-150	82	89	86	73	82	85		
320-77044-5	EB-MW14-50	92	98	95	88	103	91		
320-77044-6	2006-MW08-20	91	88	82	65	73	80		
320-77044-6 - DL	2006-MW08-20			82					
320-77044-7	DLG-MW12-40	82	90	83	68	82	80		
320-77044-8	DLG-MW12-80	76	82	74	67	79	82		
320-77044-9	EVENTS-MW1-25	63	62	51	54	60	69		
320-77044-10	DLG-MW14-80	75	80	81	82	80	81		
320-77044-11	DLG-MW14-180	87	93	90	90	91	92		
320-77044-12	2006-MW11-30	82	83	84	80	91	81		
320-77044-13	GAC-POST	88	98	86	69	84	86		
LCS 320-512846/2-A	Lab Control Sample	87	94	91	80	85	87		
LCSD 320-512846/3-A	Lab Control Sample Dup	82	89	82	76	91	87		
MB 320-512846/1-A	Method Blank	90	99	92	84	97	91		

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

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-512846/1-A
Matrix: Water
Analysis Batch: 513686

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 512846

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		08/04/21 04:42	08/06/21 08:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		08/04/21 04:42	08/06/21 08:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		08/04/21 04:42	08/06/21 08:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		08/04/21 04:42	08/06/21 08:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		08/04/21 04:42	08/06/21 08:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		08/04/21 04:42	08/06/21 08:16	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.32	ng/L		08/04/21 04:42	08/06/21 08:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		08/04/21 04:42	08/06/21 08:16	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C4 PFHpA	*104*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C4 PFOA	*96*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C5 PFNA	*100*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C2 PFDA	*107*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C2 PFUnA	*97*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C2 PFDoA	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C2 PFTeDA	*80*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C3 PFBS	*90*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
18O2 PFHxS	*99*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C4 PFOS	*92*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
d3-NMeFOSAA	*84*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
d5-NEtFOSAA	*97*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*
13C3 HFPO-DA	*91*		*50 - 150*	*08/04/21 04:42*	*08/06/21 08:16*	*1*

Lab Sample ID: LCS 320-512846/2-A
Matrix: Water
Analysis Batch: 513686

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 512846

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	43.3		ng/L		108	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	46.9		ng/L		117	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	51.0		ng/L		127	71 - 133
Perfluorononanoic acid (PFNA)	40.0	45.0		ng/L		113	69 - 130

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-512846/2-A
Matrix: Water
Analysis Batch: 513686

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 512846

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	40.0	40.9		ng/L		102	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	47.1		ng/L		118	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	47.0		ng/L		117	72 - 134
Perfluorotridecanoic acid (PFTriA)	40.0	48.9		ng/L		122	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	41.0		ng/L		102	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	39.9		ng/L		113	72 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	38.2		ng/L		105	68 - 131
Perfluorooctanesulfonic acid (PFOS)	37.1	42.1		ng/L		113	65 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	51.4		ng/L		129	65 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	46.1		ng/L		115	61 - 135
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	37.3	41.1		ng/L		110	77 - 137
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	42.6		ng/L		106	72 - 132
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	37.7	38.2		ng/L		101	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	43.7		ng/L		116	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*89*		*50 - 150*
13C4 PFHpA	*99*		*50 - 150*
13C4 PFOA	*88*		*50 - 150*
13C5 PFNA	*93*		*50 - 150*
13C2 PFDA	*99*		*50 - 150*
13C2 PFUnA	*91*		*50 - 150*
13C2 PFDoA	*84*		*50 - 150*
13C2 PFTeDA	*84*		*50 - 150*
13C3 PFBS	*87*		*50 - 150*
18O2 PFHxS	*94*		*50 - 150*
13C4 PFOS	*91*		*50 - 150*
d3-NMeFOSAA	*80*		*50 - 150*
d5-NEtFOSAA	*85*		*50 - 150*
13C3 HFPO-DA	*87*		*50 - 150*

Lab Sample ID: LCSD 320-512846/3-A
Matrix: Water
Analysis Batch: 513686

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 512846

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	40.0	44.8		ng/L		112	72 - 129	3	30
Perfluoroheptanoic acid (PFHpA)	40.0	44.2		ng/L		110	72 - 130	6	30
Perfluorooctanoic acid (PFOA)	40.0	46.5		ng/L		116	71 - 133	9	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-512846/3-A
Matrix: Water
Analysis Batch: 513686

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 512846

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)			40.0	43.9		ng/L		110	69 - 130	2	30
Perfluorodecanoic acid (PFDA)			40.0	39.5		ng/L		99	71 - 129	3	30
Perfluoroundecanoic acid (PFUnA)			40.0	42.4		ng/L		106	69 - 133	10	30
Perfluorododecanoic acid (PFDoA)			40.0	42.5		ng/L		106	72 - 134	10	30
Perfluorotridecanoic acid (PFTriA)			40.0	48.9		ng/L		122	65 - 144	0	30
Perfluorotetradecanoic acid (PFTeA)			40.0	42.9		ng/L		107	71 - 132	5	30
Perfluorobutanesulfonic acid (PFBS)			35.4	38.4		ng/L		109	72 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	38.7		ng/L		106	68 - 131	1	30
Perfluorooctanesulfonic acid (PFOS)			37.1	43.4		ng/L		117	65 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	50.5		ng/L		126	65 - 136	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	41.5		ng/L		104	61 - 135	11	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	44.5		ng/L		119	77 - 137	8	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	43.4		ng/L		108	72 - 132	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	40.0		ng/L		106	76 - 136	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	46.5		ng/L		123	81 - 141	6	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*87*		*50 - 150*
13C4 PFHpA	*98*		*50 - 150*
13C4 PFOA	*86*		*50 - 150*
13C5 PFNA	*87*		*50 - 150*
13C2 PFDA	*95*		*50 - 150*
13C2 PFUnA	*95*		*50 - 150*
13C2 PFDoA	*91*		*50 - 150*
13C2 PFTeDA	*77*		*50 - 150*
13C3 PFBS	*82*		*50 - 150*
18O2 PFHxS	*89*		*50 - 150*
13C4 PFOS	*82*		*50 - 150*
d3-NMeFOSAA	*76*		*50 - 150*
d5-NEtFOSAA	*91*		*50 - 150*
13C3 HFPO-DA	*87*		*50 - 150*

