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REVISED

# Dillingham Airport Initial PFAS Site Characterization DILLINGHAM, ALASKA









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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

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Important Information

°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 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.

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



Exhibit 1-1: Southwest former ARFF training area

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 ( $\mu g/kg$ ) and 1.7  $\mu g/kg$ , 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 ( $\mu g/L$ ). The soil limits are reported in milligrams per kilogram (mg/kg).

Exhibit 1-4: Regulatory and Action Levels

Method	Analyte	Soil Limit <sup>a</sup> (mg/kg)	Water Limit <sup>b</sup> (µg/L)
	PFOS	0.0030	0.40
537M	PFOA	(mg/kg)  0.0030  0.0017   300  250  11,000  VOCs)  0.000031 to 72  0.022  6.7  0.13  1.5  (TAH)   Is (PAHs)  0.038 to 15,000	0.40
	PFOS + PFOA °		0.070
AK101	GRO	300	2,200
AK102	DRO	250	1,500
AK103	RRO	11,000	1,100
	Volatile organic compounds (VOCs)	0.000031 to 72	0.0075 to 21,000
	Benzene	0.022	4.6
EDA 0000	Toluene	0.0030 0.0017 300 250 11,000 0.000031 to 72 0.022 6.7 0.13 1.5	1,100
EPA 8260	Ethylbenzene		15
	Xylenes (total)	1.5	190
	Total aromatic hydrocarbons (TAH)		10
EPA	Polycyclic aromatic hydrocarbons (PAHs)	0.038 to 15,000	0.19 to 530
8270D-SIM	Total aqueous hydrocarbons (TAqH)		15

#### Notes:

VOC and PAH cleanup levels vary with analyte

## 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.

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

- 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.

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



Exhibit 2-3: Well installation at MW03

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 prepack 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



Exhibit 2-4: Entrained silt in MW development water

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.

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

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,



Exhibit 2-5: Filtering purge water with GAC

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



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

were decontaminated with a low-foaming, biodegradable detergent and rinsed using a pressure washer. The decontamination water flowed to the DOT&PF shop sump.

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  $\mu$ g/kg in five surface soil samples from the southwest former ARFF training area (Table 2; Figure 5). The highest PFOS concentration was 15  $\mu$ g/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\*  $\mu$ g/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  $\mu$ g/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  $\mu$ g/kg at the southwest training area (sample *SB13-0-0.5*), 5.7  $\mu$ g/kg southwest of the lease lots (sample *SB9-0-0.5*), and 4.5  $\mu$ g/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  $\mu$ g/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  $\mu$ g/kg south of the apron, over five times the soil-cleanup level of 1.7  $\mu$ g/kg (sample *SB3-0-0.8*). Subsurface PFOA soil results are shown in Figure 7. PFOA was found at a higher concentration, 16  $\mu$ g/kg, at approximately 37 feet bgs southwest of the lease lots (sample *SB9-36.6-36.8*). PFOA was also found at 3.5  $\mu$ g/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  $\mu$ g/kg and PFHxA at 6.4  $\mu$ g/kg in soil from 11 feet bgs at the southwest training area (sample *SB13-10.9-11.4*). PFNA was found at 15 J\*  $\mu$ g/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



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

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 watersupply 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.

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  $\mu$ g/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  $\mu$ g/kg and 3.2 J\*  $\mu$ g/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  $\mu$ g/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.

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



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

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

	Cleanup	)	SS-01	SS-02	SS-03	SS	-04	SS-06	SS-07	SS-08	SS-09	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS	S-16	SS-18	SS-19
Analyte	Level	Units	7/7/21	7/7/21	7/7/21	7/7/21	Duplicate	7/7/21	7/7/21	7/7/21	7/7/21	7/7/21	7/7/21	7/7/21	7/7/21	7/7/21	7/7/21	7/8/21	Duplicate	7/8/21	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 (9CI-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.

Dillingham Airport PFAS Site Characterization



Table 2 - Southwest Training Area Soil Grid Results

nalytical Metho	od Analyte	Cleanup Leve	el Units	<b>SS-Grid-A1</b> 7/8/2021	<b>SS-Grid-A2</b> 7/8/2021	<b>SS-G</b> 1 7/8/2021	rid-A3 Duplicate	<b>SS-Grid-B2</b> 7/8/2021	<b>SS-Grid-B3</b> 7/8/2021	<b>SS-Grid-C1</b> 7/8/2021	<b>SS-Grid-C2</b> 7/8/2021	<b>SS-Grid-C</b> 3 7/8/2021
AK101	Gasoline Range Organics (GRO)	300	mg/kg	—	—	<2.00 B*	<2.05 B*	<del>-</del>	——————————————————————————————————————	<del>-</del>	<del>-</del>	
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			_	_	_
0.0.2.1.20.100	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	_	_	<0.008000	<0.000820	_	_	_	_	
	1,1,2-Trichloroethane	0.0014	mg/kg	_	_	<0.000320	<0.000328	_	_	_	_	_
	1,1-Dichloroethane	0.092	mg/kg	<del>_</del>	_	<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			<0.00800	<0.000820					
	1,2,4-Trichlorobenzene	0.082	mg/kg			<0.0100	<0.0103					
	1,2,4-Trimethylbenzene	0.61	mg/kg			<0.0100	<0.0205		<del>_</del>			
	1,2-Dibromo-3-chloropropane	NS				<0.0399	<0.0410	<del></del>	<del>_</del>		<del>_</del>	_
	1,2-Dibromoethane	0.00024	mg/kg	<u> </u>		<0.00399	<0.00410		<u> </u>			
	,		mg/kg	<u> </u>					<u> </u>			
	1,2-Dichlorobenzene	2.4	mg/kg			<0.0100	<0.0103	<del>_</del>	<u> </u>			_
	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	_	<del>-</del>	<0.0100	<0.0103	_	_	_	_	_
SW8260D	2,2-Dichloropropane	NS	mg/kg	<u> </u>	<u> </u>	<0.0100	<0.0103					
(VOCs)	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	<u> </u>	<u> </u>	<0.0100	< 0.0103	<u> </u>	_	_	<u> </u>	_
	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	_	<del>_</del>	_	_	_
	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			<0.00499	<0.00205					
	Dibromomethane	0.0027	mg/kg			<0.0100	<0.0103					
	Dichlorodifluoromethane	3.9	mg/kg			<0.0100	<0.0205	<u>_</u>		<u>_</u>	<u></u>	
	Ethylbenzene	0.13				<0.0199	<0.0203					
	Lutyibetizette	0.13	mg/kg			<b>\0.0100</b>	\U.U1U3	_		_		

Dillingham Airport PFAS Site Characterization

### **SHANNON & WILSON**

Table 2 - Southwest Training Area Soil Grid Results

				SS-Grid-A1	SS-Grid-A2	SS-G	rid-A3	SS-Grid-B2	SS-Grid-B3	SS-Grid-C1	SS-Grid-C2	SS-Grid-C3
nalytical Method	Analyte	Cleanup Lev	el Units	7/8/2021	7/8/2021	7/8/2021	Duplicate	7/8/2021	7/8/2021	7/8/2021	7/8/2021	7/8/2021
_	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	_	_	_	_	_
SW8260D	p-Isopropyltoluene	NS	mg/kg	_	_	< 0.0399	< 0.0410	_	_	_	_	_
/OCs continued)	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	_	_	_	_	_
	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	_	_	<u> </u>	_	_
	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		_			
8270D SIM	Benzo(g,h,i)perylene	15,000	mg/kg	_	_	<0.0525	<0.129	_	_	_	_	_
(PAHs)	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			<0.0323	<0.129					
	Phenanthrene	39				<0.0420	<0.103					
	Pyrene Pyrene	87	mg/kg mg/kg		_	<0.0525	<0.129	_	_	_	_	_



Table 2 - Southwest Training Area Soil Grid Results

				SS-Grid-A1	SS-Grid-A2	SS-G	rid-A3	SS-Grid-B2	SS-Grid-B3	SS-Grid-C1	SS-Grid-C2	SS-Grid-C3
<b>Analytical Metho</b>	d Analyte	Cleanup Level	Units	7/8/2021	7/8/2021	7/8/2021	Duplicate	7/8/2021	7/8/2021	7/8/2021	7/8/2021	7/8/2021
	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
EPA 537(Mod)	Perfluorotridecanoic acid (PFTrDA)	NS	μg/kg	<0.21	< 0.19	< 0.19	_	<0.21 J*	<0.20	<0.21	< 0.20	<0.21
(PFAS)	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 (9CI-PF3ONS)	NS	μg/kg	<0.21	< 0.19	< 0.19	_	<0.21 J*	<0.20	<0.21 J*	< 0.20	<0.21
	TT-CHIOLOGICOSAHOOLO-9-0XAGHIGGCAHG-1-SUHOHIG ACIG (TTCI-	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.

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. (\*)

Dillingham Airport PFAS Site Characterization



 Table 3 - Offsite Surface Soil Analytical Results

	Cleanup	)	SS-20	SS-21	SS-22	SS	5-23	SS-25	SS-26	SS-27
Analyte	Level	Units	7/7/21	7/7/21	7/7/21	7/7/21	Duplicate	7/7/21	7/7/21	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 (9CI-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.



Table 4 - Soil Boring PFAS Results

			S	B1		SB2				SB3				S	B4		SI	B5
	Cleanup		15.7-16.3		31.7-32.3	37.5-38.4	45.3-46.0	0-0.8		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	
Analyte	Level	Units	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.



Table 4 - Soil Boring PFAS Results

					SB6			SB7			SB8			S	В9			SB10	
	Cleanup		0-0.5	6.9	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	3-32.0	36.0-37.1
Analyte	Level	Units	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 (9CI-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.



Table 4 - Soil Boring PFAS Results

					SB11					SB12				SB	313			SB	14	
	Cleanup		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	6-41.8
Analyte	Level	Units	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 (9CI-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.

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

Table 5 - Soil Boring Petroleum and Metals Results

				SB7	SB11	SE		Drum 40	Drum 55
Analytical	Analysis	Cleanup	1124	<b>28.8-30.2</b> 7/12/21	<b>22.5-25.4</b> 7/17/21	7/22/21	37.5 Duplicate	<b>SB11</b> 7/26/21	<b>SB13, SB 1</b> 7/26/21
Method AK101	Analyte Gasoline Range Organics (GRO)	Level 300	Units 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		
/121 2540G	Total Solids	NS	%	85.3	83.3	86.0	86.8	84.2	84.0
MZ1 20400	1,1,1,2-Tetrachloroethane	0.022	mg/kg	<0.0113	<0.0118	<0.00825	<0.0103	——————————————————————————————————————	— O4.0
	1,1,1-Trichloroethane	32		<0.0113	<0.0117	<0.0103	<0.0103		
	1,1,2,2-Tetrachloroethane	0.003	mg/kg	<0.0141	<0.0147	<0.000825	<0.0128		
	1,1,2-Trichloroethane	0.003	mg/kg mg/kg	<0.00112	<0.00110	<0.000329	<0.00103		
	1,1-Dichloroethane	0.0014	mg/kg	<0.000449	<0.000472	<0.000329	<0.000409		
	1,1-Dichloroethene	1.2	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128		
	1,1-Dichloropropene	NS		<0.0141	<0.0147	<0.0103	<0.0128		
	1,2,3-Trichlorobenzene	0.15	mg/kg	<0.0141	<0.0147	<0.0103	<0.0126	_	
			mg/kg	<0.0281	<0.0295	<0.0205	<0.0250		
	1,2,3-Trichloropropane	0.000031	mg/kg					<del>-</del>	
	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 0.00024	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	_	_
	1,2-Dibromoethane 1,2-Dichlorobenzene	0.00024	mg/kg	<0.000560	<0.000590	<0.000411	<b>&lt;0.000510</b> <b>&lt;0.0128</b>	_	_
	•	2.4	mg/kg	<0.0141	<0.0147	<0.0103		<del>_</del>	
	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 0.007	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	_	<del>-</del>
	2-Hexanone	0.11	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	_	
W 8260D (VOCs)	4-Chlorotoluene	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	_	
(VOCS)	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	_	<del>_</del>
	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	_	_
ļ	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	_	_
ļ	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		
ļ	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	_	
l l	n-Butylbenzene	23	mg/kg	<0.0141	< 0.0147	<0.0103	<0.0128		

**Table 5 - Soil Boring Petroleum and Metals Results** 

nalytical Method	Analyte	Cleanup	Unite	<b>SB7</b> <b>28.8-30.2</b> 7/12/21	SB11 22.5-25.4 7/17/21	\$E 35-3 7/22/21	37.5 Duplicate	<b>Drum 40</b> <b>SB11</b> 7/26/21	Drum 55 SB13, SB 7/26/21
Metnod	Analyte	Level	Units						
	n-Propylbenzene	9.1	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	<del>-</del>	_
-	o-Xylene	1.5	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	<del>_</del>	_
-	p-Isopropyltoluene	NS	mg/kg	<0.0560	<0.0590	<0.0411	<0.0510	<u> </u>	<u> </u>
-	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	_	
W 0000D	tert-Butylbenzene	11	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128	_	_
N 8260D (VOCs	Tetrachloroethene	0.19	mg/kg	<0.00700	<0.00735	<0.00515	<0.00640	<u> </u>	_
ntinued)	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	_	_
	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		<0.0146		<0.0144	<0.0142		
-			mg/kg						
-	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	_	_
70D SIM PAH)	Benzo(g,h,i)perylene	15,000	mg/kg	<0.0146		<0.0144	<0.0142	<del>_</del>	
(FAN)	Benzo(k)fluoranthene	190	mg/kg	<0.0146	_	<0.0144	<0.0142	_	_
-	Chrysene	600	mg/kg	<0.0146	_	<0.0144	<0.0142	<del>-</del>	_
-	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	_	_
	1,2,4-Trichlorobenzene	0.082	mg/kg	_	_	_	_	<0.740	<0.74
-	1,2-Dichlorobenzene	2.4	mg/kg	_	_		_	<0.740	<0.74
-	1,3-Dichlorobenzene	2.3	mg/kg	_	_	_	_	<0.740	<0.74
-	1,4-Dichlorobenzene	0.037	mg/kg	_	_	_	_	<0.740	<0.74
-	1-Chloronaphthalene	NS	mg/kg	_	_	_	_	<0.740	<0.74
-	1-Methylnaphthalene	0.41	mg/kg	_	_			<0.740	<0.74
-	2,4,5-Trichlorophenol	28	mg/kg			_	<u> </u>	<0.740	<0.74
-	2,4,6-Trichlorophenol	0.092	mg/kg					<0.740	<0.74
, 0070D	2,4-Dichlorophenol	0.21						<0.740	<0.74
V 8270D SVOCs)	2,4-Dimethylphenol	3.2	mg/kg	<u> </u>	_		_ <del>-</del>	<0.740	<0.740
	* .		mg/kg	<u> </u>	_		_		
-	2,4-Dinitrophenol	0.34	mg/kg	_	_	_		<8.90	<8.85
F	2,4-Dinitrotoluene	0.024	mg/kg	_	_	<del>-</del>	_	<0.740	<0.74
-	2,6-Dichlorophenol	NS	mg/kg			<del>_</del>		<0.740	<0.74
-	2,6-Dinitrotoluene	0.005	mg/kg					<0.740	<0.74
	2-Chloronaphthalene	26	mg/kg	_	_	_	_	<0.740	<0.74
	2-Chlorophenol	0.71	mg/kg	_	_			<0.740	<0.74
	2-Methylnaphthalene	1.3	mg/kg	_	_	_	_	<0.740	<0.74
	2-Methylphenol	6.2	mg/kg	_		_	<u> </u>	<0.740	<0.740
-	2-Nitroaniline	NS	mg/kg	_	_	_	_	<0.740	<0.740
,	0 NII	NS	mg/kg	_	_	_	_	<0.740	<0.740
F	2-Nitrophenol	INO	9/9						

**Table 5 - Soil Boring Petroleum and Metals Results** 

				SB7	SB11	SB		Drum 40	Drum 55
Analytical	Analysia	Cleanup	1154	<b>28.8-30.2</b> 7/12/21	<b>22.5-25.4</b> 7/17/21	<b>35-3</b> 7/22/21	37.5 Duplicate	<b>SB11</b> 7/26/21	<b>SB13, SB 14</b> 7/26/21
Method	Analyte 3-Nitroaniline	Level NS	Units mg/kg	1/12/21 <del>_</del>			Duplicate	<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				<u> </u>	<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		<u> </u>			<0.740	<0.740
	Azobenzene	NS	mg/kg	_		_		<0.740	<0.740
	Benzo(a)anthracene	0.7	mg/kg	_	_		<u> </u>	<0.740	<0.740
	Benzo(a)pyrene	1.9	mg/kg	_	_		<u> </u>	<0.740	<0.740
	Benzo(b)fluoranthene	20	mg/kg	_				<0.740	<0.740
	Benzo(g,h,i)perylene	15,000	mg/kg	_	_		<u> </u>	<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	_		<u> </u>		<0.740	<0.740
	Bis (2-Chloroethoxy) Methane	NS	mg/kg			<u> </u>		<0.740	<0.740
	Bis (2-Chloroethyl) Ether	0.00042	mg/kg		<u> </u>			<0.740	<0.740
SW 8270D	Bis (2-ethylhexyl) phthalate	88	mg/kg					<0.740	<0.740
(SVOCs	Bis(2-chloro-1-methylethyl) ether	NS	mg/kg					<0.740	<0.740
continued)	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	<u> </u>				<1.49	<1.48
	Fluoranthene	590	mg/kg					<0.740	<0.740
	Fluorene	36	mg/kg	_	<u> </u>			<0.740	<0.740
	Hexachlorobenzene	0.0082	mg/kg					<0.740	<0.740
	Hexachlorobutadiene	0.002	mg/kg	<u> </u>				<0.740	<0.740
	Hexachlorocyclopentadiene	0.002	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	0.030		_	_			<0.740	<0.740
	N-Nitrosodimethylamine	0.000033	mg/kg	<u> </u>		<u> </u>	<u> </u>	<0.740	<0.740
	n-Nitrosodimetnylamine n-Nitrosodi-n-propylamine	0.00008	mg/kg	_	_				
	,		mg/kg	_	_	_		<0.740	<0.740
	N-Nitrosodiphenylamine	4.6	mg/kg	_	_	_	_	<0.740	<0.740
	Pentachlorophenol	0.0043	mg/kg	<del>_</del>			<del>_</del>	<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		Cleanup		SB7 28.8-30.2	SB11 22.5-25.4		B13 -37.5	Drum 40 SB11	Drum 55 SB13, SB 14
Method	Analyte	Level	Units	7/12/21	7/17/21	7/22/21	Duplicate	7/26/21	7/26/21
	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
SW 6020B	Chromium	5.0	mg/L	_	_	_	_	<0.100	0.314
TCLP	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.

The laboratory's reporting limit (RL) or limit of detection (LOD) is greater than the regulatory limit.
 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.