LCMS

Prep Batch: 512846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-77044-1	DLG-MW01-30	Total/NA	Water	3535	
320-77044-2	DLG-MW01-45	Total/NA	Water	3535	
320-77044-3	DLG-MW14-50	Total/NA	Water	3535	
320-77044-4	DLG-MW14-150	Total/NA	Water	3535	
320-77044-5	EB-MW14-50	Total/NA	Water	3535	
320-77044-6	2006-MW08-20	Total/NA	Water	3535	
320-77044-6 - DL	2006-MW08-20	Total/NA	Water	3535	
320-77044-7	DLG-MW12-40	Total/NA	Water	3535	
320-77044-8	DLG-MW12-80	Total/NA	Water	3535	
320-77044-9	EVENTS-MW1-25	Total/NA	Water	3535	
320-77044-10	DLG-MW14-80	Total/NA	Water	3535	
320-77044-11	DLG-MW14-180	Total/NA	Water	3535	
320-77044-12	2006-MW11-30	Total/NA	Water	3535	
320-77044-13	GAC-POST	Total/NA	Water	3535	
MB 320-512846/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-512846/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-512846/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 513686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-77044-1	DLG-MW01-30	Total/NA	Water	EPA 537(Mod)	512846
320-77044-2	DLG-MW01-45	Total/NA	Water	EPA 537(Mod)	512846
320-77044-3	DLG-MW14-50	Total/NA	Water	EPA 537(Mod)	512846
320-77044-4	DLG-MW14-150	Total/NA	Water	EPA 537(Mod)	512846
320-77044-5	EB-MW14-50	Total/NA	Water	EPA 537(Mod)	512846
320-77044-6	2006-MW08-20	Total/NA	Water	EPA 537(Mod)	512846
320-77044-7	DLG-MW12-40	Total/NA	Water	EPA 537(Mod)	512846
320-77044-8	DLG-MW12-80	Total/NA	Water	EPA 537(Mod)	512846
320-77044-9	EVENTS-MW1-25	Total/NA	Water	EPA 537(Mod)	512846
320-77044-10	DLG-MW14-80	Total/NA	Water	EPA 537(Mod)	512846
320-77044-11	DLG-MW14-180	Total/NA	Water	EPA 537(Mod)	512846
320-77044-12	2006-MW11-30	Total/NA	Water	EPA 537(Mod)	512846
320-77044-13	GAC-POST	Total/NA	Water	EPA 537(Mod)	512846
MB 320-512846/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	512846
LCS 320-512846/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	512846
LCSD 320-512846/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	512846

Analysis Batch: 514175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-77044-6 - DL	2006-MW08-20	Total/NA	Water	EPA 537(Mod)	512846

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW01-30
Date Collected: 07/26/21 11:12
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			263.7 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 08:44	S1M	TAL SAC

Client Sample ID: DLG-MW01-45
Date Collected: 07/26/21 12:18
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			261.1 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 08:53	S1M	TAL SAC

Client Sample ID: DLG-MW14-50
Date Collected: 07/26/21 18:57
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			256.7 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 09:02	S1M	TAL SAC

Client Sample ID: DLG-MW14-150
Date Collected: 07/26/21 18:47
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			285.7 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 09:11	S1M	TAL SAC

Client Sample ID: EB-MW14-50
Date Collected: 07/26/21 19:40
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			240.9 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 09:20	S1M	TAL SAC

Client Sample ID: 2006-MW08-20
Date Collected: 07/27/21 11:03
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			288.5 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 09:29	S1M	TAL SAC
Total/NA	Prep	3535	DL		288.5 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)	DL	10			514175	08/08/21 15:44	S1M	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: DLG-MW12-40
Date Collected: 07/28/21 18:52
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			289.8 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 09:38	S1M	TAL SAC

Client Sample ID: DLG-MW12-80
Date Collected: 07/28/21 20:16
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			259 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 10:06	S1M	TAL SAC

Client Sample ID: EVENTS-MW1-25
Date Collected: 07/29/21 14:16
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			254.2 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 10:15	S1M	TAL SAC

Client Sample ID: DLG-MW14-80
Date Collected: 07/30/21 09:37
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			277.2 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 10:24	S1M	TAL SAC

Client Sample ID: DLG-MW14-180
Date Collected: 07/30/21 00:00
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			232.2 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 10:33	S1M	TAL SAC

Client Sample ID: 2006-MW11-30
Date Collected: 07/30/21 00:00
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			258 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 10:42	S1M	TAL SAC