	Action		2006-MW08-20	2006-MW11-30	Everts-MW1-25	DLG-MW01-30	DLG-MW01-45	DLG-N	IW02-40	DLG-MW02-50	DLG-N	1W03-30	DLG-MW03-50
Analyte	Level	Units	7/27/21	7/30/21	7/29/21	7/26/21	7/26/21	7/24/21	Duplicate	7/24/21	7/25/21	Duplicate	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 (9CI-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



	Action		DLG-MW03-75	DLG-I	MW04-25	DLG-MW04-50	DLG-N	1W05-45	DLG-MW05-70	DLG-MW09-10	DLG-MW09-50	DLG-M	W09-65	DLG-MW10-40
Analyte	Level	Units	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 (9CI-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‡



	Action		DLG-MW10-55	DLG-N	/W11-35	DLG-MW11-80	DLG-MW12-40	DLG-MW12-80	DLG-I	/W14-50	DLG-N	1W14-80	GAC-POST
Analyte	Level	Units	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 (9CI-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



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. (\*)
- \$\frac{1}{2}\$ 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** 

	d. Amelia				W11-35	DLG-MW12-40	<b>DLG-M</b> I	
lytical Method	-	Cleanup Level	Units	7/22/21	Duplicate	7/28/21	7/26/21	Duplic
AK101	Gasoline Range Organics	2.2	mg/L	<0.0500	<0.0500	<0.0500	<0.0500	<0.05
AK102	Diesel Range Organics	1.5	mg/L	0.222 J	0.217 J	<0.566 B*	<0.288	<0.2
AK103	Residual Range Organics	1.1	mg/L	<0.245	<0.245	<0.236	<0.240	<0.2
	1,1,1,2-Tetrachloroethane	5.7	μg/L	<0.250	<0.250	<0.250	<0.250	<0.2
	1,1,1-Trichloroethane	8,000	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	1,1,2,2-Tetrachloroethane	0.76	µg/L	<0.250	<0.250	<0.250	<0.250	<0.2
	1,1,2-Trichloroethane	0.41	µg/L	<0.200	<0.200	<0.200	<0.200	< 0.2
	1,1-Dichloroethane	28	μg/L	<0.500	<0.500	<0.500	<0.500	< 0.5
	1,1-Dichloroethene	280	μg/L	< 0.500	< 0.500	<0.500	<0.500	< 0.5
	1,1-Dichloropropene	NS	μg/L	< 0.500	<0.500	<0.500	<0.500	<0.5
	1,2,3-Trichlorobenzene	7	μg/L	< 0.500	< 0.500	< 0.500	< 0.500	< 0.5
	1,2,3-Trichloropropane	0.0075	μg/L	< 0.500	< 0.500	< 0.500	< 0.500	< 0.5
	1,2,4-Trichlorobenzene	4	μg/L	< 0.500	< 0.500	< 0.500	< 0.500	<0.5
	1,2,4-Trimethylbenzene	56	μg/L	< 0.500	< 0.500	< 0.500	< 0.500	<0.5
	1,2-Dibromo-3-chloropropane	NS	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	1,2-Dibromoethane	0.075	μg/L	< 0.0375	< 0.0375	< 0.0375	< 0.0375	<0.0
	1,2-Dichlorobenzene	300	µg/L	< 0.500	<0.500	< 0.500	<0.500	<0.5
	1,2-Dichloroethane	1.7	µg/L	<0.250	<0.250	<0.250	<0.250	< 0.2
	1,2-Dichloropropane	8.2	μg/L	<0.500	<0.500	<0.500	< 0.500	<0.5
	1,3,5-Trimethylbenzene	60	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	1,3-Dichlorobenzene	300	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	1,3-Dichloropropane	NS	μg/L	<0.250	<0.250	<0.250	<0.250	<0.2
	1,4-Dichlorobenzene	4.8	μg/L	<0.250	<0.250	<0.250	<0.250	<0.2
	2,2-Dichloropropane	NS	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	2-Butanone (MEK)	5,600	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	2-Chlorotoluene	NS	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	2-Hexanone	38	μg/L μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	4-Chlorotoluene	NS		<0.500	<0.500	<0.500	<0.500	<0.
		4.6	μg/L	<0.200	<0.200	<0.200	<0.200	<0.2
	Benzene		μg/L					
	Bromobenzene	62	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Bromochloromethane	NS	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Bromodichloromethane	1.3	μg/L	<0.250	<0.250	<0.250	<0.250	<0.2
	Bromoform	33	µg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Bromomethane	7.5	μg/L	<2.50	<2.50	<2.50	<2.50	<2.
	Carbon disulfide	810	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
SW8260D	Carbon tetrachloride	4.6	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
(VOCs)	Chlorobenzene	78	μg/L	<0.250	<0.250	<0.250	<0.250	<0.2
,	Chloroethane	21,000	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Chloroform	2.2	µg/L	<0.500	< 0.500	<0.500	< 0.500	<0.
	Chloromethane	190	µg/L	< 0.500	< 0.500	<0.500	< 0.500	<0.
	cis-1,2-Dichloroethene	36	μg/L	< 0.500	< 0.500	<0.500	< 0.500	<0.5
	cis-1,3-Dichloropropene	4.7	μg/L	<0.250	<0.250	<0.250	<0.250	<0.2
	Dibromochloromethane	8.7	μg/L	< 0.250	< 0.250	< 0.250	< 0.250	<0.2
	Dibromomethane	8.3	μg/L	< 0.500	< 0.500	< 0.500	<0.500	<0.
	Dichlorodifluoromethane	200	μg/L	< 0.500	< 0.500	<0.500	<0.500	<0.
	Ethylbenzene	15	μg/L	< 0.500	<0.500	<0.500	<0.500	<0.
	Hexachlorobutadiene	1.4	μg/L	< 0.500	< 0.500	<0.500	< 0.500	<0.5
	Isopropylbenzene	450	µg/L	<0.500	<0.500	<0.500	<0.500	<0.
	m,p-xylenes	190	µg/L	<1.00	<1.00	<1.00	<1.00	<1.
	Methyl isobutyl ketone	6,300	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	Methylene chloride	110	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	Methyl-t-butyl ether (MTBE)	140	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	Naphthalene	1.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	n-Butylbenzene	1,000	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	n-Propylbenzene	660	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	o-Xylene	190	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	p-lsopropyltoluene	NS	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	sec-Butylbenzene	2,000	μg/L μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Styrene	1,200	μg/L μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	tert-Butylbenzene	690	μg/L μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Tetrachloroethene	41		<0.500	<0.500	<0.500	<0.500	<0.
	Toluene		μg/L					
		1,100	μg/L	<0.500	<0.500	<0.500	<0.500	<0.5
	Total Xylenes	190	μg/L	<1.50	<1.50	<1.50	<1.50	<1.
	trans-1,2-Dichloroethene	360	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	trans-1,3-Dichloropropene	4.7	μg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Trichloroethene	2.8	µg/L	<0.500	<0.500	<0.500	<0.500	<0.
	Trichlorofluoromethane	5,200	µg/L	<0.500	<0.500	<0.500	< 0.500	<0.
	Trichlorotrifluoroethane	10,000	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	Vinyl acetate	410	μg/L	<5.00	<5.00	<5.00	<5.00	<5.
	Vinyl chloride	0.19	μg/L	<0.0750	<0.0750	<0.0750	<0.0750	<0.0
	1-Methylnaphthalene	11	μg/L		_	_	<0.0245 J*	< 0.0
	, ,							
	2-Methylnaphthalene	36	μg/L	_	_	_	<0.0245 J*	< 0.02



**Table 7 - Monitoring Well Petroleum Results** 

				DLG-N	IW11-35	DLG-MW12-40	DLG-M	W14-50
Analytical Method	Analyte	Cleanup Level	Units	7/22/21	Duplicate	7/28/21	7/26/21	Duplicate
	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
8270D SIM LV	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)

 $\mu \text{g/L} \quad \text{micrograms per liter; equivalent to parts per billion (ppb)}$ 

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 &



Table 8 - Surface Water PFAS Results

	Cleanup		SW-01	SV	V-02	SW-03	SV	V-04	SW-05	SW-06	SW-07	SW-08	SW-09	SW-10
Analyte	Level	Units	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 (11CI-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. (\*)

Analytical		Regulatory		SM	V-02	SW-03	SV	V-04	SW-05	SW-06	SW-07	SW-08	SW-09
Method	Analyte	Limit	Units	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	< 0.050
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
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
	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
SW 8260D	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
(BTEX)	p&m-Xylenes	1 100	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Toluene Total aromatic hydrocarbons	1,100	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	(TAH) †	10 †	μg/L	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	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	< 0.50
	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	< 0.25
	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	<0.20
	1,1-Dichloroethane	28	μg/L	<0.500	< 0.500	<0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.50
	1,1-Dichloroethene	280	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.50
	1,1-Dichloropropene	NS	μg/L	<0.500	< 0.500	<0.500	< 0.500	< 0.500	<0.500	< 0.500	<0.500	<0.500	<0.50
	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	< 0.50
	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	<0.50
	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	<0.50
	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	<0.50
	1,2-Dibromo-3-chloropropane	NS 0.075	μg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0
	1,2-Dibromoethane 1,2-Dichlorobenzene	0.075 300	μg/L	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.03
	1,2-Dichloroethane	1.7	μg/L μg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.500	<0.500	<0.25
	1,2-Dichloropropane	8.2	μg/L μg/L	<0.230	<0.500	<0.230	<0.500	<0.500	<0.230	<0.500	<0.500	<0.230	<0.50
	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	<0.50
	1,3-Dichlorobenzene	300	μg/L	<0.500	<0.500	<0.500	< 0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50
	1,3-Dichloropropane	NS	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.25
	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	<0.2
	2,2-Dichloropropane	NS	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.50
	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	<5.0
	2-Chlorotoluene	NS	μg/L	<0.500	<0.500	<0.500	< 0.500	<0.500	<0.500	<0.500	< 0.500	< 0.500	< 0.50
	2-Hexanone	38	μg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0
	4-Chlorotoluene	NS	μg/L	<0.500	< 0.500	<0.500	< 0.500	< 0.500	<0.500	< 0.500	< 0.500	<0.500	< 0.50
	Benzene	4.6	μg/L	<0.200	0.121 J	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	< 0.20
	Bromobenzene	62	μg/L	< 0.500	<0.500	<0.500	< 0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.50
	Bromochloromethane	NS	µg/L	<0.500	<0.500	<0.500	< 0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.50
	Bromodichloromethane	1.3	μg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.2
	Bromoform	33	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	Bromomethane	7.5	μg/L	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.5
	Carbon disulfide	810	μg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0
SW 8260D	Carbon tetrachloride	4.6	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50
full VOCs)	Chlorobenzene	78	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.25
	Chloroethane Chloroform	21,000	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50
	Chloromethane	190	μg/L μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50
	cis-1,2-Dichloroethene	36	μg/L μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50
	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	<0.2
	Dibromochloromethane	8.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.2
	Dibromomethane	8.3	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.50
	Dichlorodifluoromethane	200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.5
	Ethylbenzene	15	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.5
	Hexachlorobutadiene	1.4	μg/L	<0.500	< 0.500	<0.500	< 0.500	< 0.500	<0.500	< 0.500	< 0.500	<0.500	<0.5
	Isopropylbenzene	450	μg/L	<0.500	<0.500	<0.500	< 0.500	<0.500	<0.500	<0.500	< 0.500	<0.500	<0.5
	p&m-Xylenes	190	μg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0
	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	<5.0
	Methylene chloride	110	μg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.0
	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	<5.0
	Naphthalene	1.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	n-Butylbenzene	1,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	n-Propylbenzene	660	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	o-Xylene	190	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	p-Isopropyltoluene	NS	μg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	< 0.5
	sec-Butylbenzene	2,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	Styrene	1,200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	tert-Butylbenzene	690	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	Tetrachloroethene	41	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.5
	Talesan	2 2 ()()	LIA/I	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.500	< 0.5
	Toluene	1,100	µg/L					. 4	. 4 = 4	. 4	. 4 = 4		
	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 <0.500 <0.500	<1.50 <0.500 <0.500	<1.50 <0.500 <0.500	<1.50 <0.500 <0.500		<1.5 <0.5 <0.5

**Table 9 - Surface Water Petroleum Results** 

Analytical		Regulatory		SV	V-02	SW-03	SW	<b>'-04</b>	SW-05	SW-06	SW-07	SW-08	SW-09
Method	Analyte	Limit	Units	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
	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
8270D SIM LV	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
(PAHs)	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

		Cleanup		SED-01	SEL	D-02	SED-03	SE	D-04	SED-05	SED-06	SED-07	SED-08	SED-09
<b>Analytical Method</b>	d Analyte	Level	Units	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
	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
EPA 537(Mod)	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
Li A 337 (Mod)	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.

Dillingham Airport Site Characterization

Table 11 - Sediment Petroleum Results

		Cleanup			D-02	SED-03		0-04	SED-05	SED-06	SED-07	SED-08	SED-
ytical Method	d Analyte	Level	Units	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/
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
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
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
121 2540G	Total Solids	NS	%	77.5	79.1	86.3	82.0	83.6	83.5	45.5	55.2	17.1	85.
	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	< 0.01
	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	< 0.02
	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	<0.00
	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	< 0.00
	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	<0.0
	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	<0.0
	1,1-Dichloropropene	NS	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	<0.0685	< 0.0560	<0.281	< 0.0
	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	< 0.0
	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	<0.00
	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	< 0.0
	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	< 0.0
	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	<0.0
	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	< 0.00
	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	< 0.0
	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	< 0.00
	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	<0.00
	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	< 0.0
	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	<0.0
	1,3-Dichloropropane	NS	mg/kg	< 0.00965	< 0.00820	< 0.00745	< 0.00770	< 0.00835	< 0.00775	< 0.0275	< 0.0225	< 0.113	< 0.00
	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	<0.0>
	2,2-Dichloropropane	NS	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	< 0.281	<0.0
	2-Butanone (MEK)	15	mg/kg	< 0.241	< 0.204	< 0.187	< 0.193	< 0.209	< 0.194	< 0.685	< 0.560	<2.81	< 0.2
	2-Chlorotoluene	NS	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	< 0.281	< 0.0
	2-Hexanone	0.11	mg/kg	< 0.0965	< 0.0820	< 0.0745	< 0.0770	< 0.0835	< 0.0775	< 0.275	<0.225	<1.13	<0.0
	4-Chlorotoluene	NS	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	< 0.281	< 0.0
	Acetone	38	mg/kg	< 0.241	< 0.204	< 0.187	< 0.193	< 0.209	< 0.194	0.456J	< 0.560	<2.81	< 0.2
	Benzene	0.022	mg/kg	< 0.0121	< 0.0103	< 0.00935	< 0.00960	< 0.0104	< 0.00970	< 0.0343	<0.0280	< 0.141	<0.0
	Bromobenzene	0.36	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	< 0.281	< 0.0
	Bromochloromethane	NS	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	<0.281	<0.0
	Bromodichloromethane	0.0043	mg/kg	< 0.00193	< 0.00164	< 0.00150	< 0.00154	<0.00168	< 0.00156	<0.00550	< 0.00449	< 0.0225	<0.00
	Bromoform	0.1	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	<0.281	<0.0
	Bromomethane	0.024	mg/kg	< 0.0193	< 0.0164	< 0.0150	< 0.0154	< 0.0168	< 0.0156	< 0.0550	< 0.0449	<0.225	< 0.0
	Carbon disulfide	2.9	mg/kg	< 0.0965	< 0.0820	< 0.0745	< 0.0770	< 0.0835	< 0.0775	< 0.275	< 0.225	<1.13	<0.0
W8260D	Carbon tetrachloride	0.021	mg/kg	< 0.0121	< 0.0103	< 0.00935	< 0.00960	< 0.0104	< 0.00970	< 0.0343	<0.0280	<0.141	<0.0
(VOCs)	Chlorobenzene	0.46	mg/kg	< 0.0241	< 0.0204	< 0.0187	< 0.0193	< 0.0210	< 0.0194	< 0.0685	< 0.0560	<0.281	<0.0
,	Chloroethane	72	mg/kg	< 0.193	< 0.164	< 0.149	< 0.154	< 0.168	< 0.156	< 0.550	< 0.449	<2.25	<0.1
	Chloroform	0.0071	mg/kg	<0.00386	<0.00328	<0.00298	<0.00308	<0.00335	<0.00311	<0.0110	<0.00895	<0.0451	<0.00
	Chloromethane	0.61	mg/kg	< 0.0241	<0.0204	<0.0187	< 0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0
	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	<0.0
	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	<0.0
	Dibromochloromethane	0.0027	mg/kg	< 0.00483	<0.00409	< 0.00373	<0.00384	< 0.00419	<0.00388	<0.0138	<0.0112	<0.0565	<0.00
	Dibromomethane	0.025	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	< 0.0194	<0.0685	<0.0560	<0.281	<0.0
	Dichlorodifluoromethane	3.9	mg/kg	<0.0483	<0.0410	< 0.0373	<0.0384	<0.0418	<0.0388	<0.138	<0.112	<0.565	<0.0
	Ethylbenzene	0.13	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0
	Hexachlorobutadiene	0.02	mg/kg	< 0.0193	< 0.0164	<0.0150	<0.0154	<0.0168	<0.0156	<0.0550	<0.0449	<0.225	<0.0
	Isopropylbenzene	5.6	mg/kg	<0.0241	<0.0204	<0.0187	<0.0193	<0.0210	<0.0194	<0.0685	<0.0560	<0.281	<0.0
	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	<0.02
_	Methyl isobutyl ketone	18	mg/kg	<0.241	<0.204	<0.187	<0.193	<0.209	<0.194	<0.685	<0.560	<2.81	<0.2



	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
	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		_	_	<del>-</del>	_	_	<del>-</del>	<del>_</del>
	Benzo(b)fluoranthene	20	mg/kg	< 0.0790	<0.0157		_	_	_	_	_		
8270D SIM	Benzo(g,h,i)perylene	15,000	mg/kg	< 0.0790	< 0.0157		_	_	_	_	_	_	
(PAHs)	Benzo(k)fluoranthene	190	mg/kg	< 0.0790	<0.0157		_	_	<del>-</del>	_	_	<del>-</del>	<del>_</del>
	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.