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Client Sample ID: GAC-POST

Date Collected: 07/30/21 20:56
Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			297.3 mL	10.0 mL	512846	08/04/21 04:42	EFG	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			513686	08/06/21 10:51	S1M	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Laboratory: Eurofins TestAmerica, Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-77044-1	DLG-MW01-30	Water	07/26/21 11:12	08/02/21 14:40
320-77044-2	DLG-MW01-45	Water	07/26/21 12:18	08/02/21 14:40
320-77044-3	DLG-MW14-50	Water	07/26/21 18:57	08/02/21 14:40
320-77044-4	DLG-MW14-150	Water	07/26/21 18:47	08/02/21 14:40
320-77044-5	EB-MW14-50	Water	07/26/21 19:40	08/02/21 14:40
320-77044-6	2006-MW08-20	Water	07/27/21 11:03	08/02/21 14:40
320-77044-7	DLG-MW12-40	Water	07/28/21 18:52	08/02/21 14:40
320-77044-8	DLG-MW12-80	Water	07/28/21 20:16	08/02/21 14:40
320-77044-9	EVENTS-MW1-25	Water	07/29/21 14:16	08/02/21 14:40
320-77044-10	DLG-MW14-80	Water	07/30/21 09:37	08/02/21 14:40
320-77044-11	DLG-MW14-180	Water	07/30/21 00:00	08/02/21 14:40
320-77044-12	2006-MW11-30	Water	07/30/21 00:00	08/02/21 14:40
320-77044-13	GAC-POST	Water	07/30/21 20:56	08/02/21 14:40

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Laboratory Eurofins Test America
Attn: David Mitchell

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No: —

MSA Number: TBD

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS (EPA 537.1 Liss)	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW01-30		1112	7/26/21	✓	2	Groundwater
DLG-MW01-45		1218		✓	2	
DLG-MW14-50		1857		✓	2	
DLG-MW14-150		1847		✓	2	
EB-MW14-50		1940		✓	2	
2006-MW08-20		1103	7/27/21	✓	2	
DLG-MW12-40		1852	7/28/21	✓	2	
DLG-MW12-80		2016		✓	2	
Events-MW1-25		1416	7/29/21	✓	2	
DLG-MW14-80		0937	7/30/21	✓	2	

320-77044 Chain of Custody

Project Information		Sample Receipt	
Number:	102581-009	Total No. of Containers:	20 24
Name:	Dillingham Airport	COC Seals/Intact? Y/N/NA	
Contact:	MDN	Received Good Cond./Cold	Y
Ongoing Project?	Yes [X] No [ ]	Temp:	5.6°C
Sampler:	VTY/ALF/MDN	Delivery Method:	Goldstreak

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1945 1000	Signature: Time:	Signature: Time:
Printed Name: Marcy Nadel Date: 7/30 8/1/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson, Inc	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 14:40	Signature: Time:	Signature: Time:
Printed Name: Jim Nelson Date: 8/2/21	Printed Name: Date:	Printed Name: Date:
Company: ETAWS	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

8/11/2021

- Time 1412 2/2

5.6°C

No.

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Laboratory Eurofins TestAmerica
Attn: David Althaker

Turn Around Time:	Quote No: —
[X] Normal [ ] Rush	MSA Number: TBD
Please Specify	J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW14-180			7/30/21	2	Groundwater
2006-MW11-30			↓	2	↓
GAC-post		2056	↓	2	Water

Project Information	
Number:	
Name:	
Contact:	
Ongoing Project?	Yes [ ] No [ ]
Sampler:	

Sample Receipt	
Total No. of Containers:	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: M. Madel Time: 1000	Signature: Time:	Signature: Time:
Printed Name: Marcy Madel Date: 8/11/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 14:40	Signature: Time:	Signature: Time:
Printed Name: Date: 8/12/21	Printed Name: Date:	Printed Name: Date:
Company: ETAWS	Company:	Company:

Notes:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

8/11/2021

• Time 1426
○ Time 940

5.6°C

No.

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-77044-1

Login Number: 77044
List Number: 1
Creator: Nelson, Kym D

List Source: Eurofins TestAmerica, 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.	True	102581
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	GEL Packs
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.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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	

Laboratory Data Review Checklist

Completed By:

Justin Risley

Title:

Engineering Staff

Date:

August 31, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Environment Testing

Laboratory Report Number:

320-77044-1

Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-77044-1

Laboratory Report Date:

August 11, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Analyses were performed by the Eurofins Laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

Samples were received at 5.6°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☐ No☐ N/A☒ Comments:

Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☒ No☐ N/A☐ Comments:

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Sample *DLG-MW14-180* and *2006-MW11-30* did have a collection time listed on the COC.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): *EVENTS-MW1-25, DLG-MW14-180*, and *2006-MW11-30.*

Sample *EVENTS-MW1-25* - Client label time listed as 14:12 for 2 of 2 containers while the COC lists 14:16. Logged in according to the COC.

Sample *DLG-MW14-180* - Client label time listed as 14:16 for 2 of 2 containers while the COC is blank. Logged in according to the COC.

Sample *2006-MW11-30* - Client label time listed as 9:40 for 2 of 2 containers while the COC is blank. Logged in according to the COC.

Using the COC times is acceptable for these samples. The results are not affected.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Method EPA 537(Mod): Results for sample *2006-MW08-20* were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit: *EVENTS-MW1-25*. 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 sample(s).

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-512846.

Method 3535: The following samples were observed to be light orange in color and contained sediment prior to extraction: *DLG-MW01-45, EVENTS-MW1-25,* and *DLG-MW14-80*. Preparation batch 320-512846

Method 3535: The following samples were observed to be dark orange in color prior to extraction: *DLG-MW12-80* and *2006-MW11-30*. Preparation batch 320-512846

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Corrective actions are documented above.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Data quality/usability is not affected. See the following sections for our data quality assessment.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

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CS Site Name:

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b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not submitted with this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

Data quality and usability are not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Target PFAS were not detected in the method blank samples associated with this work order.

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Dillingham DOT&PF

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to meet acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD; see 4.b.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD. The LCS/LCSD is used to determine laboratory accuracy.

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD. The LCS/LCSD is used to determine laboratory precision.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. See LCS/LCSD section (6.b) for accuracy and precision quality.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

Percent recovery for 13C2 PFTeDA in project sample *EVENTS-MW1-25* was below laboratory limits. Due to this IDA recovery failure, the PFTeA result in the aforementioned sample is considered estimated with no direction of bias and has been flagged 'UJ' in the analytical database.

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iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

See above.

iv. Data quality or usability affected?

Comments:

The data quality/usability is affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

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CS Site Name:

Dillingham DOT&PF

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *DLG-MW14-50/DLG-MW14-150* and *DLG-MW14-80/DLG-MW14-180* were submitted with this work order.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated between the detected results of the field duplicate samples was within the recommended DQO of 30% for all analytes, where calculable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☒ No☐ N/A☐ Comments:

EB-MW14-50 was submitted with this work order.

i. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

No analytes were detected in the sample.

320-77044-1

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CS Site Name:

Dillingham DOT&PF

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-79756-1
Client Project/Site: DLG PFAS

For:
Shannon & Wilson, Inc
2355 Hill Rd.
Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Authorized for release by:
10/14/2021 3:13:54 PM

David Alltucker, Project Manager I
(916)374-4383
David.Alltucker@Eurofinset.com

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Definitions/Glossary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Job ID: 320-79756-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-79756-1

Receipt
The sample was received on 10/1/2021 2:05 PM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.7º C.

LCMS
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limit. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

Method EPA 537(Mod): The following continuing calibration blank (CCB) has a detection above the reporting limit (RL) for N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA): (ICB 320-531390/9). The CCB is used to demonstrate the instrument is free of contamination. The affected analyte is not detected in the associated samples; therefore, there is no impact to the data quality.

Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: SW-10 (320-79756-1). 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 sample.

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

Organic Prep
Method 3535: During the solid phase extraction process, the following samples contain non-settable particulates which clogged the solid phase extraction column: SW-10 (320-79756-1).
preparation batch 320-530949

Method 3535: The following sample was light brown and contained floating particulates in the sample bottle prior to extraction:SW-10 (320-79756-1).
preparation batch 320-530949

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-530949.

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

Detection Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Client Sample ID: SW-10

Lab Sample ID: 320-79756-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.3	J	1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanoic acid (PFOA)	0.85	J	1.7	0.72	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorononanoic acid (PFNA)	0.27	J I	1.7	0.23	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.2	J	1.7	0.49	ng/L	1		EPA 537(Mod)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.8		1.7	0.46	ng/L	1		EPA 537(Mod)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Client Sample ID: SW-10

Date Collected: 09/30/21 16:20
Date Received: 10/01/21 14:05

Lab Sample ID: 320-79756-1

Matrix: Water

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	1.7	0.49	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.21	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorooctanoic acid (PFOA)	**0.85**	**J**	1.7	0.72	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorononanoic acid (PFNA)	**0.27**	**J I**	1.7	0.23	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorodecanoic acid (PFDA)	ND		1.7	0.26	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.94	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.47	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.62	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7	0.17	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorohexanesulfonic acid (PFHxS)	**1.2**	**J**	1.7	0.49	ng/L		10/04/21 12:03	10/06/21 09:18	1
Perfluorooctanesulfonic acid (PFOS)	**1.8**		1.7	0.46	ng/L		10/04/21 12:03	10/06/21 09:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		10/04/21 12:03	10/06/21 09:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		10/04/21 12:03	10/06/21 09:18	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		1.7	0.20	ng/L		10/04/21 12:03	10/06/21 09:18	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.4	1.3	ng/L		10/04/21 12:03	10/06/21 09:18	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		1.7	0.27	ng/L		10/04/21 12:03	10/06/21 09:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.34	ng/L		10/04/21 12:03	10/06/21 09:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*57*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C4 PFHpA	*53*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C4 PFOA	*85*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C5 PFNA	*66*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C2 PFDA	*79*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C2 PFUnA	*80*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C2 PFDoA	*85*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C2 PFTeDA	*68*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C3 PFBS	*50*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
18O2 PFHxS	*77*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C4 PFOS	*74*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
d3-NMeFOSAA	*72*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
d5-NEtFOSAA	*70*		*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*
13C3 HFPO-DA	*47*	**5-*	*50 - 150*	*10/04/21 12:03*	*10/06/21 09:18*	*1*

Isotope Dilution Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Method: EPA 537(Mod) - 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)
320-79756-1	SW-10	57	53	85	66	79	80	85	68
LCS 320-530949/2-A	Lab Control Sample	97	88	101	89	96	102	93	94
LCSD 320-530949/3-A	Lab Control Sample Dup	93	98	99	91	97	108	101	104
MB 320-530949/1-A	Method Blank	95	101	103	97	102	104	104	101

		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)		
320-79756-1	SW-10	50	77	74	72	70	47 *5-		
LCS 320-530949/2-A	Lab Control Sample	94	101	93	96	101	86		
LCSD 320-530949/3-A	Lab Control Sample Dup	96	104	97	110	111	87		
MB 320-530949/1-A	Method Blank	100	106	102	112	125	93		

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: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-530949/1-A
Matrix: Water
Analysis Batch: 531752