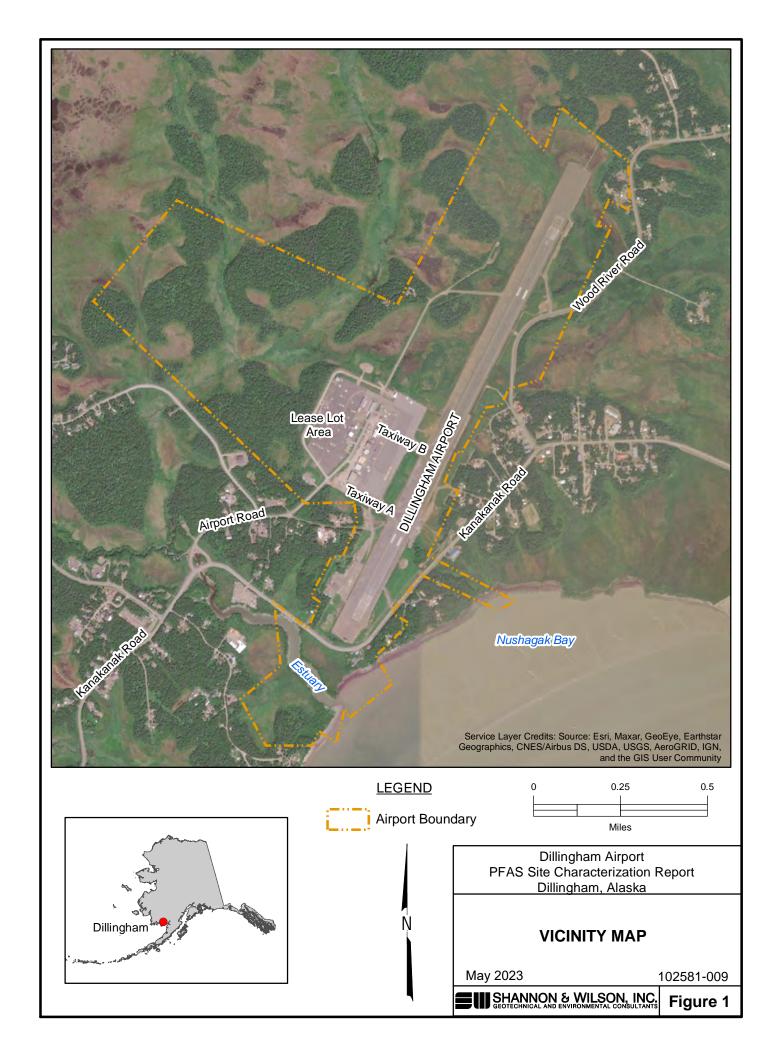
< Analyte was not detected; reported as <LOD.

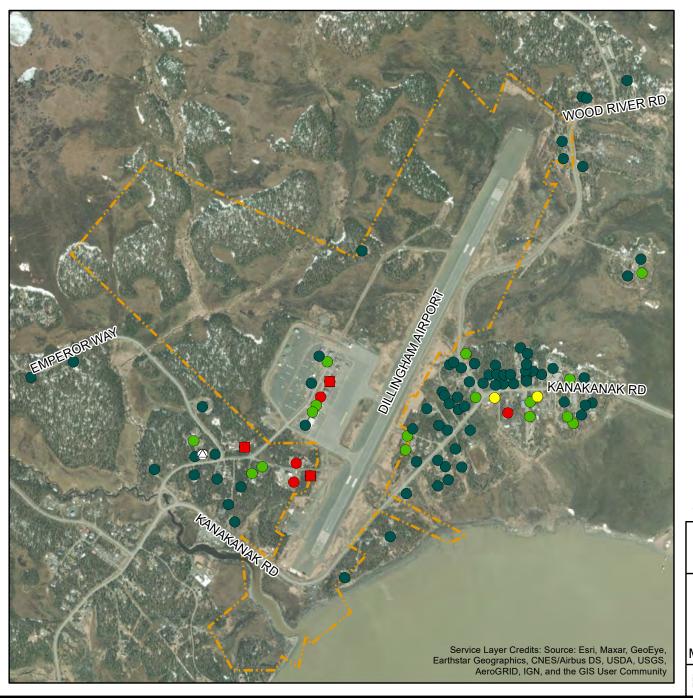
 $<\!\!\text{Bold}\qquad \text{The laboratory's limit of detection (LOD) is greater than the regulatory limit.}$ 

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

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**

- 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\*





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

Dillingham Airport Dillingham, Alaska

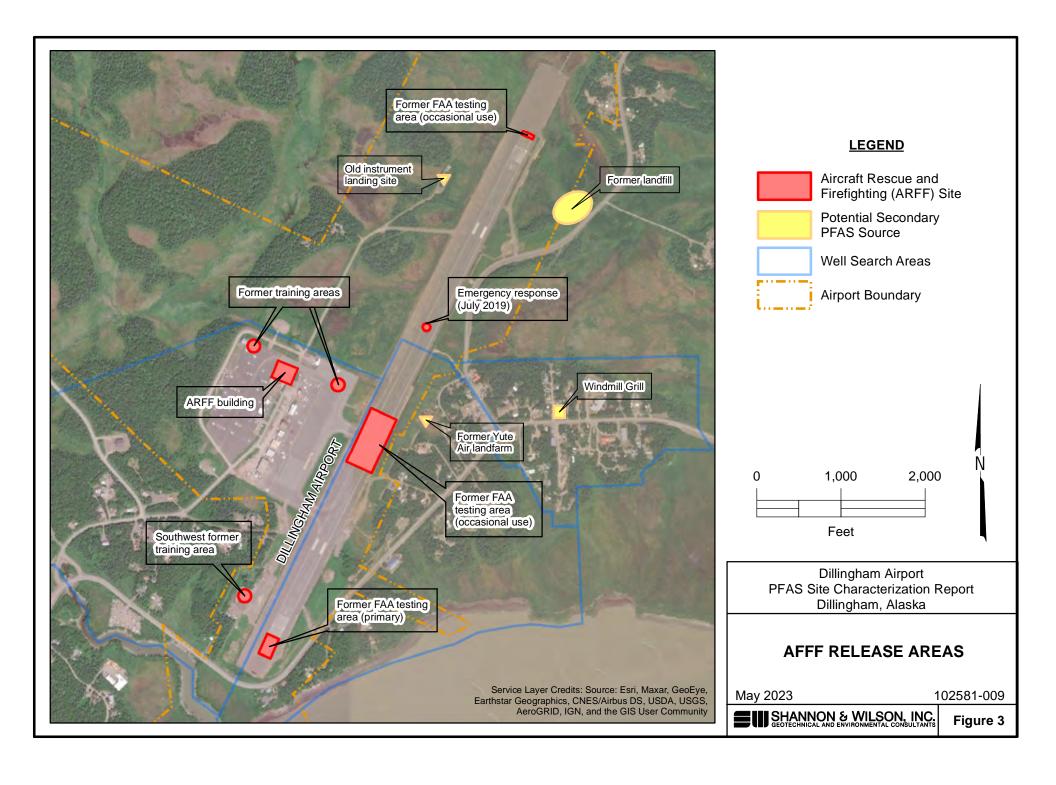
# HIGHEST WATER SUPPLY WELL RESULTS

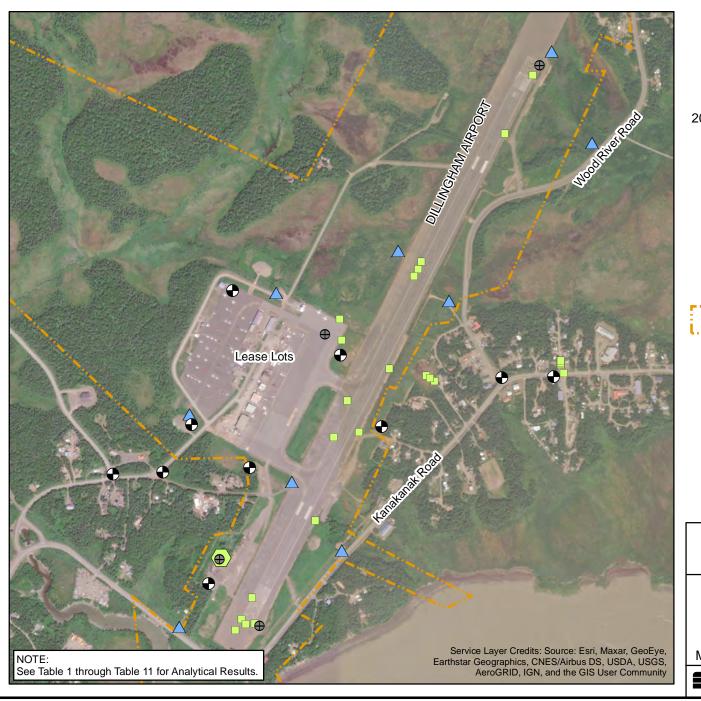
May 2023

102581



Figure 2

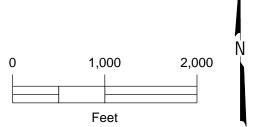




2021 Site Characterization Sample Locations

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





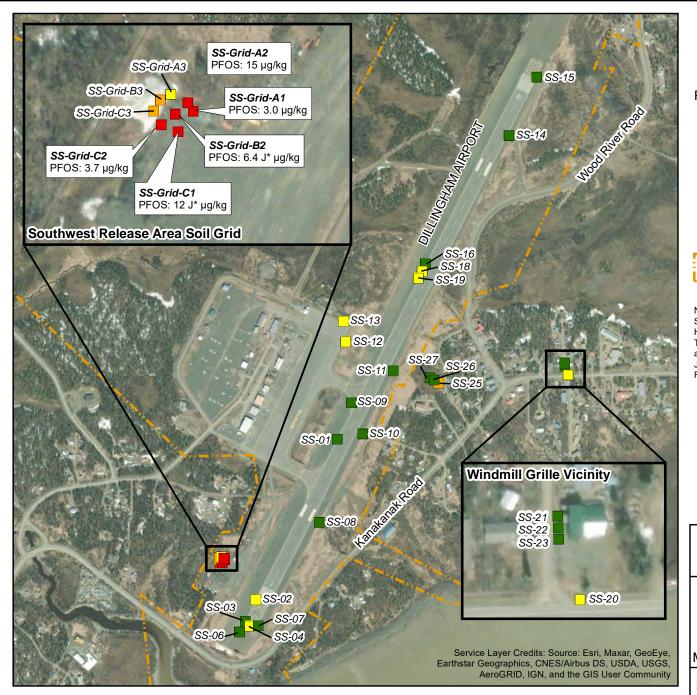
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SAMPLE LOCATIONS OVERVIEW

May 2023

102581-009





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)

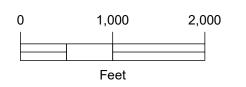


#### **NOTES**

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. (\*)



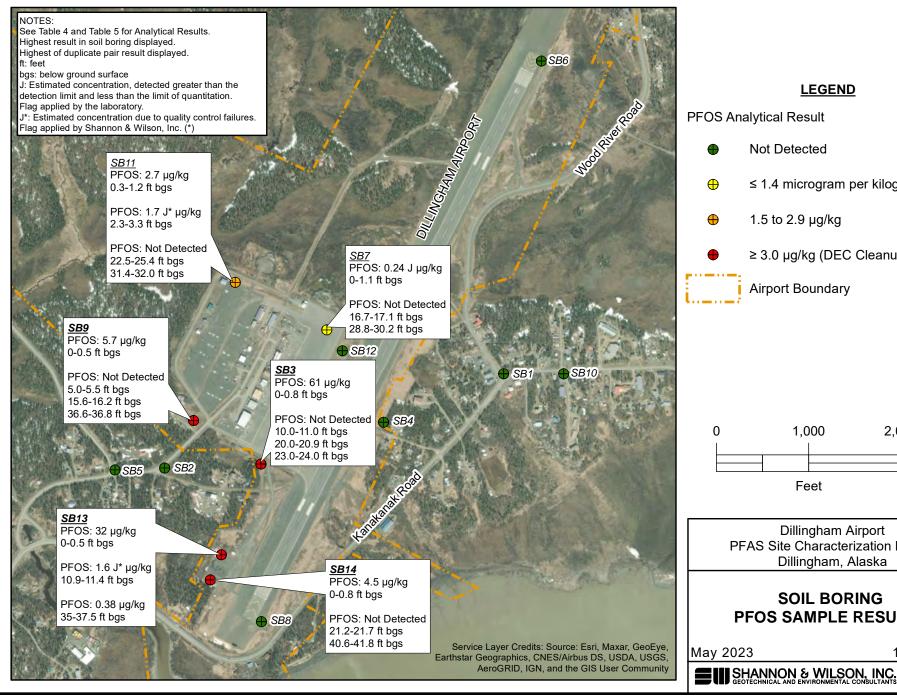
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SURFACE SOIL PFOS SAMPLE RESULTS

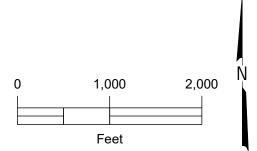
May 2023

102581-009





- ≤ 1.4 microgram per kilogram (µg/kg)
- ≥ 3.0 µg/kg (DEC Cleanup Level)

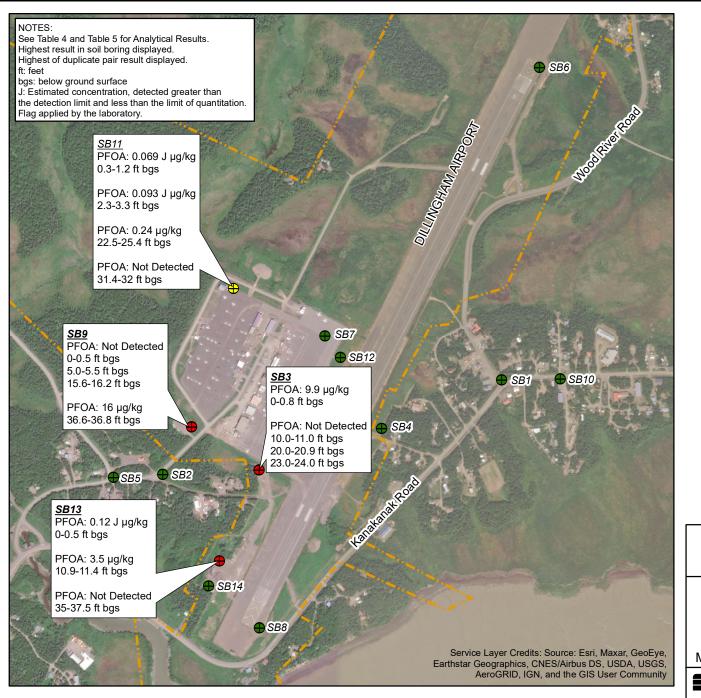


PFAS Site Characterization Report Dillingham, Alaska

## **PFOS SAMPLE RESULTS**

102581-009





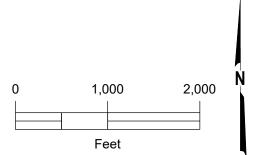
PFOA Analytical Result

Not Detected

⊕ ≤ 1.6 microgram per kilogram (μg/kg)

● ≥ 1.7 μg/kg (DEC Cleanup Level)

**Airport Boundary** 



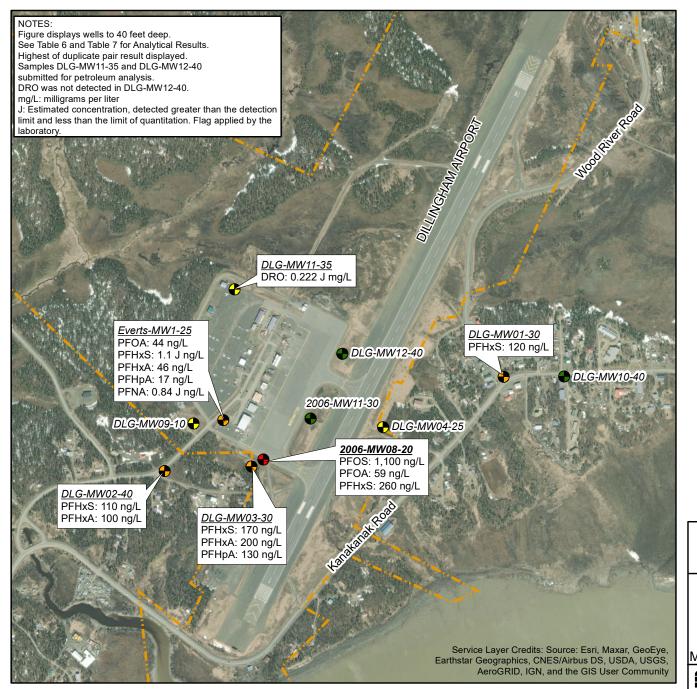
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SOIL BORING PFOA SAMPLE RESULTS

May 2023

102581-009



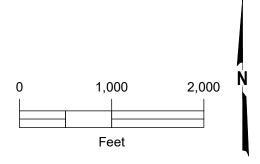


Analytical Result for Any PFAS Compound

- ≤ 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



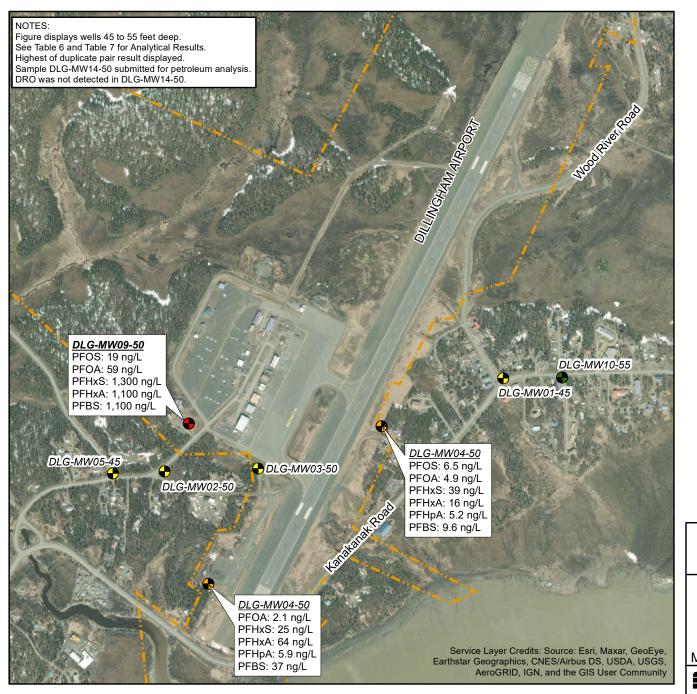
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SHALLOW MONITORING WELL PFAS & DRO SAMPLE RESULTS

May 2023

102581-009



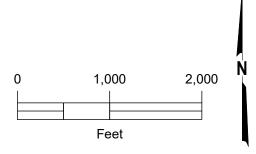


Analytical Result for Any PFAS Compound

- ≤ 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



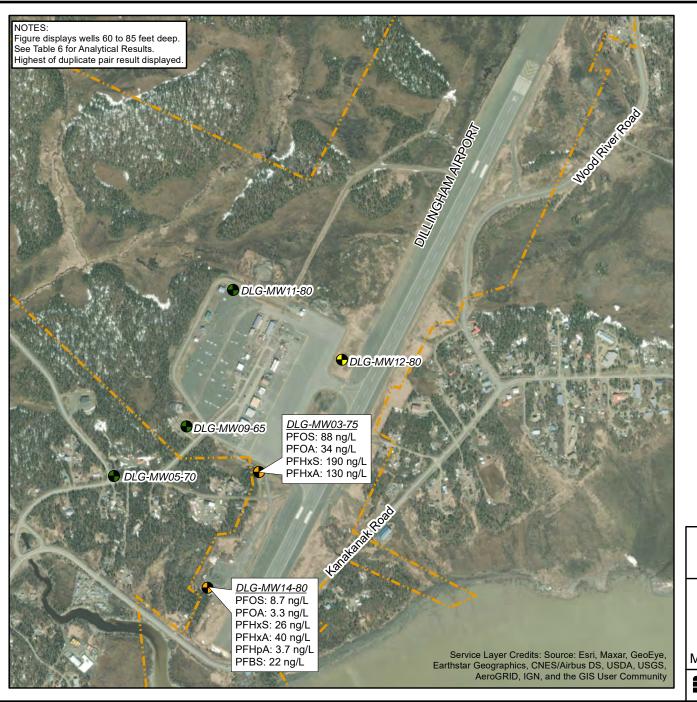
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# MID-DEPTH MONITORING WELL PFAS SAMPLE RESULTS