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 530949

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.85	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.27	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.31	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57	ng/L		10/04/21 12:03	10/06/21 08:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.54	ng/L		10/04/21 12:03	10/06/21 08:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		10/04/21 12:03	10/06/21 08:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		10/04/21 12:03	10/06/21 08:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	ND		2.0	0.24	ng/L		10/04/21 12:03	10/06/21 08:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.0	1.5	ng/L		10/04/21 12:03	10/06/21 08:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	ND		2.0	0.32	ng/L		10/04/21 12:03	10/06/21 08:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.40	ng/L		10/04/21 12:03	10/06/21 08:47	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C4 PFHpA	*101*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C4 PFOA	*103*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C5 PFNA	*97*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C2 PFDA	*102*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C2 PFUnA	*104*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C2 PFDoA	*104*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C2 PFTeDA	*101*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C3 PFBS	*100*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
18O2 PFHxS	*106*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C4 PFOS	*102*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
d3-NMeFOSAA	*112*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
d5-NEtFOSAA	*125*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*
13C3 HFPO-DA	*93*		*50 - 150*	*10/04/21 12:03*	*10/06/21 08:47*	*1*

Lab Sample ID: LCS 320-530949/2-A
Matrix: Water
Analysis Batch: 531752

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 530949

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid (PFHxA)	40.0	40.0		ng/L		100	72 - 129
Perfluoroheptanoic acid (PFHpA)	40.0	38.2		ng/L		96	72 - 130
Perfluorooctanoic acid (PFOA)	40.0	38.7		ng/L		97	71 - 133
Perfluorononanoic acid (PFNA)	40.0	38.9		ng/L		97	69 - 130

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-530949/2-A
Matrix: Water
Analysis Batch: 531752

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 530949

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorodecanoic acid (PFDA)	40.0	38.3		ng/L		96	71 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.0		ng/L		98	69 - 133
Perfluorododecanoic acid (PFDoA)	40.0	43.5		ng/L		109	72 - 134
Perfluorotridecanoic acid (PFTriA)	40.0	42.0		ng/L		105	65 - 144
Perfluorotetradecanoic acid (PFTeA)	40.0	44.6		ng/L		111	71 - 132
Perfluorobutanesulfonic acid (PFBS)	35.4	35.6		ng/L		101	72 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.7		ng/L		98	68 - 131
Perfluorooctanesulfonic acid (PFOS)	37.1	36.6		ng/L		99	65 - 140
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	36.7		ng/L		92	65 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	36.8		ng/L		92	61 - 135
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	37.3	38.1		ng/L		102	77 - 137
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	40.0	38.2		ng/L		96	72 - 132
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	37.7	42.9		ng/L		114	76 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	40.5		ng/L		107	81 - 141

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*97*		*50 - 150*
13C4 PFHpA	*88*		*50 - 150*
13C4 PFOA	*101*		*50 - 150*
13C5 PFNA	*89*		*50 - 150*
13C2 PFDA	*96*		*50 - 150*
13C2 PFUnA	*102*		*50 - 150*
13C2 PFDoA	*93*		*50 - 150*
13C2 PFTeDA	*94*		*50 - 150*
13C3 PFBS	*94*		*50 - 150*
18O2 PFHxS	*101*		*50 - 150*
13C4 PFOS	*93*		*50 - 150*
d3-NMeFOSAA	*96*		*50 - 150*
d5-NEtFOSAA	*101*		*50 - 150*
13C3 HFPO-DA	*86*		*50 - 150*

Lab Sample ID: LCSD 320-530949/3-A
Matrix: Water
Analysis Batch: 531752

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 530949

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorohexanoic acid (PFHxA)	40.0	40.1		ng/L		100	72 - 129	0	30
Perfluoroheptanoic acid (PFHpA)	40.0	36.4		ng/L		91	72 - 130	5	30
Perfluorooctanoic acid (PFOA)	40.0	40.5		ng/L		101	71 - 133	5	30

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-530949/3-A
Matrix: Water
Analysis Batch: 531752

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 530949

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)			40.0	38.6		ng/L		97	69 - 130	1	30
Perfluorodecanoic acid (PFDA)			40.0	41.4		ng/L		103	71 - 129	8	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.0		ng/L		92	69 - 133	5	30
Perfluorododecanoic acid (PFDoA)			40.0	39.1		ng/L		98	72 - 134	11	30
Perfluorotridecanoic acid (PFTriA)			40.0	38.9		ng/L		97	65 - 144	8	30
Perfluorotetradecanoic acid (PFTeA)			40.0	38.3		ng/L		96	71 - 132	15	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.6		ng/L		101	72 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	32.9		ng/L		90	68 - 131	8	30
Perfluorooctanesulfonic acid (PFOS)			37.1	35.5		ng/L		96	65 - 140	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	37.3		ng/L		93	65 - 136	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	43.0		ng/L		108	61 - 135	16	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid			37.3	35.9		ng/L		96	77 - 137	6	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)			40.0	41.7		ng/L		104	72 - 132	9	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid			37.7	42.6		ng/L		113	76 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			37.7	39.2		ng/L		104	81 - 141	3	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*93*		*50 - 150*
13C4 PFHpA	*98*		*50 - 150*
13C4 PFOA	*99*		*50 - 150*
13C5 PFNA	*91*		*50 - 150*
13C2 PFDA	*97*		*50 - 150*
13C2 PFUnA	*108*		*50 - 150*
13C2 PFDoA	*101*		*50 - 150*
13C2 PFTeDA	*104*		*50 - 150*
13C3 PFBS	*96*		*50 - 150*
18O2 PFHxS	*104*		*50 - 150*
13C4 PFOS	*97*		*50 - 150*
d3-NMeFOSAA	*110*		*50 - 150*
d5-NEtFOSAA	*111*		*50 - 150*
13C3 HFPO-DA	*87*		*50 - 150*