May 2023

102581-009

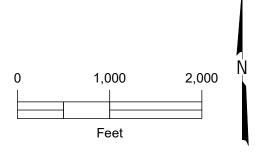




Analytical Result for Any PFAS Compound

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





Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# DEEP MONITORING WELL PFAS SAMPLE RESULTS

May 2023

102581-009





Analytical Result for Any PFAS Compound

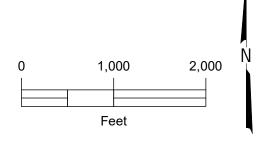
≤ 2.0 nanograms per liter (ng/L)

△ 2.1 to 34 ng/L

△ 35 to 399 ng/L

≥ 400 ng/L (DEC Cleanup Level for PFOS and PFOA)

Airport Boundary



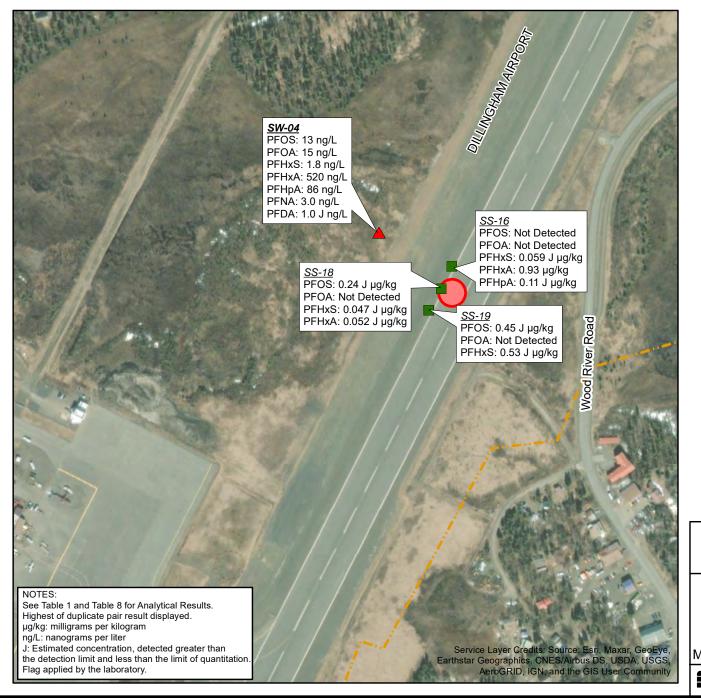
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SURFACE WATER PFAS SAMPLE RESULTS

May 2023

102581-009





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

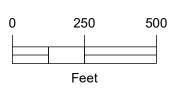
≤ 2.0 micrograms per kilogram (µg/kg)



Aircraft Rescue and Firefighting (ARFF) Site



Airport Boundary



Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# EMERGENCY RESPONSE AREA SAMPLE RESULTS

May 2023

102581-009





PFOS Analytical Result

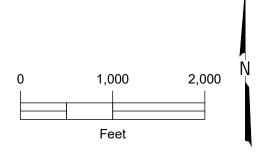
Not Detected

≤ 1.4 microgram per kilogram (μg/kg)

1.5 to 2.9 μg/kg

≥ 3.0 µg/kg (DEC Cleanup Level)

Airport Boundary



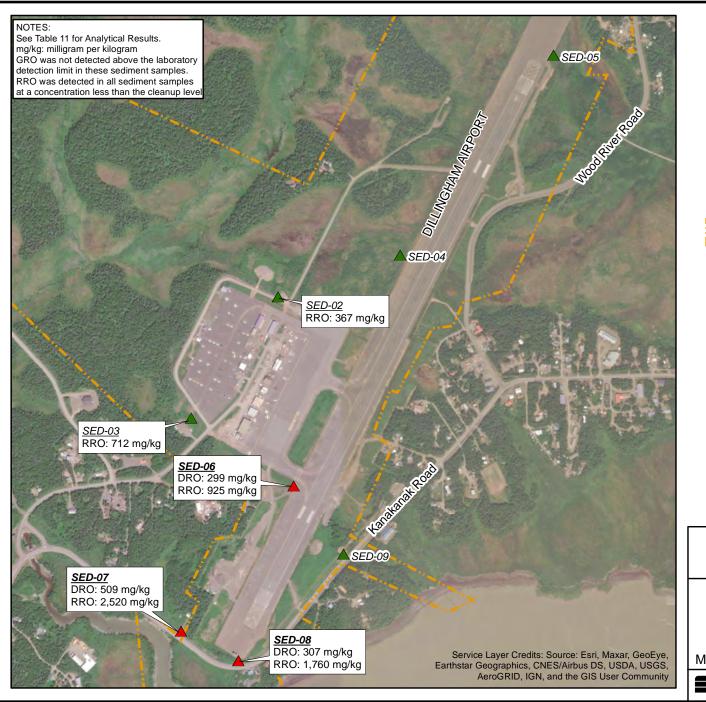
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SEDIMENT PFOS SAMPLE RESULTS

May 2023

102581-009





Petroleum Compound Analytical Result



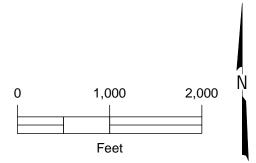
Analyte(s) Do Not Exceed DEC Cleanup Levels



Analyte(s) Exceed DEC Cleanup Level for DRO



Airport Boundary



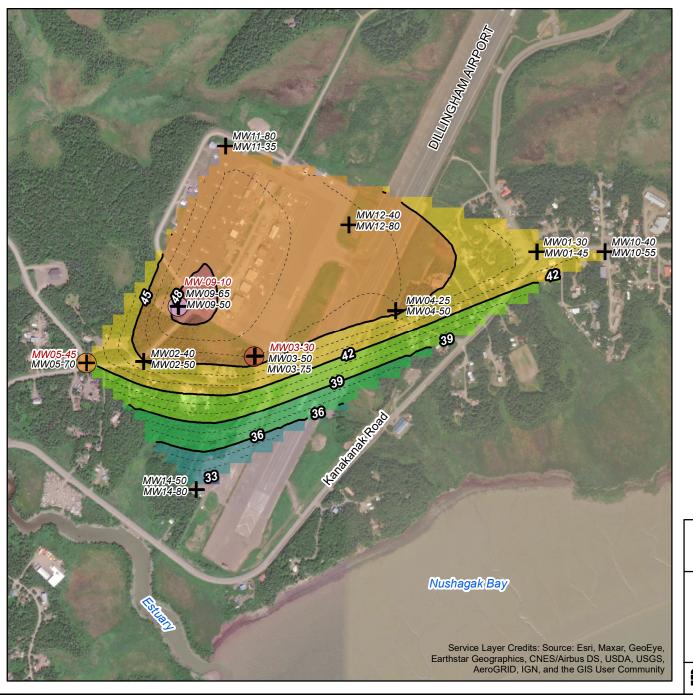
Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# SEDIMENT PETROLEUM SAMPLE RESULTS

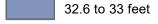
May 2023

102581-009

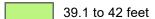


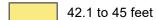


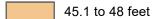
Elevation of Groundwater Surface in July 2021

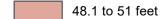


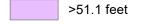


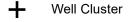


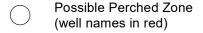


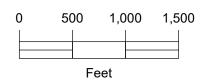












Dillingham Airport
PFAS Site Characterization Report
Dillingham, Alaska

# GROUNDWATER SURFACE ELEVATIONS

May 2023

102581-009



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

May 2023

102581-009

SHANNON & WILSON, INC.

#### 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: CC: CC:

DOT&PF Central Region ALASKA DOT&PF CENTRAL Shannon & Wilson, Inc.
Attn: Michael Cook REGION Attn: Marcy Nadel

PO Box 196900 P O BOX 196900 2355 Hill Road

Anchorage, AK 99519 ANCHORAGE, AK 99519-6900 Fairbanks, AK 99709 michael.cook@alaska.gov jenelle.brinkman@alaska.gov 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



# 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 Facilities.

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



Signed:

Title:

Chief, Aviation Leasing

Date:

July 07, 2021



# 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.

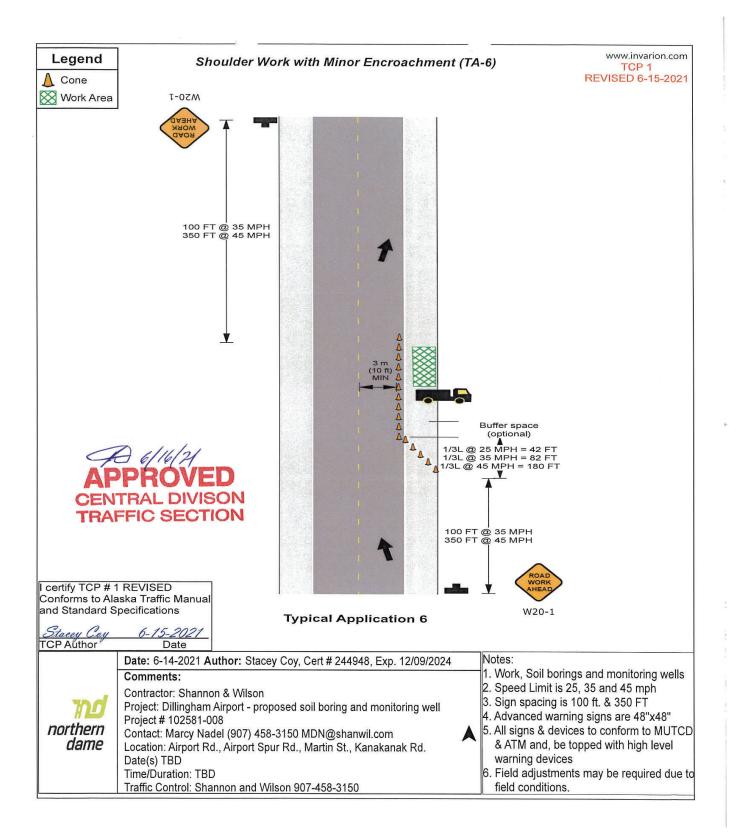
If your permitted use interferes with the public's safety and/or use of facilities within State owned right of way, you will be directed to adjust or remove your traffic control.

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 adequa	ate separation from existing signs. All signs shall be visible	le.
Remove all traffic control devices when no longer	needed.	
Permittee shall clean up litter or debris generated a	as a result of this permit.	
Attachments included as part of this per	mit are:	
Traffic Control Plan		
		•
to do so. I further acknowledge and accept that Sh	behalf of the above named organization with the full author nannon and Wilson Inc. shall comply with all the provision	ıs
and conditions that the Department of Transportation this permit.	ion and Public Facilities has included as a condition of issu	aing
M. Madel	6/16/21	
Permittee Signature	Date	
Hurn	C/1 C/2021	
DOT&PF Signature	$\frac{6/16/2021}{\text{Date}}$	
DO 10011 DIGITATION	Duit	





#### 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 CON	TAMIN	NATED SITE OR SPILI	L						
26971		ΑI	OOT&PF Dillingham	Airport Sitewide PFAS						
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION										
So	uthwest portion	of the I	Dillingham Airport, se	ee enclosed map						
CURRENT PHYSICAL LOCA	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, PFO	A	23	, 55-gallon drums	7/7 to 7/31/21						
POST TREATMENT ANALY	SIS REQUIRED (S	such as	GRO, DRO, RRO, VOCs,	metals, PFAS, and/or Chlorinated Solvents)						
Analysis per Clear	n Harbors Enviro	nment	al Services permits fo	or Aragonite Incineration Facility						
COMMENTS OR OTHER IM	PORTANT INFO	RMATI	ON							
Analytical results are enc sites.	losed. Drumme	ed soil	is associated with	SB3, SB9, SB13, SB14, or all drilling						

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

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBI	ER
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, An	chorage, AK 99507
*Note, disposal of polluted soil in a landfill require	es prior approval from the landfill operato	r and ADEC Solid Waste Program.
Marcy Nadel	Geologist, Sh	annon & Wilson, Inc.
Name of the Person Requesting Approval (printed)	Title/Association	
M. Model	9/27/21	(907) 458-3150
Signature	Date	Phone Number
	DEC USE ONLY	
Based on the information provided, ADEC ap Party or their consultant must submit to the D and a post treatment analytical report, if dispo- transported as a covered load in compliance w	EC Project Manager a copy of weight resed of at an approved treatment facility	eceipts of the loads transported
Robert Burgess	EPSIV	
DEC Project Manager Name (printed)	Project Manager Title	
Digitally signed by Rober Date: 2021.09.28 09:54:4	t Burgess 12 -08'00' 9/28/21	907-451-2153
Signature	Date	Phone Number
		Rev. 01/2020

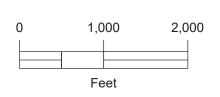


Soil Boring

Monitoring Well Nest



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



Dillingham Airport
PFAS Site Characterization
Dillingham, Alaska

# SOIL BORING AND MONITORING WELL LOCATIONS

August 2021

102581-009





Table 1 - Soil Boring PFAS Results for Disposal

					SB3				S	В9			SB	13			SB	14	
	Cleanur	)	0-0.8	10.0	-11.0	20.0-20.9	23.0-24.0	0-0.5	5.0-5.5	15.6-16.2	36.6-36.8	0-0.5	10.9-11.4	35-	37.5	0-0.8	21.2-21.7	40.0	6-41.8
Analyte	Level	Units	7/6/21	7/6/21	Duplicate	7/6/21	7/6/21	7/13/21	7/13/21	7/13/21	7/13/21	7/22/21	7/22/21	7/22/21	Duplicate	7/22/21	7/22/21	7/22/21	Duplicate
Perfluorohexanesulfonic acid (PFHxS)	NS	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		Cleanup		SB7 28.8-30.2	SB11 22.5-25.4	SE 35-3	37.5	Drum 40 SB11	Drum 55 SB13, SB
Method	Analyte	Level	Units	7/12/21	7/17/21	7/22/21	Duplicate	7/26/21	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	_	_
121 2540G	Total Solids	NS	%	85.3	83.3	86.0	86.8	84.2	84.0
	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		
W 0000D	4-Chlorotoluene	NS	mg/kg	<0.0300	<0.0330	<0.0103	<0.0310	_	
W 8260D (VOCs)	Acetone	38	mg/kg	<0.141	<0.147	<0.103	<0.128	_	_
,	Benzene	0.022		<0.00700	<0.00735	<0.00515	<0.00640		
		0.022	mg/kg	<0.00700	<0.00733	<0.00313	<0.00040		
	Bromobenzene  Bromochloromethane	NS	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128		
-			mg/kg						
-	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	_	_

Table 2 - Soil Boring Petroleum and Metals Results

nalytical Method	Analyte	Cleanup Level	Units	SB7 28.8-30.2 7/12/21	SB11 22.5-25.4 7/17/21		37.5 Duplicate	Drum 40 SB11 7/26/21	Drum 55 SB13, SB 7/26/21
vietilou	Naphthalene	0.038	mg/kg	<0.0141	<0.0147	<0.0103	<0.0128		7720/27
	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	<0.0330	<0.0103	<0.0310		
	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		
V 8260D	Tetrachloroethene	0.19	mg/kg	<0.00700	<0.00735	<0.0103	<0.00640		_
(VOCs		6.7		<0.00700	<0.00733				
ntinued)	Toluene Total Xylenes	1.5	mg/kg	<0.0422	<0.0442	<0.0103	<0.0128		
	•	1.3	mg/kg						
	trans-1,2-Dichloroethene		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		
	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	_	_
70D SIM	Benzo(g,h,i)perylene	15,000	mg/kg	<0.0146	_	< 0.0144	< 0.0142	_	_
(PAH)	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	_	_
	1,2,4-Trichlorobenzene	0.082	mg/kg	_	_	_	_	<0.740	<0.74
	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
1 00705	2,4-Dichlorophenol	0.032	mg/kg					<0.740	<0.74
/ 8270D VOCs)	2,4-Dimethylphenol	3.2	mg/kg					<0.740	<0.740
,	2,4-Dinterryphenol	0.34						<8.90	<8.85
			mg/kg	_					
	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
			ma/lea		_		_	< 0.740	< 0.740
	2-Chlorophenol 2-Methylnaphthalene	0.71	mg/kg 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	<b>SB11 22.5-25.4</b> 7/17/21		B13 -37.5 Duplicate	<b>Drum 40 SB11</b> 7/26/21	Drum 55 SB13, SB 14 7/26/21
metriou	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
	•	NS							
	Bis (2-Chloroethoxy) Methane	0.00042	mg/kg					<0.740 <0.740	<0.740 <0.740
SW 8270D	Bis (2-Chloroethyl) Ether		mg/kg						
(SVOCs	Bis (2-ethylhexyl) phthalate	88	mg/kg	_	_	_	_	<0.740	<0.740
continued)	Bis(2-chloro-1-methylethyl) ether	NS 46	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

Table 2 - Soil Boring Petroleum and Metals Results

Analytical		Cleanup		SB7 28.8-30.2	SB11 22.5-25.4	35-	B13 -37.5	Drum 40 SB11	Drum 55 SB13, SB 14
Method	Analyte	Level	Units	7/12/21	7/17/21	7/22/21	Duplicate	7/26/21	7/26/21
	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
SW 6020B	Chromium	5.0	mg/L	_	_	_	_	<0.100	0.314
TCLP	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 miligrams 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.

# AML

Mailing Address

#### **Toll Free Customer Service**

FREIGHT BILL PRO NUMBER (CARRIER USE ONLY)

NOI - Negotiable Dill Of Lauling

PO Box 2 Seattle, V			Seattle (Central/SE Alaska) Seattle (Western AK/Hawai							
			Ketchikan Juneau	1-800-809 1-800-585		ı				of
Date Rece	1930(1945)	oyage N		Origin:		Destination:	Container No:	Seal#:	Byd	Carrier:
	u	)100	25 RG 19	Dilling	nam	Seattle				
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Name	Harbor	SE	no rol mental	Name	ntar	bors Endi	on montal	Name Clean He	urbors	
Street Add	dress 1.51+k	a	1970	Street Addre	328 7	9th Anes.		12 Con	awater Ci	
City, State	mage	AK	99501	City, State	+ 11)1	4		City, State		2061
Ref No.	# 000	126	473 Phone	Ref No	Jack	Mac Phor	06-786-1110	Ref No	781-792	2-500 d
Processor										
All goods	s shall have	an ag	reed released value of	14:-			d all bassachald	-	REIGHT CHARG	EQ.
			ess Shipper declares and leased value directly				d all household be released at	172	COLLECT	LJ.
below.	An addition	nal cha	rge may be applicable ipper and Carrier's	to \$.10	/lb.					
	es on this b		constitute acceptance of	of		INITIAL			PREPAID X	
THE PERSON NAMED IN							<del></del>		OTHER	220 <b>0</b> 0
DECLA	RED VAL	.UE \$_						(	COD's not accept	ed)
LOAD T				nd Stacked		Mixed or other	er (please describ	oe):		
No. of Pieces	Kind of Package	HM*	Description provided *(For Hazmat - UN/NA No.	by Shipper umber, Prope	er Shipping	g Name, Hazard	Class, and Packing G	Group)	Net Weight in lbs.	Gross Weight in lbs.
23	DR		Material	Oot Re	gela	ted by D	70	HATTER WALLEY	5,750	
									1	
23	TOTAL	PIEC	ES				ТО	TAL WEIGHT	0	0
	'S CERTIFICA		Placards Required:	NIA			Emergency Telepho	800-483-3	718	ERG.No.
In the event according to	of hazardous go the applicable	oods the regulation	Shipper's signature on this bill cer is of the Department of Transport	tifies that the abo ation (49 C.F.R.	ove named m 172.204).	aterials are properly	dassified, described, packa	iged, marked, labeled an	d are in proper condition	for transportation
Shipper	r must ider	ntify in	writing prior to shipm	ent any	Refrige	erated Temp	Loads:	RECEIVED \$		
perisha	ble, tempe	erature	e controlled, keep from en goods. Carrier sh	n i	i intercenta <del>ri</del> n	ted Temp		To apply in pre	payment of charg	es on the
			ezing down or reduc		Later			property descri		***************
core te	mperatur	e of g	oods.		Temp at	t Receiving:	FC	Cash/MC/VISA	VCheck#	
					Date	Tin	ne	91		
SHIPPE	R (SIGNAT	UREF	EQUIRED)			CARRIE	R Aim (			V.
PER	enaca	T	sie s		DA	TE PER	TIME			DATE,
±	rend	la	Sheets		9/30	121 8	s A		9	130/21
		hinno	r agrees that the quet	adv and an	rriago of	goods identif	ind shall be subje	oct to the terme	and conditions o	n the

# NON-HAZARDOUS WASTE

#### **NON-HAZARDOUS WASTE MANIFEST**

ease print or type (Form designed for use on elite	(12 pitch) typewriter)	09.24	05000283			
NON-HAZARDOUS WASTE MANIFEST	Generator's US EPA ID No.	CESQG		Manifest Document No.	02931	2. Page 1
3. Generator's Name and Mailing Admess		**		SAWE	ag (4) (4) (2)	
4. Generator's Phone ( 190 ) / 9-0600						
5. Transporter 1 Company Name	6.	US EPA ID Number		A. State Trans	porter's ID	
Alasko Marine Lines	W	VAD9912818	809	B. Transporter	1 Phone (206) 7	65-4244
7. Transporter 2 Company Name	8.	US EPA ID Number		C. State Trans	Approximate and approximate the second secon	
Lynden Transportation		VAD0027992	260	D. Transporter		26-5702
Designated Facility Name and Site Address     Clean Harbors Environments	10.	US EPA ID Number		E. State Facilit	y's ID	
2247 South Highway 71 Kimhall, NE 69145	a Services, mo.	NED98172	3513	F. Facility's Ph		
11. WASTE DESCRIPTION			T 00	ntainers	13.	14.
TI. WASTE BESSIE TION			No.	Type	Total Quantity	Unit Wt./Vol.
MATERIAL NOT REGULATED	EY DOT, (PFAS SOIL)		0 2 3	D M	5,750	Р
b.						
c.						
d.						
11a.CH2239347	23X55					
15. Special Handling Instructions and Additional In	formation				PHONE W. (800 R. Alaska DOT - D	
16. GENERATOR'S CERTIFICATION: I hereby ce in proper condition for transport. The materials	ertify that the contents of this shipmer described on this manifest are not su	nt are fully and accurately des	scribed and are in aste regulations.	all respects		
Jan trailer	aneros acomo menoros de la como d La como de la como de	2 =				Date
Printed/Typed Name		Signature				onth Day Ye
Jon Taylor		175		-	No.	onin bay re
17. Transporter 1 Acknowledgement of Receipt of	Materials					Date
Printed/Typed Name		Signature	2		Mo	onth Day Ye
Domica Roberson		Kanten-	1		1/	1 0/12
18. Transporter 2 Acknowledgement of Receipt of	Materials	-011	V			Date
Printed/Typed Name		Signature			Mo	onth Day Ye.
19. Discrepancy Indication Space						, ,
20. Facility Owner or Operator: Certification of rece	ipt of the waste materials covered by	this manifest, except as note	ed in item 19.	Ne e		Date
Printed/Typed Name		Signature			Mo	onth Day Yes

CF14.er@ 2002 a Liabell ASTER® (800) 621-5808, www.labelmaster.com deither in the characteristics or in the process gene the characteristics or in the characteristics or i

#### 2105000203

A	N	ON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)	19. Generator ID Number	20. Page 21. Waste Tracking Number							
	22. Generator's Name  Ataska DOT- Dillingham										
	23 T	Fransporter Company Name					U.S. EPA ID	Number			
	Clean Harbors Environmental Services					W.A. D 0 3 9 3 2 2 2 5 0 U.S. EPA ID Number					
	24. Transporter Company Name										
		25. Waste Shipping Name and Description			26. Containers  No. Type		27. Total Quantity	28. Unit Wt./Vol.	8		
		(									
GENERATOR -					0						
- GENE											
				11						Vie	
						1				4.	
			War II					W.			
										9	
29. Special Handling Instructions and Additional Information											
	30. Transporter Acknowledgment of Receipt of Materials										
TRANSPORTER	Printed/Typed Name Signatur			Signature	Month Day Year						
TRANS	31. Transporter Acknowledgment of Receipt of Materials  Printed/Typed Name  Signatu			Signature	re Month Day Year						
FACILITY	32. Discrepancy										
DESIGNATED FACILITY					1						





### Booking Conf # RG19

Page 1 of 3

Date:

Prepared For:

September 29, 2021 BRENDA SHEETS

Phone:

907 206-0834

Fax: Email:

sheets.brenda@cleanharbors.com

Prepared By:

Victoria Iritsky Hardin

viritsky@lynden.com

Phone: Fax:

Shipper:

C/O DOCK

206 892-2591

206 508-7615

Voyage #:

Sailing Date:

Origin City:

Origin Port: **Destination Port:** 

Destination City:

Route:

PO Number:

BL #:

Project Name: Quote #:

Temperature: Shipment Type:

Equip. Type:

Unit #:

Bill To:

D20.STD

W1009S

Dillingham

Dock to Door

Dock

Seattle

October 6, 2021

Kent, Wa, 98032-7327

Consignee: CLEAN HARBORS ENVIRO

26328 79TH AVE S

**CLEAN HARBORS** 1010 COMMERCIAL ST

DILLINGHAM, AK 99576

**CLEAN HARBORS** 

907-863-5107

KENT,WA 98032-7327

253-639-4240

SAN JOSE, CA 95112

253-638-3550

Qty **UOM Freight Description** 

(LxWxH) Dimensions

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**

### **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

#### **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)

<sup>\*</sup> Unless otherwise noted, sand and gravel, when present, range from fine to coarse in grain size.

#### **RELATIVE DENSITY / CONSISTENCY**

COARSE-GR	RAINED SOILS	FINE-GRAINED SOILS							
N, SPT, <u>BLOWS/FT.</u>	RELATIVE <u>DENSITY</u>	N, SPT, <u>BLOWS/FT.</u>	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						

#### **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

#### **WELL AND OTHER SYMBOLS**

Bent. Cement Grout	V 24 + V 24 4	Surface Cement Seal
Bentonite Grout		Asphalt or Cap
Bentonite Chips		Slough
Silica Sand		Bedrock
PVC Screen		
Vibrating Wire		

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

		EM (USCS) 93)			
1	MAJOR DIVISIONS	<b>;</b>	GROUP/0 SYM	GRAPHIC IBOL	TYPICAL DESCRIPTION
		Clean Gravels	GW	X	Well-graded gravels, gravels, gravel/sand mixtures, little or no fines.
	Gravels (more than 50%	(less than 5% fines)	GP		Poorly graded gravels, gravel-sand mixtures, little or no fines
	of coarse fraction retained on No. 4 sieve)	Gravels with Fines	GM		Silty gravels, gravel-sand-silt mixtures
COARSE- GRAINED SOILS		(more than 12% fines)	GC		Clayey gravels, gravel-sand-clay mixtures
(more than 50% retained on No. 200 sieve)		Clean Sands	SW		Well-graded sands, gravelly sands, little or no fines
	Sands (50% or more of	(less than 5% fines)	SP		Poorly graded sand, gravelly sands, little or no fines
	coarse fraction passes the No. 4 sieve)	Sands with Fines	SM		Silty sands, sand-silt mixtures
		(more than 12% fines)	SC		Clayey sands, sand-clay mixtures
		Inorgania	ML		Inorganic silts of low to medium plasticity, rock flour, sandy silts, gravelly silts, or clayey silts with slight plasticity
	Silts and Clays (liquid limit less than 50)	Inorganic	CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
FINE-GRAINED SOILS (50% or more		Organic	OL		Organic silts and organic silty clays of low plasticity
passes the No. 200 sieve)		Inorgania	МН		Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
	Silts and Clays (liquid limit 50 or more)	Inorganic	СН		Inorganic clays or medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	ОН		Organic clays of medium to high plasticity, organic silts
HIGHLY- ORGANIC SOILS		c matter, dark in 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**

- 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.
- 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 GEOPR	OB	Ε						
ĺ	Date	Started	6/29/21	Location И	ood River and Kanak	anak Roads		Gr	ounc	l Ele	vation:	Approx.	71.6 feet	
ĺ	Date	Complete	ed 7/1/21					Ту	pical	Rur	n Length	5 feet		
ĺ	Total	Depth (f	t) 74.0	Drilling Co	ompany: Discovery Dril	ling		Но	le Di	iame	ter:	6 inches		
	Depth (ft)	Probe Run	and probing me approximate b	So rt text for a pro thods. The str ooundaries bet	il Description oper understanding of the s ratification lines indicated b ween soil types. Actual bo inside sample tubes during	subsurface materials below represent the bundaries may be	Depth. ft.	•	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102881-009.GPJ 21-20447.GPJ <b>42814/</b> 担利 Rev: Typ: MED		in some camay have so	Red-brown with fine to coarse so sand.  Red-brown to coarse so sand.	in iron lamina iro	tions, Silty Sand (SM); I stic fines.  It Sand with Gravel to Port feet; fine to coarse graves from the upper part of the run, moval from the ground.	moist; fine gravel; moist; fine gravel; moist; fine gravel; morphy-Graded Sand vel; fine to coarse the soil sample	- 20.8	3		2	Dilling!	SB1-15.7-16.	3 EXT PAGE	10 —
EOPROBE_WELL_DILLINGH		2" Plasti	c Sheath - No Sc c Sheath - Soil R	<u>LEGE</u> iil Recovery	en and Sand Filter at Grout Pellets		LOG OF S  May 2023  SHANNON & WILS  Geotechnical and Environmen					V01-30 102581-0 FIG. B- Sheet 1 of	2	

ſ							L	OG O	F GE	OPR	OBI										
Ī	Date	Started	d 6/29/2	1	Location	Nood I	River and	d Kanakan	nak Roads		(	Ground Elevation: Approx. 71.6 feet									
	Date	Compl	eted 7/1/2	1								Гуріса	l Ru	ın L	engtl	h	5 feet				
	Total	Depth	(ft) 74.	0	Drilling C	ompai	ny: <i>Disco</i> v	very Drillin	ng		ŀ	Hole D	iam	ete	r:		6 inch	es			
	Depth (ft)	Probe Run	Refer to the re and probing approximal differ	met e b	So t text for a pi	oil De roper un tratificat etween	escripti nderstandi tion lines ii soil types.	on ing of the sub ndicated belo Actual bour	bsurface ma ow represen ndaries may	t the	Depth, ft.	Symbol	PID, ppm	7	Water		De	scrip	umber, otion, sults		Depth (ft)
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-2047.GPJ 42914/1947 Rev: Typ: MED		In some may have	Dark brown fine to coars  Dark brown fine to medi  Red-brown, nonplastic fi  Red-brown, trace organi  Olive brown Sand; wet; to cases where received approximate.	to rest	red-brown, a gravel; fine the sand.  the with Sand (SM) and (SM) and (SM) are gravel; fine the gravel; fine the gravel; fine the prior to reserve the same same same same same same same sam	Grade  (ML); anics.  Grade  (ML); anics.  TES n the upernoval	sample tuling sample sa	Gravel with  Gravel; fine  gravel; fine  to Lean Cla	Sand (GP)  (SP); wet; good sand;  vet; fine sand;  ay (CL) with the soil samp	gravel;	39.5 - 43.7 - 46.1		1	□ Site	Dilling & Cha	han	n Airpoteriza	D NEX	T PAGE		30
OPROBE_WELL_DILLINGHAM	3.	2" Pla	KEY for definition  stic Sheath - No  stic Sheath - So	So	<u>LEGI</u> il Recovery	<u>END</u>	Piezom Bentoni Bentoni	eter Screen te-Cement ( te Chips/Pe te Grout	Grout	Filter		2023		OF	SI	В0		/IVV	01-3 10258 FIG.	31-00	
Ë											Georea	anneal al	iiu Er	ivii'O	mienta	ai Cor	เอนเเสกีเร	<u> </u>	Sheet	2 of 3	3

						LC	PR	ROBE											
Dat	e Starte	ed	6/29/21	Location	Vood I	River and F	Kanakanal	k Roads		(	Grou	ınd	Ele	vation:	,	Approx.	71.6 fee	t	
Dat	e Comp	leted	7/1/21							1	Гурі	cal	Rur	n Length	۱ ,	i feet			
Tot	al Depti	h (ft)	74.0	Drilling C	ompar	ny: Discovei	y Drilling			ŀ	Hole	Di	ame	ter:		inches	s		
Depth (ft)	Probe Run	an	d probing me approximate b		oil De roper ur tratificat tween s	escription anderstanding tion lines indi- soil types. Ad	<b>n</b> of the subsicated below ctual bound	urface mater represent tl aries may be	he	Depth, ft.	Cumbol	ayılıbol	PID, ppm	Ground Water		Desc	e Number cription, Results	r,	Depth (ft)
1947.GPJ 4898.4984	5 =	Da	rk gray, <i>Lea</i>	with Sand (i	ean Clá	ay with Sand	d (CL) with			- 59.6									55 — 60 — 65 — 70 — 70 — —
7 21-2 - -				BORING	COM	PLETED 7/	1/2021												_
M 102581-	may ha 2. Ground consid	ave slid o dwater le ered app	down in the to evel, if indicatoroximate.	NO <sup>-</sup> ery was low in the prior to rested above, was and explanate	n the up emoval as estin	from the ground the during	und.				P	FΑ	IS S	Dilling Bite Cha Dilling	aract	erizatio	n Repor	t	
WELL DILLI	_			<u>LEGE</u> oil Recovery	:H:			nd Sand Filt	er	Mari			GC	OF SE	<b>30</b> 1	/ <b>M</b> \	<b>W</b> 01-3		00
ROBE	2" PI	astic Sh	eath - Soil R	Recovery		Bentonite				Мау			N 0	WIII C	ON:	INIC	_	81-0	
GEOP				Bentonite Chips/Pellets  Bentonite Grout				SHANNON & WILSON, INC. Geotechnical and Environmental Consultants Sheet 3 c											

						LOG OF	GEOPR	OBI	BE Ground Elevation:									
Date	Starte	6/2	29/21	Location	Nood River a	nd Kanakanak				nd El	evat	ion:	Approx.	71.6 feet				
Date	Comp	leted 7/	/1/21					[1	Гуріс	al R	un Le	engtl	า 5 feet					
Total	Depth	ı (ft)	74.0	Drilling C	ompany: Disc	overy Drilling		ŀ	Hole	Diam	neter	:	6 inches					
Depth (ft)	Probe Run	and prob	bing meti kimate bo	Sort text for a prothods. The stoundaries be	oil Descrip roper understan tratification lines etween soil type:		represent the ries may be	Depth, ft.	Symbol	PID, ppm	Ground	Water	Descr	Number, iption, esults	Depth (ft)			
10		nonplas Red-bro	tic fines	s; trace orga blive, Silt to	anics (roots).  Elastic Silt (M	e to coarse grav  L to MH); moist es; trace organi	to wet; fine	- 2.1		0.6	¥.		SB1-15.7-16.3	3	5 10 15 20 20 20 20			
25 30 35 35		fine to c  Dark bro  (SP); mosand.  Dark bro	coarse sown, Poolist to woown to r	cand; nonpla corly-Grade wet below 2 red-brown, i	astic fines.  d Sand with G 7 feet; fine to d	and (SM); moist ravel to Poorly- coarse gravel; fill I Gravel with Sa	Graded Sand ne to coarse	- 20.8 - 23.2 - 32.0		1	During Drilling i		SB1-27.3-28		20			
40		fine to n	nedium wn, <i>Silt</i>	sand.	(ML); wet; fine	with Gravel (SF		39.5 - 43.7 - 46.1							40_			
50 		Red-bro	own, <i>Silt</i> ganics. own to o	ty Sand (SN	M) to Silt with S	Sand (ML); wet; I) to Lean Clay (		48.7	<u>:]·].</u>						50 -			
60		Dark gra	ay, Silt v	with Sand (	ML); wet; fine	sand.		59.6							60			
65 		1	•	•	•	Sand (CL) with loist to wet; fine		64.1							65 - 70 -			
75	ш.			BORING	COMPLETE	D 7/1/2021		74.0	222	24					75			
2. (	may ha Ground conside	ve slid down lwater level, it ered approxim	in the tu f indicate nate.	ery was low in the prior to reduce the prior t	emoval from the	of the run, the so ground. ring probing and			PI	-AS	Site	Cha	ham Airport aracterization nam, Alaska	n Report				
				LEGEND  Soil Recovery Piezometer Screen and Sand Filter							OF	SI	301 / <b>MV</b>	/ <b>MW01-45</b>				
	Z" Pla	astic Sheath	- 5011 Re	bil Recovery  Bentonite-Cement Grout  Bentonite Chips/Pellets  Bentonite Grout					May 2023 102581-009  SHANNON & WILSON, INC. Geotechnical and Environmental Consultants  FIG. B-3									

							LOG	OF GEOPF	20	BE								
	Date	Starte	d 7/	/2/21	Location A	irport	and Airport Spu	r Roads		G	roun	d Ele	evation:	Approx. 70.3 feet				
	Date	Compl	eted 7/	/4/21						Т	ypica	ıl Ru	ın Lengtl	h 5 feet				
ĺ	Total	Depth	(ft)	74.0	Drilling Co	ompan	y: Discovery Drill	ling		Н	lole D	iam	eter:	6 inches				
	Depth (ft)	Probe Run	and prob approx	bing met kimate b	So rt text for a pro thods. The str oundaries bet	oil Des oper un ratificati tween s	scription	subsurface materials elow represent the oundaries may be		Depth, ft.	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)		
ı	_	Ī	Brown,	Organi	c Soil (OL); r	moist to	o wet; fibrous orga	anics (grass).		2	<b>(6</b>	-	P. 4 9 9			† <u> </u>		
Тур: МЕД			Red-bro organics Brown to few orga	wwn, Poss (roots or red-branics (fi	orly-Graded ). rown with iro ine, roots).	on lami	nations, Silt with saded Gravel with	GM); moist; few  Sand (ML); moist;	1.	2		0				5		
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4ggr4がはAV Rev:	2.	may hav Ground <sup>,</sup>	cases when e slid down	e recove in the tu	be prior to re	the up moval f	per part of the run, rom the ground. ated during probing		22	2.9	PF	0.1	Site Cha	CONTINUED N	n Report	20		
L_DILLINGHAM					and explanati <u>LEGE</u>		ymbols.				LO	G		ham, Alaska B <b>02 / MV</b>				
=_WELL			stic Sheath		il Recovery		Piezometer Scree Bentonite-Cemen	en and Sand Filter	М	ay 2	2023				102581-0	09		
3EOPROB!		<u> </u>	one on Gaul		030 VOI y		Bentonite Chips/f Bentonite Grout						& WILS	ON, INC.	FIG. B-	4		