QC Association Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

LCMS

Prep Batch: 530949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-79756-1	SW-10	Total/NA	Water	3535	
MB 320-530949/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-530949/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-530949/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 531752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-79756-1	SW-10	Total/NA	Water	EPA 537(Mod)	530949
MB 320-530949/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	530949
LCS 320-530949/2-A	Lab Control Sample	Total/NA	Water	EPA 537(Mod)	530949
LCSD 320-530949/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 537(Mod)	530949

Lab Chronicle

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Client Sample ID: SW-10

Date Collected: 09/30/21 16:20
Date Received: 10/01/21 14:05

Lab Sample ID: 320-79756-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			293.7 mL	10.0 mL	530949	10/04/21 12:03	OP	TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			531752	10/06/21 09:18	S1M	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Laboratory: Eurofins TestAmerica, Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24

Method Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Method	Method Description	Protocol	Laboratory
EPA 537(Mod)	PFAS for QSM 5.3, Table B-15	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-79756-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-79756-1	SW-10	Water	09/30/21 16:20	10/01/21 14:05

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory Test America
Attn: David Aeschbacher

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	J-Flags: [X] Yes [ ] No
Please Specify	

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	PFAS 1/18	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SW-10		1620	9/30	X	2	surface water

320-79756 Chain of Custody

Project Information		Sample Receipt	
Number:	10258I-009	Total No. of Containers:	2
Name:	DLG PFAS	COC Seals/Intact? Y/N/NA	
Contact:	Marey Nadel	Received Good Cond./Cold	
Ongoing Project?	Yes [X] No [ ]	Temp:	4.7 c
Sampler:	VTY	Delivery Method:	goldstreak

Notes:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1700	Signature: Time:	Signature: Time:
Printed Name: Veselina Yakimova Date: 9/30/21	Printed Name: Date:	Printed Name: Date:
Company: Shannon & Wilson	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 1705	Signature: Time:	Signature: Time:
Printed Name: David He Date: 10/1/21	Printed Name: Date:	Printed Name: Date:
Company: TA San	Company:	Company:

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

4.7 oc

No. 36388

10/14/2021

Login Sample Receipt Checklist

Client: Shannon & Wilson, Inc

Job Number: 320-79756-1

Login Number: 79756
List Number: 1
Creator: Her, David A

List Source: Eurofins TestAmerica, 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.	True	SEAL
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	

Laboratory Data Review Checklist

Completed By:

Rachel Willis

Title:

Environmental Scientist

Date:

October 29, 2021

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Environment Testing

Laboratory Report Number:

320-79756-1

Laboratory Report Date:

October 14, 2021

CS Site Name:

Dillingham DOT&PF

ADEC File Number:

2540.38.023

Hazard Identification Number:

26971

320-79756-1

Laboratory Report Date:

October 14, 2021

CS Site Name:

Dillingham DOT&PF

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   Analyses were performed by the Eurofins TestAmerica laboratory in West Sacramento, CA. The laboratory is approved by the DEC CS program and certified under the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) for the requested analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Samples were not transferred or sub-contracted to an alternate laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   Samples were received at 4.7°C.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

320-79756-1

Laboratory Report Date:

October 14, 2021

CS Site Name:

Dillingham DOT&PF

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

The sample receipt form notes that the samples arrived in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☐ No☐ N/A☒ Comments:

There were not discrepancies identified by the laboratory.

e. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The "I" qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limit. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. The analyte perfluorononanoic acid (PFNA) in sample *SW-10* was flagged "I" by the laboratory. The sample result is considered estimated, biased high, and is flagged "JH*" in the analytical summary tables.

The continuing calibration blank (CCB) associated with batch 320-531390 had a detection above the reporting limit for N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA). NEtFOSAA was not detected in the associated project samples. Samples results are not affected by the CCB detection.

The isotope dilution analyte (IDA) recovery for project sample *SW-10* was below the recommended limit. 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 sample. Refer to Section 6.d for further assessment.

Sample *SW-10* was light brown and had floating particulates in the bottle after final extraction. The sample also contained non-settleable particles which clogged the solid phase extraction column.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-530949.

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Corrective actions are documented above.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

According to the case narrative, the data quality/usability are not affected. See the following sections for our data quality assessment.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

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b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soils were not submitted with this work order.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☒ No☐ N/A☐ Comments:

e. Data quality or usability affected?

Data quality and usability are not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None; target analytes were not detected in the method blank sample.

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iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

v. Data quality or usability affected?

Comments:

Data quality and/or usability are not affected; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. Method accuracy and precision were demonstrated to meet acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected; see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD. Refer to Section 6.b for assessment of laboratory accuracy and precision.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals and/or inorganics were not analyzed as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD. The LCS/LCSD is used to determine laboratory accuracy.

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

There was insufficient volume to perform a MS/MSD. The LCS/LCSD is used to determine laboratory precision.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

No samples are affected. See LCS/LCSD section (6.b) for accuracy and precision quality.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

See above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

The data quality/usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

The surrogate 13C3 HFPO-DA exhibited low recovery in sample *SW-10*.

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iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☒ No☐ N/A☐ Comments:

The analyte HFPO-DA is associated with the surrogate 13C-HFPO-DA. The HFPO-DA sample result for *SW-10* is considered affected and is flagged "UJ" in the analytical database.

iv. Data quality or usability affected?