						LO	G OF G	EOPR	OBE	•					
Date	Start	ed	7/2/21	Location	Airport		t Spur Roads				d Ele	vation:	Approx.	70.3 feet	
Date	Com	plete	ed 7/4/21						Т	уріса	l Rui	n Lengt	h 5 feet		
Total	Dept	th (ft	74.0	Drilling C	Compan	ıy: Discovery	/ Drilling		F	lole D	iame	eter:	6 inches		
Depth (ft)	Probe Run			Sort text for a pethods. The s boundaries be	oil De proper un stratificat etween s	scription derstanding o ion lines indica oil types. Act	of the subsurface	resent the may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Descr	Number, iption, esults	Depth (ft)
- - - -			Red-brown, Si		,		pist to wet held	ow 32	25.9						- - - - -
			feet.	Siowii, Girt v	man Gre	<i>(1012)</i> , 1110	ost to wet bein	5W 5Z					SB2-31.7-32.3	3	30 —
- - - - - - - - - -			Dark brown to with less than:  Gray-brown to with Gravel (M.	2-inch layer	rs of Silt	<i>(ML)</i> ; wet.			35.4				SB2-37.5-38.4	1	- - - - - - - 40
21-20447.GPJ 48 <b>21</b> 48 <b>2</b>			Gray to olive but Gravel (SM); v		occassio	nal iron stain	ning, <i>Silty San</i> i	d with	<b></b> 43.4				SB2-45.3-46.0		45
1. 2. 1. 2.	may h Grour consid	ave s dwat dered	ises where recoverside down in the treater level, if indicard approximate.	very was low tube prior to r	removal t ras estim	from the groui nated during p	nd.			PF	AS S	Site Ch	ham Airport aracterizatior ham, Alaska		
	2" F	Plastic	LEGEND stic Sheath - No Soil Recovery ☑⊞☑ Piezometer Screen and Sand Filter							LO	G (	OF S	B02 / MV	V02-40	
OBE √			c Sheath - Soil R	il Recovery Bentonite-Cement Grout									102581-0	09	
3E0PR					Bentonite Chips/Pellets  Bentonite Grout					SHANNON & WILSON, INC. Geotechnical and Environmental Consultants					

							LO	G OF C	SEOPF	ROE	βE	1						
ľ	Date	Starte	d	7/2/21	Location	Airport	and Airport	Spur Roads	S		Gı	round	d Ele	vation:	Арј	prox. 7	0.3 feet	
Ī	Date	Comp	leted	7/4/21							Ту	/pica	l Rur	n Length	າ 5 fe	eet		
Г	Γotal	Depth	(ft)	74.0	Drilling C	ompan	ıy: Discovery	Drilling			Н	ole D	iame	ter:	6 in	nches		
	Depth (ft)	Probe Run	an	d probing me approximate b	Sort text for a protection of the state of t	oil De roper un tratificati etween s	scription derstanding o ion lines indica soil types. Acti	f the subsurfac ated below rep ual boundaries during extractio	resent the may be	Tool #	Deptil, it.	Symbol	PID, ppm	Ground Water		ample   Descri and Re		Depth (ft)
Rev: Typ: MED	- - - - - - - - - - - - - - - - - - -		Gra	anics.	гау, <i>Gravell</i> y			st to wet; trac		- 52. - 60.								55—
3PJ 21-20447.GPJ 429744429N	-						PLETED 7/4/	2021		<del></del>	.0							- - - - - -
GEOPROBE WELL DILLINGHAM 102581-009.GPJ	2.	may ha Ground conside	ve slid o water le ered app	down in the to evel, if indica proximate.	very was low i ube prior to re	emoval f as estim	from the grour nated during p	e run, the soil s nd. robing and sho	ŀ			PF/	AS S	_		ization	Report	
VELL_DILLIN	П	2" Pla	astic Sh	neath - No So	<u>LEGI</u> oil Recovery	END :::::::	Piezometer	Screen and S	and Filter				G C	OF SE	302 /	MW	/02-40	
OBE_V				neath - Soil R	•		Bentonite-C	ement Grout		Ma	y 2	023					102581	-009
3EOPR(										SH Geot	AN echi	NNO	N &	WILS vironmenta	ON, IN	IC.	FIG. I Sheet 3	

				LOG C	F GEOPR	OBE							
Date	Starte	d 7/21/21	Location	Airport and Airport Spur	Roads	(	Groui	nd E	leva	tion:	Approx.	70.3 feet	
Date	Compl	leted 7/21/21		•		[1	Гуріс	al R	Run I	_engt	h 5 feet		_
Total	Depth	(ft) 74.0	Drilling (	Company: Discovery Drillir	าต	ŀ	Hole I	Diar	nete	r:	6 inches		
	_			oil Description	·9								
Depth (ft)	Probe Run	and probing n approximate	oort text for a prethods. The boundaries b	proper understanding of the su stratification lines indicated bel etween soil types. Actual bou d inside sample tubes during e	low represent the ndaries may be	Depth, ft.	Symbol		110, pp. 1	Ground Water	Desci	Number, iption, esults	Depth (ft)
				; moist to wet; fibrous orgar		0.2	AT I	1					1 =
5		organics (roo	ts).	ed Gravel with Sand (GP-G		1.2			'				5
10		Brown to red few organics		ron laminations, <i>Silt with Sa</i>	and (ML); moist;			c	,				5   10   11   11   11   11   11   11   1
15		Dark red-bro		oorly-Graded Gravel with Si (GM); moist.	ilt and Sand	14.4	0000	9 0					15
20		Brown, Silt (I	(// ): moist			22.9		) 0.					=
25				CM), maist		25.9		Ų.	Drilling 1				25 =
Ē.,		Red-brown to	· ·	with Gravel (ML); moist to w	wet helow 32	28.6		3	ng Dril				30
30		feet.	blowii, oiit	with Graver (ML), most to v	vet below 32	05.4			During		SB2-31.7-32.	3	30 =
				Silty Sand with Gravel (SM	1), interbedded	35.4							
40			o red-brown	rs of <i>Silt (ML)</i> ; wet. with iron staining, <i>Sandy S</i>	ilt to Sandy Silt	38.4					SB2-37.5-38.	4	40
45			brown with c	occassional iron staining, Si	lty Sand with	43.4					SB2-45.3-46.	)	45
50		Gray, <i>Elastic</i>	Silt (MH) to	Lean Clay (CL); moist to w	et; trace fine	52.2							50
55		organics.											55
60		Gray to dark to wet; few fi		ly Clay with Sand to Lean (	Clay (CL); moist	60.5							60
65													65
GPJ 48						74.0							
75-20447.0			BORIN	G COMPLETED 7/4/2021		74.0							75
		l	NC	<u>DTES</u>									
2. Q	may hav Ground <sup>,</sup> conside	ve slid down in the water level, if indic ered approximate.	tube prior to a tated above, w	in the upper part of the run, the removal from the ground.  vas estimated during probing a			PF	-AS	Sit	e Ch	ham Airport aracterizatior ham, Alaska	n Report	
3. I	Refer to	KEY for definition	s and explana	ation of symbols.				_	_	- 0	D00 / MV	V00 50	
MELL D		astic Sheath - No S astic Sheath - Soil	Soil Recovery	END Piezometer Screen Bentonite-Cement		May			O	r 5	B02 / MV	<b>V02-50</b> 102581-0	09
OPROBE	∠ Fla	3011 - 3011	recovery	Bentonite Chips/Pe					& V	VILS	ON, INC.	FIG. B-	
Ü						Geolec	micai	and	EIIVIIC	mment	ai Consultants		•

ſ							LO	G OF G	EOPR	ОВ	E					
	ate	Started	7/6	6/21	Location	Southe	east of DLG I	Lease Lots			Groun	nd Ele	evation:	Approx.	72.0 feet	
	ate	Compl	eted 7/7	7/21							Туріса	al Ru	n Lengtl	າ 2.5 and ເ	5 feet	
Ľ	otal	Depth	(ft) 7	7.5	Drilling C	ompar	ny: Discovery	Drilling			Hole [	Diam	eter:	6 inches		
	Depth (ft)	Probe Run	and probir approxir	ng met mate b	Sort text for a prothods. The stood oundaries be	oil De roper ur tratificat tween s	escription nderstanding of tion lines indica soil types. Actu	f the subsurface ated below repre ual boundaries i during extraction	esent the may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)
Тур: МЕD	- - - - - - - - - - - - - -		Dark brow layers of f	vn to g		n lami n 16.4		ML) with 1- to moist; few to		- 0.6		0 0		SB3-10.0-0.8 SB3-10.0-11 SB31-10.0-1		5
21-20447.GPJ 4 <i>291.dPMF</i> Rev:	- -20 - - -		Red-brow of Silty G	ın to g	gray to gray-	brown,	, interbedded	Gravel (SP); n less than 1-fo with Gravel o	ot layers	18.1 - 21.3			During Drilling	SB3-20.0-20.	0	20
GEOPROBE_WELL_DILLINGHAM_102581-009.GPJ_21-20447.GPJ_4 <u>09</u> 14_01 	2.	may hav Groundv conside	e slid down in	the tundicatate.	ube prior to re ted above, wa	n the up emoval as estin	from the groun	e run, the soil sand. robing and shou	·		PF	FAS	Site Cha	ham Airport ham Airport aracterization nam, Alaska	n Report	
WELL DILL			stic Sheath - I		•			Screen and Sa	ınd Filter	Mav	<b>LC</b>		OF S	B03 / M	<b>W03-30</b>	nna
GEOPROBE		∠" Pla	stic Sheath - S	5011 K	ecovery			hips/Pellets					& WILS	ON, INC.	FIG. B-	6

ſ							LO	G OF G	EOPR	OBI	E					
	Date	Starte	d	7/6/21	Location	Southe	east of DLG I	Lease Lots			Ground	l Ele	vation:	Approx.	72.0 feet	
	Date	Comp	lete	d 7/7/21						-	Гуріса	Rur	n Length	1 2.5 and	5 feet	
Ī	Total	Depth	ı (ft)	77.5	Drilling Co	ompar	ny: Discovery	Drilling		I	Hole Di	ame	eter:	6 inches		
	Depth (ft)	Probe Run			So ort text for a pr thods. The st poundaries be	oil De roper ur tratificat tween s	escription nderstanding of tion lines indica soil types. Actu	f the subsurface	esent the may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)
Rev: Typ: MED		Prob			staining, Pool	orly-Gr wet be	raded Sand to	o Poorly-Grade	ed Sand	- 28.5 - 36.6 - 38.0 - 39.8		PID,	Grand State Control of the Control o	and F	Results	30 — 335 — 40 —
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4281424F	2.	may ha Ground conside	e cas	es where recovid down in the turlevel, if indicatapproximate.	NOT ery was low in ube prior to re ted above, wa	TES n the up emoval as estin	oper part of the from the groun nated during pr	e run, the soil sa	•	48.0	PF		Site Cha	continued n nam Airport aracterization nam, Alaska	n Report	45 —
VELL_DILLINGE	П			Sheath - No Sc	LEGE			Screen and Sa	nd Filter			G (	OF S	B03 / M	W03-30	
OBE				Sheath - Soil R	•			ement Grout			2023				102581-0	
<b>SEOPR</b>							Bentonite G	•		SHA Geoted	NNO chnical ar	N &	wironmenta	ON, INC. I Consultants	FIG. B- Sheet 2 of	

ſ						LOG O	F GEOPR	OB	E					
	Date	Started	7/6/2 <sup>-</sup>	Locatio	n South	east of DLG Lease L	_ots		Ground	d Ele	vation:	Арргох.	72.0 feet	
	Date	Compl	eted 7/7/2	,					Typica	l Rui	n Length	2.5 and	5 feet	
ĺ	Total	Depth	(ft) 77.5	Drilling	Compa	ny: Discovery Drilling	g		Hole D	iame	ter:	6 inches		
	Depth (ft)	Probe Run	and probing approximat	port text for a methods. The boundaries	Soil Do proper u stratifica between	escription  Inderstanding of the sub- Inderstand of	surface materials by represent the daries may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ <b>4291/4/2H</b> Rev: Typ: MED		In some may have Groundy	Gray to olive (SP-SM); m  Gray to olive (SP-SM); m  Gray to dark	ent if soil shift ean Clay (C brown, Poc oist.  gray, Poorl gray, Poorl e tube prior to	interpretation of the control of the	sample tubes during ex	d Gravel GP-GM).	- 51.6			Dillingl Site Cha	CONTINUED N	EXT PAGE	55 —
ELL_DILLINGHAM		Refer to	red approximate. KEY for definitio	<u>LE</u>	<u>GEND</u>	_	and Cord Filter		LO	G (		nam, Alaska B03 / M\		
BE_WE			stic Sheath - No stic Sheath - Soi			Bentonite-Cement G	Grout	Мау	2023				102581-0	09
GEOPRO						Bentonite Chips/Pel Bentonite Grout	lets	SH/ Geote	ANNO chnical a	N &	WILS( vironmenta	ON, INC. I Consultants	FIG. B-	

						LOG OF GE	OPRO	BE						
Date	e Sta	arted	7/6/21	Location	Southe	ast of DLG Lease Lots		G	round	d Ele	vation:	Approx.	72.0 feet	
Date	e Co	mplete	d 7/7/21					T	ypica	l Rui	n Length	1 2.5 and 5	5 feet	
Tota	al De	epth (ft	77.5	Drilling C	ompan	y: Discovery Drilling		Н	ole Di	iame	ter:	6 inches		
Depth (ft)	24070	Probe Kun	and probing me	Sort text for a prethods. The siboundaries be	oil De roper un tratificat etween s	scription  Iderstanding of the subsurface maion lines indicated below represer soil types. Actual boundaries may sample tubes during extraction.	t the be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
E			Gray, <i>Poorly-</i> 0	Graded Grav	el with	Sand (GP); wet.	7	75.2	<del>) U</del> :					_
L	-		Gray, Lean Cl	ay with Sand	d (CL);	wet.	7	76.4						_
F				BORING	G COMI	PLETED 7/7/2021	7	77.5						-   -
-														_
—80 -														80-
-														_
E														_
L														_
- 85	5													85-
F														_
F														_
														_
-														_
—90 —90														90 —
														-
_														_
E														
- - - 95														95-
E														- -
-2914/21 														_
7.GPJ 4														_
1-2044														<del>-</del>
.GPJ 2				NO <sup>-</sup>	TES									
-185201 Z	may Gro. con	y have s oundwate sidered	lid down in the t	tube prior to re ated above, wa	emoval i as estim	oper part of the run, the soil samp from the ground. lated during probing and should by ymbols.			PF	<b>AS</b> S	Site Cha	ham Airport aracterization nam, Alaska	n Report	
	Т оч	" Dlest'-	Shooth No C	<u>LEGE</u>	END [:H:]	Diagrameter Severy and Sevel	-iltor		LO	G (	OF S	B03 / M\	W03-30	
			Sheath - No S Sheath - Soil F	•		Bentonite-Cement Grout	-iiter N	May 2	2023				102581-0	09
SEOPR(						Bentonite Chips/Pellets Bentonite Grout	S	SHAI Geotech	NNO inical ar	N &	WILS vironmenta	ON, INC. I Consultants	FIG. B-	

				LOG OF GEO	PR(	DBE							
Date	Starte	ed 7/7/21	Location	Southeast of DLG Lease Lots		G	round	d Ele	evati	on:	Approx.	72.0 feet	
		oleted 7/7/21				T	ypica	I Ru	n Le	ngtl	1 2.5 and 5	feet	
Total	Depti	h (ft) 77.5	Drilling (	Company: Discovery Drilling		Н	ole D	iam	eter:		6 inches		
Depth (ft)	Probe Run	and probing mapproximate	oort text for a paethods. The solundaries be	coil Description  proper understanding of the subsurface mater stratification lines indicated below represent to the tween soil types. Actual boundaries may be d inside sample tubes during extraction.	ne	Depth, ft.	Symbol	PID, ppm	Ground	Water	Descr	Number, iption, esults	Depth (ft)
10			o gray with iro	ron laminations, Silt (ML) with 1- to 2-incl m 16.4 to 17.3 feet.; moist; few to trace	1	0.6		0 0	***		SB3-0.0-0.8 SB3-10.0-11. SB31-10.0-11		5 10 15 15
20		Red-brown to	gray to gray	/-Graded Sand with Gravel (SP); moist. /-brown, interbedded less than 1-foot layer	ers	18.1 21.3		0.1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		SB3-20.0-20.9		20
25		Poorly-Grade	ed Sand (SP)	Poorly-Graded Sand with Gravel or ).  Gravely Clay with Sand (CL); moist.		28.5			During Drilling		SB3-23.0-24.0	)	30
35		with Gravel (	SP); moist to Clayey Sano	oorly-Graded Sand to Poorly-Graded Sa o wet below 35 feet. d (SC); wet. oorly-Graded Sand to Poorly-Graded Sa	 /_	33.5 36.6 38.0 39.8							35
45 		Brown, Poorl	o gray-brown coorly-Graded y-Graded Gr	n, Poorly-Graded Sand with Clay and Grad Sand with Gravel (SP); wet. ravel with Sand (GP); wet.	avel	48.0 49.6 51.6							45
55 	<u> </u>	Light gray, Le Gray to olive (SP-SM); mo	brown, <i>Poorl</i>	.); moist. ly-Graded Sand with Silt and Gravel	_/								55
75	I	Gray to dark	 gray, <i>Poorly</i> -	-Graded Gravel with Sand (GP-GM).		68.5							65
75 80	   	Gray, Poorly-	Clay with San	vel with Sand (GP); wet. nd (CL); wet. G COMPLETED 7/7/2021		75.2 76.4 77.5							75
2. (	may ha Ground conside	ave slid down in the	overy was low tube prior to r ated above, w	DTES in the upper part of the run, the soil sample removal from the ground. was estimated during probing and should be ation of symbols.			PF/	AS (	Site	Cha	ham Airport aracterizatior nam, Alaska	n Report	
		lastic Sheath - No S	Soil Recovery	KNI KNI		May 2		G (	OF	S	B03 / M\		200
"	2" PI	lastic Sheath - Soil	Recovery	Bentonite-Cement Grout  Bentonite Chips/Pellets  Bentonite Grout	-			N 8	<b>W</b> I	ILS menta	ON, INC.	102581-0 FIG. B-	