Comments:

The data quality/usability is affected; see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☐ No☐ N/A☒ Comments:

PFAS are not volatile compounds; therefore, a trip blank is not required.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☐ No☐ N/A☒ Comments:

See above.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

See above.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples were affected.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

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f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

Field duplicates were submitted at the required project frequency. However, a field duplicate was not submitted with this work order.

ii. Submitted blind to lab?

Yes☐ No☐ N/A☒ Comments:

Field duplicate pairs were not included in this work order; see above.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☐ N/A☒ Comments:

Field duplicate pairs were not included in this work order; see above.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and/or usability are not affected; see above.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples were not collected with reusable sampling equipment. An equipment blank was not required for this project.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

An equipment blank was not required for this project.

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ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples affected; see above.

iii. Data quality or usability affected?

Comments:

Data quality and/or usability were not affected; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers.

APPENDIX F: ECOSCOPING FORM AND CONCEPTUAL SITE MODEL

Appendix F

Ecoscoping Form and Conceptual Site Model

CONTENTS

- Ecoscoping Form
- Conceptual Site Model Scoping Form
- Conceptual Site Model Graphic Form

Ecoscoping Form

Site Name: Dillingham Airport
Completed by: Shannon & Wilson, Inc.
Date: March 7, 2023

Instructions: Follow the italicized instructions in each section below. "Off-ramps," where the evaluation ends before completing all of the sections, can be taken when indicated by the instructions. Comment boxes should be used to help support your answers.

1. Direct Visual Impacts and Acute Toxicity

Are direct impacts that may result from the site contaminants evident, or is acute toxicity from high contaminant concentrations suspected? C*heck the appropriate box.*

☐ Yes – D*escribe observations below and evaluate all of the remaining sections without taking any off-ramps.*
☒ No – *Go to next section.*

Comments:

2. Terrestrial and Aquatic Exposure Routes

Check each terrestrial and aquatic route that could occur at the site.

Terrestrial Exposure Routes

☒ Exposure to water-borne contaminants as a result of wading or swimming in contaminated waters or ingesting contaminated water.
☒ Contaminant uptake in terrestrial plants whose roots are in contact with contaminated surface water.
☐ Contaminant migration via saturated or unsaturated groundwater zones and discharge at upland "seep" locations (not associated with a wetland or waterbody).
☒ Contaminant uptake by terrestrial plants whose roots are in contact with soil moisture or groundwater present within the root zone (generally no more than 4 feet below ground surface.
☐ Particulates deposited on plants directly or from rain splash.
☒ Incidental ingestion and/or exposure while animals grub for food, burrow (up to 2 feet for small animals or 6 feet for large animals), or groom.

☐ Inhalation of fugitive dust or vapors disturbed by foraging or burrowing activities.

☒ Bioaccumulatives (other than PAHs, which bioaccumulate more readily in aquatic environments) taken up by soil invertebrates, which are in turn eaten by higher food chain organisms (see the *Policy Guidance on Developing Conceptual Site Models*).

☐ Other site-specific exposure pathways.

Aquatic Exposure Routes

☒ Contaminated surface runoff migration to water bodies through swales, drainage ditches, or overland flow.

☒ Aquatic receptors exposed through osmotic exchange, respiration, or ventilation of surface waters.

☐ Contaminant migration via saturated or unsaturated groundwater zones and discharge at "seep" locations along banks or directly to surface water.

☐ Deposition into sediments from upwelling of contaminated groundwater.

☒ Aquatic receptors may be exposed directly to contaminated sediments through foraging or burrowing, or indirectly exposed due to osmotic exchange, respiration, or ventilation of sediment pore water.

☒ Aquatic plants rooted in contaminated sediments.

☒ Bioaccumulatives (see the *Policy Guidance on Developing Conceptual Site Models*) taken up by sediment invertebrates, which are in turn eaten by higher food chain organisms.

☐ Other site-specific exposure pathways.

If any of the above boxes are checked, go on to the next section. If none are checked, end the evaluation and check the box below.

☐ OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

3. Habitat

Check all that may apply. See Ecoscoping Guidance for additional help.

☒ Habitat that could be affected by the contamination supports valued species (i.e., species that are regulated, used for subsistence, have ceremonial importance, have commercial value, or provide recreational opportunity).

☒ Critical habitat or anadromous stream in an area that could be affected by the contamination.

☐ Habitat that is important to the region that could be affected by the contamination.

☐ Contamination is in a park, preserve, or wildlife refuge.

If any of the above boxes are checked, go on to the next scoping factor. If none are checked, end the evaluation and check the box below.

☐ OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

The anadromous stream called Seven Sisters Creek is located directly south of the Dillingham Airport and may be impacted by contaminated surface water and groundwater drainage. PFOS was identified above groundwater cleanup levels at the drainage outflow. The creek is used by locals for fishing.

4. Contaminant Quantity

Check all that may apply. See Ecoscoping Guidance for additional help.

☐ Endangered or threatened species are present.

■ The aquatic environment is or could be affected.

■ Non-petroleum contaminants may be present, or the total area of petroleum-contaminated surface soil exceeds one-half acre.

If any of the above boxes are checked, go on to the next scoping factor. If none are checked, end the evaluation and check the box below.

☐ OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

5. Toxicity Determination

Check all that apply.

■ Bioaccumulative chemicals are present (see *Policy Guidance on Developing Conceptual Site Models*).

■ Contaminants exceed benchmark levels (see the Ecological Benchmark Tool in RAIS, available at: http://rais.ornl.gov/tools/eco_search.php).