					LOG	OF GEOPR	OB	Е						
Date	Starte	d	7/21/21	Location	Southeast of DLG Lea	ase Lots		Grou	nd E	levat	tion:	Арргох.	72.0 feet	
Date	Comp	leted	7/21/21	1				Туріс	al R	un L	engt	h 2.5 and 5	5 feet	
Total	Depth	ı (ft)	77.5	Drilling C	company: Discovery Di	rillina		Hole	Dian	neter	:	6 inches		
	_				oil Description	······9	Τ'					<b>*</b>		
Depth (ft)	Probe Run	and	probing me proximate b	ort text for a part thods. The s coundaries be	roper understanding of the tratification lines indicated etween soil types. Actual d inside sample tubes duri	l below represent the boundaries may be	Depth, ft.	Symbol	PID nom	Ground	Water	Desci	Number, ription, Results	Depth (ft)
				rganic Soil	,		0.6	而	0	9		SB3-0.0-0.8	_	
10		laye	rs of fine o	0 ,	on laminations, <i>Silt (ML</i> n 16.4 to 17.3 feet.; mo	,			0 0			SB3-10.0-11 SB31-10.0-1		10 11 11 11 11 11 11 11 11 11 11 11 11 1
= 20		Red	brown to g	gray, <i>Poorly</i>	-Graded Sand with Gra	avel (SP); moist.	18.1							20
E		Red	 -brown to ເ	gray to gray	-brown, interbedded les	s than 1-foot layers	21.3		Ţ	Ā		SB3-20.0-20.	9	20 =
25	Ħ	of S	ilty Gravel		Poorly-Graded Sand w	•	20.1			During Drilling		SB3-23.0-24.	0	25
30	ī	Gray	ı, Lean Cla	ay to Lean (	Gravely Clay with Sand	(CL); moist.	28.5			Dni				30
35				-	orly-Graded Sand to F	oorly-Graded Sand								35
		⊢			wet below 35 feet.		36.6	- 22	<u> </u>					=
= 40 = 40		Gray	y with iron	-	oorly-Graded Sand to F	Poorly-Graded Sand	39.8							40
45	H		Gravel (Si		, Poorly-Graded Sand	with Clay and Gravel								45
		_			, Foony-Graded Sand \ I Sand with Gravel (SP		48.0	Ρ:	H					3
e E 50		1			avel with Sand (GP); w	:	49.6	4//						50
55	Į.	Ligh	t gray, <i>Lea</i>	an Clay (CL)	); moist.		31.0	'  ::						55
	$\perp$	1	•		y-Graded Sand with Si	t and Gravel								
60		(SP-	-SM); mois	it.										60
65	Т													65
70	工	Gray	y to dark gr	 ray, <i>Poorly-</i> (	Graded Gravel with Sa	nd (GP-GM).	68.5		) ( ) ( ) (					65
								Po			·日:			=
75	I	Gray	y, Poorly-G	Graded Grav	vel with Sand (GP); we	l. /	75.2	P-7						75
80 		Gray	y, Lean Cla	ay with San	d (CL); wet.		76.4 77.5							80
21-2044 				BORING	G COMPLETED 7/7/20	21								
				<u>NO</u>	<u>TES</u>									_
1.   1.   2.   2.   2.   2.   2.   2.	may ha	ve slid do	own in the tu	ube prior to re	in the upper part of the ru emoval from the ground. as estimated during prob			P	FAS		_	ham Airport aracterization	n Report	
3. I	conside	ered appr	oximate.		tion of symbols.	_						ham, Alaska		
GEOPROBE_WELL_DILLINGHAM 102561-009.GPJ				<u>LEG</u> I				LC	OG	OF	· SI	B03 / MV	V03-75	
OBE WE			eath - No So eath - Soil R	oil Recovery Recovery	Bentonite-Cem		May	202	3				102581-0	09
3EOPR(					Bentonite Chip Bentonite Grou	1	SH2 Geote	<b>ANN</b> chnica	ON I and E	& W Enviror	/ILS	ON, INC. al Consultants	FIG. B-	8

ſ							LO	G OF G	EOPR	ОВ	Ε								
	Date	Starte	t	7/8/21	Location	Vest E	nd of Martin	Street, Insid	le DLG Fen	се	Gre	ounc	l Ele	vatio	on:	Approx	. 67.2 fe	eet	
		Compl		7/9/21							Туј	pical	Ru	n Ler	ngth	5 feet			
	Total	Depth	(ft)	60.0	Drilling Co	ompar	ny: Discovery	Drilling			Но	le Di	ame	eter:		6 inche	s		
	Depth (ft)	Probe Run	and	d probing me pproximate b	So rt text for a pr thods. The st coundaries be	oil De roper ur tratificat tween s	escription nderstanding of tion lines indica soil types. Actu	f the subsurface ated below repre ual boundaries a during extraction	esent the may be	Depth, ft.		Symbol	PID, ppm	Ground	Water	Des	e Numb cription Results	i,	Depth (ft)
= Rev: Typ: MED			Rec org	d-brown to I and with Silty ist.	ight gray-bro	own, S I (SP-S	<i>ilty Gravel (G</i> SM) with 6-inc	Silt (ML); moi	Graded (ML);	- 0.5 - 11.8 - 15.5			0 0			SB4-0.5-1.2			5
GEOPROBE_WELL_DILLINGHAM_102581-009.GPJ_21-20447.GPJ <b>429144</b> F			Sai Sai cases	nd with Gra nd (GP) at 2	vel (SP) with 25 feet; wet.  NOTery was low in	TES n the up	ot-bed of <i>Poor</i>	d to Poorly-Gi ly-Graded Gra e run, the soil sa	avel with	22.0				During Drilling	ingl	SB4-20.0-2	NEXT PAG	<u>GE</u>	-
LINGHAM 102581	2.	Ground conside	water le red app	vel, if indicat roximate.	•	as estin		nd. robing and shou	uld be					Site ( Dilli	Cha ngh	nam Airpoi iracterizatio nam, Alask	on Rep a		
WELL DIL					LEGE			Screen and Sa	and Filter	May			G (	OF	SE	304 / M		- <b>25</b> 2581-0	09
EOPROBE		∠" Pla	suc Sh	eath - Soil R	ecovery			hips/Pellets	-				N &	<b>WI</b> l	LS(	ON, INC. I Consultants	FI	<b>G. B-</b> 9	9

ſ							LO	G OF G	EOPR	OBE						
	Date	Started	t	7/8/21	Location	Vest E	nd of Martin	Street, Insid	le DLG Fen	ce (	Groun	d Ele	evation:	Approx.	67.2 feet	
	Date	Compl	eted	7/9/21						1	Гуріса	l Ru	n Lengtl	n 5 feet		
	Total	Depth	(ft)	60.0	Drilling C	ompar	ny: Discovery	Drilling		ŀ	lole D	iame	eter:	6 inches		
	Depth (ft)	Probe Run	and	probing me proximate b	Sort text for a prothods. The stood oundaries be	oil De roper ur tratificat tween s	escription nderstanding of tion lines indica soil types. Acti		esent the may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-2047.GPJ 42gf 4½F Rev: Typ: MED			Inte Silt	rbedded wi (SP-SM); r	th 6-inch to noist to wet.	1-foot  d Sand	of (SP); wet.	erun, the soil sa		- 45.0				CONTINUED N		30
LINGHAM 102581-	2.	may hav Groundv conside	e slid de vater lev red appi	own in the to vel, if indicatorication	ube prior to re	emoval as estim	from the grour nated during p				PF	AS S	Site Cha	ham Airport aracterizatio nam, Alaska	-	
WELL DILL				eath - No So eath - Soil R	LEGE	END EHE	•	Screen and Sa	and Filter	Mav	<b>LO</b> 2023		OF SI	304 / <b>M</b> V	<b>V04-25</b> 102581-0	09
<b>SEOPROBE</b>		∠ ria	əuc ƏH6	au - 3011 K	ecovery			hips/Pellets					WILS vironments	ON, INC.	FIG. B-	9

							LC	G OF	GEOP	ROI	BE							
	Date	Started	i	7/8/21	Location I	Vest E	nd of Marti	n Street, In	side DLG F	ence	G	round	d Ele	evation:	Арр	orox. 6	7.2 feet	
	Date	Compl	eted	7/9/21							T	уріса	I Rui	n Lengtl	ា <i>5 f</i> e	et		
	Total	Depth	(ft)	60.0	Drilling C	ompan	ny: Discover	y Drilling			Н	lole D	iame	eter:	6 in	ches		
	Depth (ft)	Probe Run	and	d probing me pproximate l	Sout text for a part thods. The soundaries be	oil De roper un tratificati etween s	scription	<b>I</b> of the subsun cated below re tual boundan	ies may be		Depth, ft.	Symbol	PID, ppm	Ground Water		mple l Descri and Re		Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4281474F Rev: Typ: MED		In some	Ligi	ht gray, Lea	NO Pery was low i	Sand (	sample tubes	ol/2021	tion. '	56	5.0	Symi	PID,		ham Ai		esuits	55—  60—  70—  70—  70—  70—  70—  70—  70
JILLINGHAM 10258	2.	Groundv conside	vater le ed app	evel, if indica proximate.	ted above, wa	as estim	nated during p		should be					Site Cha Dillingl	aracteri: nam, Al	zation laska	Report	
3E_WELL_C				eath - No So eath - Soil F	<u>LEGE</u> oil Recovery Recovery	END ::H:: 		r Screen and Cement Grou		M		<b>LO</b> 2023	<b>.</b>	Jr Əl	<b>)</b> 04 /	IVIV	102581	
SEOPROL	_						Bentonite (	Chips/Pellets Grout		SI Ge	<b>HAI</b> otech	NNO nnical a	N &	WILS vironmenta	ON, IN	IC.	FIG. I	

					LOG OF (	GEOPRO	OBE							
Date	Starte	d	7/9/21	Location	West End of Martin Street, Ins	ide DLG Fend	ce	roun	d Ele	evati	on:	Approx.	67.2 feet	
Date	Comp	eted	7/9/21	<u> </u>			Т	уріса	I Ru	n Le	ngth	o 5 feet		
Total	Depth	(ft)	60.0	Drilling C	company: Discovery Drilling		Н	lole D	iam	eter:		6 inches		
Depth (ft)	Probe Run	and	d probing me pproximate b	ort text for a pathods. The so	poil Description  roper understanding of the subsurfattratification lines indicated below repetween soil types. Actual boundaries tinside sample tubes during extracti	oresent the s may be	Depth, ft.	Symbol	PID, ppm	Ground	Water	Descr	Number, iption, esults	Depth (ft)
5		Red	ganic Soil (C d-yellow to r anics (roots	red-brown w	vith iron laminations, Silt (ML); m	oist; trace	0.5		0	¥\$3		SB4-0.5-1.2		10
= 10 = = = = = = = = = = = = = = = = = = =		Sar moi	nd with Silty ist.	and Grave	own, Silty Gravel (GM) to Poorly	ilt (ML);	11.8		0			SB4-15.5-17.0	n	15
= -20 = - - -		to v	vet below 20 d-brown to o	0.5 feet bgs dark brown,	Poorly-Graded Sand to Poorly-G	Graded	22.0			Drilling i∕∏		SB4-20.0-21.		20
30				ver (SP) wit 25 feet; wet.	h 3-foot-bed of <i>Poorly-Graded G</i>	ravei with				During		SB4-27.8-28.	5	30 = 35 = 35
40		Inte	erbedded wi		Silt to Silty Sand (ML)  1-foot layers of Poorly-Graded S	Sand with	38.3							40 - 45 - 45 -
- 45 					d Sand (SP); wet.		45.0							
E				y Sand (SM			55.0							50 = = = = = = = = = = = = = = = = = = =
GPJ 48814421		Ligi	n gray, Lea		Sand (CL); moist.  G COMPLETED 7/9/2021		60.0							60
21-20447				BORING	GOMPLETED 1/9/2021									
2. Q	may ha Ground conside	ve slid d water le red app	lown in the to evel, if indicatoroximate.	rery was low bube prior to reted above, w	TES in the upper part of the run, the soil emoval from the ground. as estimated during probing and sh tion of symbols.	·		PF.	AS	Site	Cha	ham Airport aracterizatior nam, Alaska	n Report	
	2" Pla	stic Sh	eath - No Sc	<u>LEG</u> bil Recovery		Sand Filter				OF	S	B04 / M\		
	2" Pla	stic Sh	eath - Soil R	ecovery	Bentonite-Cement Grout  Bentonite Chips/Pellets		May 2						102581-0	09
SEOP					Bentonite Grout		SHA Geotech	NNO nnical a	N &	k WI	ILS nenta	ON, INC. al Consultants	FIG. B-1	10

ſ							LO	G OF G	EOPR(	OB	E							
ſ	Date	Starte	d	7/10/21				Airport Road,	Near Holy		Gro	ounc	d Ele	vation:	Approx	. 71.5 feet	!	
	Date	Compl	eted	7/11/21		•	/ Church				Тур	ica	l Rur	n Length	າ 2.5 and	5 feet		
	Total	Depth	(ft)	77.5	Drilling C	ompar	ny: Discovery	Drilling			Hol	e D	iame	ter:	6 inche	s		
	Depth (ft)	Probe Run	and	d probing me pproximate b	So rt text for a pr thods. The st coundaries be	oil De oper ur tratificat tween s	escription  Inderstanding of  tion lines indica  soil types. Actu	the subsurface ted below repre- ual boundaries n luring extraction.	sent the nay be	Depth, ft.		Symbol	PID, ppm	Ground Water	Des	e Number cription, Results	,	Depth (ft)
ŀ			Bro				•	and (GP-GM);			0,	<b>ў</b>		0 S				
Typ: MED			Red trad	d-brown to I be to few org	ight-gray bro ganics (roots th less than	own, Sa s, wood	ilt (ML); moist d).	and (GP-GM); t; nonplastic fin k brown, Silty (	nes;	- 0.6			0.3					
447.GPJ 42914021F Rev:	- - - - - - - - - - -		Gra Yel	avel (SP); m	noist.			Sand to Sand v		- 17.5 - 22.3			0.1					20 —
21-20	- .														CONTINUES	NEVTRACE		_
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 492042MF	2.	may hav Ground conside	e slid o water le red app	lown in the to evel, if indicator proximate.	ube prior to re	n the up emoval as estin	from the groun nated during pr	run, the soil sa id. obing and shou						Site Cha Dillingh	ham Airpo haracterizationam, Alask	rt on Repor a		
WELL DIL					<u>LEGE</u> oil Recovery			Screen and Sar	nd Filter	May			G (	OF SE	305 / M		. <b>5</b> 81-00	na
3EOPROBE	П	2" Pla	istic Sh	eath - Soil R	ecovery		_	hips/Pellets					N &	WILS vironmenta	ON, INC.	FIG.	<b>B-1</b> t 1 of 4	1

ſ										LO	G OF	GE	OPR	ОВ	Ε										
Г	Date	Star	ted	7/10	/21	L	ocation	Emp	eror Wa	y and A	Airport F	Road, N	ear Holy		Gre	ound	d Ele	evat	ion:		Аррі	rox. 7	'1.5 f	eet	
Ľ	Date	Com	plete	ed 7/11	/21				ry Chu						Ту	pica	I Ru	ın Le	engt	h	2.5 a	and 5	feet		
Ľ	Γotal	Dep	th (ft	) 7	7.5	D	rilling	Comp	any: <i>Di</i> s	covery	Drilling				Но	le D	iam	eter	:		6 inc	ches			
	Depth (ft)	Probe Run			ng me mate b	ort te etho	ext for a place of the second	oil C proper stratific petwee	Descri understa cation lin en soil typ	ption anding of es indica pes. Actu	f the subs	urface may v represe aries may	nt the	Depth, ft.		Symbol	PID, ppm	Ground	Water		D	nple Jescri Ind R	iptio	٦,	Depth (ft)
GPU 4ggr 4/2かf Rev: Typ: MED				Dark brov Sand (GF Brown wit moist to v  Brown to with 1-foc  Dark brov  Dark brov  Brown to Gravel wi	dark ot-laye	red ers	I-brown, of Poor	Silty ly-Gra	Gravel to aded Sa	to Silty Cond with	Gravel w. Gravel (	Silt (ML,	(GM)	- 26.0 - 27.0 - 35.0 - 40.0 - 41.0			0	Dining Drilling Dril				0-35.€			30
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42974244	2. (	may l Grou consi	nave s ndwat dered	ses where lid down in er level, if i approxima :Y for defin	the to ndicat ate.	ube ted	was low prior to above, v	remov vas es	al from the	he groun during pr	nd.	•	1			PF/	AS:	Site	Cha	ham arac	n Air teriz	port cation			<u>-</u>
ELL_DILLINGF	J.,						LEC	<u>SEND</u>							L	-0	G (	OF	SI	В0	5 /	ΜV	/05	-45	
BE_WE				Sheath - I Sheath - S			•				Screen ar ement Gr		Filter	May	20	)23							10	2581-	009
3EOPRO!										tonite Cl tonite G	hips/Pelle rout	ets		SH/ Geote	<b>\N</b> chni	NO ical a	N &	& W	/ILS	ON al Con	, IN(	C.		<b>G. B-</b> neet 2 o	

ſ							LC	OG OF	GEOPR	OBI	E					
D	ate	Star	ed	7/10/21	Location	mper	or Way and	l Airport Ro	ad, Near Holy	. [	Ground	d Ele	evation:	Арргох.	71.5 feet	
D	ate	Com	plete	ed 7/11/21		-	/ Church			•	Туріса	l Ru	n Length	1 2.5 and	5 feet	
T	otal	Dep	th (ft	77.5	Drilling C	ompai	ny: Discover	y Drilling		I	Hole D	iame	eter:	6 inches	;	
;	Deptn (rt)	Probe Run			Sort text for a protection of the state of t	oil De oper ui tratifica tween	escription anderstanding tion lines indi- soil types. Ad	<b>n</b> of the subsurf	epresent the es may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desc	e Number, cription, Results	Depth (ft)
E										51.6						_
-			-	Gray, Lean Cl	<i>ay (CL)</i> ; moi	st.				7 31.0						   
Тур: МЕР	<ul><li>55</li><li>60</li><li>65</li></ul>		-	Dark brown to (SP-SM) to Cl					avel	- 55.0						55—
1-2047.GPJ <b>4<i>og</i>r<i>40</i>24</b> F Rev:	70		-	Dark gray to g	ray, Sandy L	ean C	<i>ilay (CL</i> ); mo	 oist.		··· 70.4						70
GEOPROBE_WELL_DILLINGHAM_102581-009.GPJ_21-20447.GPJ_4 <i>99142</i> 47	2. (	may h Groui consi	nave s ndwat dered	ses where recovalid down in the ter level, if indica approximate.	ube prior to re ted above, wa	n the upermoval	from the ground the gr	und.	1		PF/	AS S	Site Cha	nam Airpor nacterizatio nam, Alaska	t n Report	
WELL_DILLING	П	2" F	Plastic	c Sheath - No So	<u>LEGE</u> oil Recovery	END	] Piezomete	er Screen and	Sand Filter			G (	OF SE	305 / M\	N05-45	
ROBE_V				Sheath - Soil F	•		Bentonite-	Cement Grou Chips/Pellets			2023				102581-0	
3EOPF							Bentonite			SHA Geoted	NNO chnical a	N 8 nd En	wironmenta	ON, INC. I Consultants	FIG. B-'	

						LOG OF	GEOPF	ROB	BE						
Date	Starte	d	7/10/21	Location	Empero	or Way and Airport F	oad, Near Hol	y	Gro	ound	d Ele	vation:	Approx.	71.5 feet	
Date	Compl	eted	7/11/21		-	Church			Тур	oical	l Rui	n Length	1 2.5 and	5 feet	
Total	Depth	(ft)	77.5	Drilling C	ompar	ny: Discovery Drilling			Hol	le Di	iame	ter:	6 inches		
Depth (ft)	Probe Run	an	d probing me approximate b	So ort text for a pi thods. The s ooundaries be	oil De roper un tratificat etween s	scription  Iderstanding of the substitution lines indicated below soil types. Actual boundsample tubes during extr	urface materials represent the aries may be	Depth. ft.	Copui, iii	Symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)
2.	may have Ground consider Refer to 2" Pla	ve slid o water le red app KEY fo	down in the to	NO: ery was low i ube prior to re ted above, wa and explanat LEGI	TES  In the upper movel as estimation of s	Piezometer Screen ar	I should be		L	PFA	AS S	Site Cha Dillingh	ham Airport aracterization nam, Alaska	n Report	80
				: ;			I .				N &	WILS	ON, INC.	FIG. B-1	1
									2011111	Jui al	=11			Sheet 4 of	4

						LOG OF	GEOPI	RO	BE							
Date	Started	d 7/11/21	Loca				Road, Near Ho	oly	G	roun	d Ele	evat	ion:	Approx.	71.5 feet	
Date	Compl	leted 7/11/21		Ro	osary Church	h		_	T	ypica	l Ru	n L	ength	n 2.5 and 5	feet	
Total	Depth	77.5	Drill	ling Co	mpany: <i>Disco</i>	overy Drilling			Н	ole D	iame	eter	:	6 inches		
Depth (ft)	Probe Run	and probing n	port text f nethods. e boundai	<b>Soi</b> for a pro The stra aries betw	il Descript  oper understand ratification lines ween soil types.	tion	urface materials v represent the aries may be		Depth, ft.	Symbol	PID, ppm	Ground	Water	Descr	Number, ription, lesults	Depth (ft)
5			o light-gr	gray brov	wn, Silt (ML);	and Sand (GP moist; nonpla		7	0.6		0.3	75				
10		Interbedded with Sand (G		s than 6	3-inch layers c	of dark brown,	Silty Gravel				0 0					10
= = = = = = = = = = = = = = = = = = =		Gravel (SP);	moist.			aded Sand to S			17.5 22.3		0.1					20
25		(ML); moist.				ning, <i>Gravelly</i> orly-Graded G	Silt with Sand  Gravel with	2	26.0 27.0		0	Σ				25
30		Sand (GP); r	moist. ron lamir			with Sand to		/   <sup>*</sup>	21.0			During Drilling				30
35			k red-bro		•	Silty Gravel w	ith Sand (GM) (SP); wet.		35.0			nd		SB5-35.0-35.8	5	35
= 40 =		Dark brown,	Poorly-(	Graded	<i>I Sand (SP)</i> ; w	vet.		$\overline{}$	40.0 41.0					SB5-40.0-41.5	5	40
= - 45						Sand (GP); we			44.4	;						45
50	⊥ 	Brown to gra		•		Gravel (SP) to	o Clayey									50
		Gray, Lean (	Clay (CL	); mois	t.				51.6							-
55 	I			-		with Silt and C); moist to we		- 5	55.0							55
65																65
70 - 70 - 75	I	Dark gray to	gray, S <i>ϵ</i>	andy Le	ean Clay (CL)	; moist.			70.4							70
	<del> </del>		ВО	DRING (	COMPLETED	7/11/2021			77.0							75
				NOTE	 FS											
2. (	may hav Groundv conside	e cases where recove slid down in the water level, if indicered approximate. In KEY for definition	e tube prio cated abo	as low in ior to ren	the upper part moval from the s estimated dur	ground.	·			PF	AS S	Site	Cha	ham Airport aracterizatior nam, Alaska		
     <sub>     </sub>	O" Die	"- Charth No.	0-11 Doo	<u>LEGEN</u>		the Company	LO-ad Filton			LO	G (	OF	S	B05 / M\	N05-70	
		astic Sheath - No astic Sheath - Soil		ery	Bentor	neter Screen and ite-Cement Gr	out	٨	/lay 2	2023					102581-0	109
				1		nite Chips/Pelle nite Grout	RS	G	SHAI Geotech	NNO inical a	N 8	<b>W</b>	ILS Imenta	ON, INC. al Consultants	FIG. B-1	12

ſ					LOG OF GEOP	RC	BE						
	Date	Started	d 7/12/21		Location North End of Runway		G	round	l Ele	evation:	Approx.	VA feet	
	Date	Compl	eted 7/12/21				Т	ypical	Ru	n Length	o 5 feet		
	Total	Depth	(ft) 20.0	,	Drilling Company: Discovery Drilling		Н	lole Di	am	eter:	2.25 inch	es	
	Depth (ft)	Probe Run	and probing n approximate	port neth	Soil Description  I text for a proper understanding of the subsurface materials nods. The stratification lines indicated below represent the nundaries between soil types. Actual boundaries may be f soil shifted inside sample tubes during extraction.		Depth, ft.	Symbol	PID, ppm	Ground Water	Descr	Number, iption, esults	Depth (ft)
	- - - - - - - - - - -		Red-brown, I	Pod	orly-Graded Sand with Gravel (SP); moist.				0		SB6-0.0-0.5		- - - - - - 5
			_	-	Poorly-Graded Gravel with Silt and Sand (GP-GM); ow 12 feet; trace organics.		5.9		0.2		SB6-6.9-7.9 a SB61-69-7.9		10-
г. Тур: МЕД			Red, Organio	c Se	oil (OL); moist; organic peat.		15.1			During Drilling			15—
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4291.42½√F Rev:	- -20 - - - - - - -				BORING COMPLETED 7/12/2021		20.0						20
3HAM 102581-009.GPJ	2.	may hav Groundv conside	e slid down in the water level, if indic red approximate.	tuk cate	NOTES  ry was low in the upper part of the run, the soil sample per prior to removal from the ground.  In above, was estimated during probing and should be und explanation of symbols.			PFA	\S :	Site Cha	nam Airport aracterizatior nam, Alaska	n Report	
VELL_DILLING	П	2" Pla	stic Sheath - No S	Soil	<u>LEGEND</u> Recovery					LOG	OF SB0	6	
OBE_W			stic Sheath - Soil			N	May 2	2023				102581-0	09
SEOPR						9	SHA Seotech	NNO nnical ar	N 8 nd Er	k WILS	ON, INC. I Consultants	FIG. B-1	3

ſ							LOG OF	GEOPR	OB	Ε						
Ī	Date	Started	i 7/12	2/01	Location	Northeast Co	rner of Apron			Gr	oun	d Ele	vation:	Approx.	NA feet	
Ī	Date	Comple	eted 7/12	2/21						Ту	pica	l Ru	n Lengtl	า 5 feet		
	Total	Depth	(ft)	35.0	Drilling C	ompany: <i>Disc</i>	overy Drilling			Но	le D	iame	eter:	2.25 inch	ies	
	Depth (ft)	Probe Run	and probi approxii	ing mei mate b	Soundaries be	oil Descrip roper understan tratification lines etween soil type		urface materials represent the aries may be	Depth. ft.		Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
	- - - -					nd with Grave		Silt with	2.3			1		SB7-0.0-1.1		- -
Typ: MED	- 5 - 5 10 15 15		Gravel (N	ИL), w	ith 8-inch b	ed of <i>Poorly-G</i>	staining, <i>Silt to</i> Graded Sand w Inics at 18.3 an	ith Silt and	2.0			0.9		SB7-16.7-17.	1	5—
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4281424F Rev:	2.	may hav Groundv consider	Red-brow (GP-GM)  cases where e slid down in vater level, if ied approxima	vn to to with a recovery the tuindicate.	orown, Poor 4-inch bed o  NO ery was low i ube prior to re ted above, wa	moist.  Ily-Graded Grade of Silt (ML) at TES  In the upper paremoval from the	t of the run, the seground.	nd Sand	- 21.6 - 23.6		PF	AS S	Site Cha	CONTINUED NI ham Airport aracterization nam, Alaska	n Report	20
VELL_DILLING	П	2" Pla	stic Sheath -	No So	<u>LEGI</u> oil Recovery	<u>END</u>							LOG	OF SB0	7	
OBE_W			stic Sheath -		•				May	/ 20	023				102581-0	
<b>SEOPR</b>									SH. Geote	<b>AN</b> echn	INO ical a	N &	wironmenta	ON, INC.	FIG. B-1 Sheet 1 of	

ſ								LOG	OF G	EOPR	OE	βE							
	Date	Started	7/12	2/01	Locat	ion <i>Northe</i>	east Cor	ner of Ap	ron			G	rounc	l Ele	evation:	Appro	x. NA	feet	
	Date	Compl	eted 7/12	2/21								Ty	ypical	l Ru	n Lengtl	າ 5 feet			
	Total	Depth	(ft)	35.0	Drilli	ng Compa	ny: <i>Disco</i>	very Drill	ling			Н	ole Di	iame	eter:	2.25 in	nches		
	Depth (ft)	Probe Run	and probl	ing met imate b	ort text fo ethods. T		escript understand ation lines soil types	ion ling of the s indicated b . Actual bo	subsurface pelow repres	sent the nay be	# 4	Deptil, It.	Symbol	PID, ppm	Ground Water	Des	ole Nu script d Resi		Depth (ft)
	35	Pro	Gray to b	orown,	, Sandy , Sandy m, Poori	hifted inside	moist; fev	v organics	extraction.		- 30. - 35.	0	800 000 000 000 000 000 000 000 000 000	0	During Drilling I∕☐ Gr.	SB7-28.8-3	30.2		30
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4291429147F Rev: Typ: MED						NOTES													40 —
GHAM 102581-009.G	2.	may hav Groundv conside	cases where re slid down in water level, if red approxima KEY for defir	n the tu indicat ate.	ube prio	r to removal e, was esti	from the mated dur	ground.					PFA	\S (	Site Cha	ham Airpo aracterizat nam, Alas	tion R	eport	
VELL_DILLIN	П	2" Pla	stic Sheath -	· No So		LEGEND /ery									LOG	OF SB	07		
OBE M			stic Sheath -								Ма	y 2	2023					102581-0	009
GEOPR											SH Geof	<b>AN</b>	NNO	N 8 nd En	k WILS	ON, INC.	.	FIG. B- Sheet 2 of	

Γ						LO	G OF GEOP	RC	B	Ε						
D	ate	Started	i 7/12/2	21	Location South	End of Runwa	ny		(	Grou	ınd	Ele	vation:	Approx.	NA feet	
D	ate	Comple	eted 7/13/2	21					1	Гуріс	cal	Rur	n Lengtl	n 5 feet		
To	otal	Depth	(ft) 35	.0	Drilling Compa	any: Discovery L	Drilling		ŀ	Hole	Dia	ame	ter:	2.25 inch	ies	
(4)	Deptii (iit)	Probe Run	and probing approxima	me ate b	Soil D  rt text for a proper of thods. The stratific	escription understanding of t ation lines indicate soil types. Actua	he subsurface materials ed below represent the al boundaries may be		Depth, ft.	Symbol	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
Rev: Typ: MED	5 10 15		Brown to rebeds of Sa.	ed-b	Silt with Gravel (	minations, <i>Silt</i> v 'ML) or <i>Silty Gra</i>	with less than 1-foot wel with Sand (GM) anostly organics at 13.5	ıt	2.7			0.4		SB8-0.0-0.6  SB8-16.4-16.		15 —
GEOPROBE_WELL_DILLINGHAM_102581-009.GPJ_21-20447.GPJ_4024F	2. (	may hav Groundv consider	e slid down in t vater level, if ind ed approximate	he to dicate.	ube prior to remova	al from the ground imated during pro	run, the soil sample bing and should be			P	FA	AS S	Site Cha	ham Airport haracterization nam, Alaska	n Report	
WELL DILLIN	П	2" Plas	stic Sheath - N	o Sc	<u>LEGEND</u> oil Recovery							I	LOG	OF SB0	8	
OBE V			stic Sheath - So		•				May	202	23				102581-0	09
GEOPR									SHA Geotec	NN chnica	Ol I an	N &	WILS vironmenta	ON, INC. al Consultants	FIG. B-1 Sheet 1 of 2	

ſ									LC	OG (	OF (	GEC	PR	OE	3E									
Ī	Date	Started	t	7/12/21		Locat	ion Sout	th End	of Run	way					G	roui	nd	Ele	vation:	A	рргох.	NA f	eet	
	Date	Compl	eted	7/13/21											T	ypic	al	Rui	n Lengtl	1 5	feet			
Ī	Total	Depth	(ft)	35.0		Drilli	ng Com	pany: <i>Di</i> :	scover	y Drilli	ing				Н	ole l	Dia	ıme	eter:	2.	25 incl	hes		
	Depth (ft)	Probe Run	Re	efer to the rep and probing m approximate differe	oort neth	t text fo hods. T	Soil I r a prope The stratif	Descr r underst iication lii en soil ty	riptior tanding ones indicates. Ac	<b>n</b> of the su cated be ctual bou	ubsurfac elow rep undaries	oresent i s may b	the	4	Deptn, n.	Symbol		PID, ppm	Ground Water	\$	Sample Desc and F	e Num riptio Resul	n,	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4281428142814281428142814281428142814281			В	rown to red,	, P		ING CO	MPLET						31 - 35	.3			D.1	During Drilling (Drilling Drilling Drilling Drilling Drilling Drilling Drilling Drilling Drilling Drilling (Drilling Drilling Dr	SB8-	30.0-30.	.5		30
JGHAM 102581-009.GF	2.	may hav Groundv conside	e slic water red a	es where reco d down in the level, if indic pproximate. for definition	tul ate	ibe prior ed abov	to remove, was es	e upper p val from stimated	the grou	und.		•	1			PF	-A:	s s	Dilling Site Cha Dilling	racte	rizatio	n Re	port	
WELL_DILLIN		2" Pla	stic S	Sheath - No S	Soil		<u>EGEND</u>	!									_	I	LOG	OF	SB0			
OBE V				Sheath - Soil									L			2023						_	02581-	
GEOPR														SF	<b>A</b> ltech	<b>VN(</b> nical	ON and	l & l En	wironmenta	ON, I	NC.		IG. B- Sheet 2 c	

							LO	G OF GEO	)PR	ОВ	E						
	Date	Starte	d	7/13/21	Location	North o	of Airport Lon	gterm Parking,		,	Gro	uno	d Ele	evation:	Approx.	76.0 feet	
ı	Date	Comp	leted	7/14/21			vest of Lease				Турі	ica	l Ru	n Length	າ 2.5 and 5	i feet	
ı	Total	Depth	(ft)	80.0	Drilling C	ompar	ny: Discovery L	Drilling			Hole	e D	iame	eter:	6 inches		
	Depth (ft)	Probe Run	a	nd probing me approximate l	Sort text for a prethods. The state boundaries be	oil De roper ur stratificat etween s	escription  Inderstanding of the standing of t	the subsurface mate ed below represent al boundaries may l	the	Depth, ft.		Symbol	PID, ppm	Ground Water	Descr	Number, iption, lesults	Depth (ft)
ŀ	-		R	ed-brown to	gray-brown,	Silt (M	L); moist; few	organics (roots).					0.1		SB9-0.0-0.5		_
-	- - - - - - - - 5		fe	et.	gray, with iro	on stair	ning, <i>Silt (ML)</i> ;	h bed of peat at 3 moist to wet belo		2.6			0.7		SB9-5.0-5.5		5—
- - - - -	- - - - - - - -10		0.	0 100t, Will 2	. mon ped of	podre	a 0.0 log.										- - - - 10 -
WED	 - - - - - - - - 15																- - - - - - 15—
Rev: Typ: MED	- - - - - -												0.5		SB9-15.6-16.	2	- - - - -
47.GPJ 4 <i>291.402</i> 11F	20 - - - - - -																20 —
21-204	- -														CONTINUED N	EYT BAGE	-
9.GPJ			1			TES									I CONTINUED IN	LATEAGE	
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4291474	2.	may ha Ground conside	ve slid water ered ap	down in the t	ube prior to re ited above, wa	emoval as estim	from the ground nated during pro	run, the soil sample l. bing and should be	- 1		F	PF/	AS S	Site Cha	ham Airport aracterization nam, Alaska	n Report	
VELL_DILLIN	П	2" Pla	astic S	heath - No So	<u>LEGE</u> oil Recovery	<u>END</u> ⊡⊟∵	Piezometer S	creen and Sand F	ilter					OF S	B09 / M\	W09-10	
OBE				heath - Soil F	•		Bentonite-Ce	ment Grout		May	202	23			-	102581-0	
<b>SEOPR</b>							_			SHA Geoted	<b>\NN</b> chnic	NO al a	N & nd En	wironmenta	ON, INC.	FIG. B-1 Sheet 1 of 4	

ſ							LOG	OF GEOPR	OE	3E						
ſ	Date	Started	i	7/13/21	Location	Vorth o	of Airport Longte	erm Parking,		G	round	l Ele	evation:	Approx.	76.0 feet	
	Date	Compl	eted	7/14/21			vest of Lease Lo			T	ypical	Ru	n Lengtl	n 2.5 and 5	feet	
	Total	Depth	(ft)	80.0	Drilling C	ompar	ny: Discovery Dril	ling		Н	ole Di	iam	eter:	6 inches		
	Depth (ft)	Probe Run	and	l probing me pproximate l	Sort text for a prethods. The state boundaries be	oil De roper ur tratificat etween s	escription  Independent of the second of the	subsurface materials below represent the bundaries may be	4	Deptn, n.	Symbol	PID, ppm	Ground Water	Descr	Number, iption, esults	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42gf 42ff Rev: Typ: MED			red bele	-brown, <i>Org</i> ow 36.5 fee	ganic Soil wi	oorly-G	raded Sand with Sand with Sand with Sand	et; moist to wet	25.				During Drilling in	SB9-36.6-36.4		30 - 35 - 40 - 45 45
NGHAM 102581-009.GPJ	2.	may hav Groundv consider	e slid o vater le red app	own in the to vel, if indica roximate.	very was low in the prior to re	emoval as estim	oper part of the run, from the ground. nated during probing symbols.	•			PFA	AS S	Site Cha	ham Airport aracterizatior nam, Alaska	n Report	
WELL DILLI					<u>LEGE</u> oil Recovery		•	en and Sand Filter	Ma			G (	OF S	B09 / M\		00
OPROBE		2" Pla	stic Sh	eath - Soil R	lecovery		Bentonite Chips/				2023 NNO	N 8	& WILS	ON, INC.	102581-0 FIG. B-1	16
넁								060	.0011	oai al	.u Ll	ommonie	Jonounanio	Sheet 2 of	4	

ſ		LOG OF GEOPROBE																	
Ī	Date Started Location North of Airport Longtern I							ongterm Pa	arking,	Ground Elevation:					Approx	Approx. 76.0 feet			
ĺ	Date	Comp	leted	7/14/21	Southwest of Lease Lots					-	Typical Run Length 2.5 and 5 feet								
Ī	Total	Depth	(ft)	80.0	Drilling C		