If either box is checked, complete a detailed Ecological Conceptual Site Model (see DEC's Policy Guidance on Developing Conceptual Site Models*) and submit it with the form to your DEC project manager.*

If neither box is checked, check the box below and submit this form to your DEC project manager.

☐ OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY

Comments:

Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Dillingham Airport

File Number: 2540.38.023

Completed by: Shannon & Wilson, Inc.

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☒ Other: AFFF discharge for testing, training, and emergency response

Release Mechanisms *(check potential release mechanisms at the site)*

- ☒ Spills
- ☒ Leaks
- ☒ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☒ Sediment
- ☒ Groundwater
- ☒ Surface water
- ☒ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☒ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☒ Subsistence harvester (i.e. gathers wild foods)
- ☒ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☒ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

PFOS and/or PFOA were identified above soil-cleanup levels at the southwest former AFFF training area (SB13, SB14, and SS-Grid samples), south of the apron (SB3), and southwest of the lease lots (SB9). Soil boring SB3 is near long-term airport parking. The other locations are within the DLG restricted area.

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

PFOA and PFOS were identified in Dillingham Airport surface soil. According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. However, Appendix B of the DEC 2017 Guidance on Developing CSMs includes both PFOS and PFOA. We consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the ground-water is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

PFOS and PFOA have been detected at concentrations exceeding the EPA lifetime health advisory level in onsite and offsite residential and commercial drinking water wells. Properties with known exceedances of drinking water standards are being supplied bottled water.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☒

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

The airport is constructed in a muskeg bog on a hill overlooking Nushagak Bay. Surface water runoff from the airport is diverted into drainage ditches, the surrounding muskeg, and an estuary. Surface water is not a drinking water source.

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

If all of the boxes are checked, label this pathway complete: Complete

Comments:

PFOS and PFOA have the potential to bioaccumulate and could be taken up by plants, fish, and birds. Residents fish in the nearby estuary and Nushagak Bay. Residents may also harvest plants and berries around the airport. Contaminated well water could be used for gardening.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

PFAS contaminants are not volatile.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☐

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Initial site characterization activities did not identify petroleum soil contamination at former fire training areas. PFAS contaminants are not volatile.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

Some residential and commercial water supply wells on and near airport property have PFOS and PFOA concentrations that exceed the EPA lifetime health advisory level. These wells are used for domestic purposes including bathing. Residents, site visitors, commercial workers, subsistence harvesters, DOT&PF employees, and construction workers could come in contact with PFOS-contaminated surface water.

According to the Alaska Department of Health and Social Services, PFOS and PFOA are not appreciably absorbed through the skin. We therefore consider dermal exposure to these compounds to be insignificant for the purposes of this CSM.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

PFAS compounds are not volatile.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

PFOS and PFOA were identified above soil-cleanup levels in exposed surface soil. Unpaved portions of the Dillingham Airport can be dusty in the summertime.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

PFOS and DRO were identified above soil-cleanup levels in sediment from airport drainage ditches and culverts. One of these locations is accessible to the public. Behind the DLG fence, direct contact with sediment could be a future exposure pathway during drainage repair or other construction activities.

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Dillingham Airport

Completed By: Shannon & Wilson, Inc.

Date Completed: 12/7/2021

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Current & Future Receptors: Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ Surface Soil (0-2 ft bgs)	☑ Direct release to surface soil → check soil	☑ soil	☑ Incidental Soil Ingestion	C/F	C/F	C/F	C/F	C/F		
	☑ Migration to subsurface → check soil		☑ Dermal Absorption of Contaminants from Soil	I	I	I	I	I		
	☑ Migration to groundwater → check groundwater		☑ Inhalation of Fugitive Dust	I	C/F	I	C/F			
	☐ Volatilization → check air	☑ groundwater	☑ Ingestion of Groundwater	F	F	F	F			
	☑ Runoff or erosion → check surface water		☑ Dermal Absorption of Contaminants in Groundwater	I	I	I	I			
	☑ Uptake by plants or animals → check biota		☐ Inhalation of Volatile Compounds in Tap Water							
	☑ Other (list): runoff to sediment	☐ air	☐ Inhalation of Outdoor Air							
☐ Subsurface Soil (2-15 ft bgs)	☐ Direct release to subsurface soil → check soil		☐ Inhalation of Indoor Air							
	☐ Migration to groundwater → check groundwater		☐ Inhalation of Fugitive Dust							
	☐ Volatilization → check air	☐ surface water	☐ Ingestion of Surface Water							
	☐ Uptake by plants or animals → check biota		☑ Dermal Absorption of Contaminants in Surface Water	I	I	I	I	I		
	☐ Other (list):		☐ Inhalation of Volatile Compounds in Tap Water							
☐ Ground-water	☐ Direct release to groundwater → check groundwater	☑ sediment	☑ Direct Contact with Sediment	C/F	F	C/F	F	C/F		
	☐ Volatilization → check air	☑ biota	☑ Ingestion of Wild or Farmed Foods	C/F		C/F		C/F	C/F	
	☐ Flow to surface water body → check surface water									
	☐ Flow to sediment → check sediment									
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☐ Surface Water	☐ Direct release to surface water → check surface water									
	☐ Volatilization → check air									
	☐ Sedimentation → check sediment									
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☐ Sediment	☐ Direct release to sediment → check sediment									
	☐ Resuspension, runoff, or erosion → check surface water									
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									

IMPORTANT INFORMATION

Important Information

About Your Environmental Report

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CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent

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such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

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READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland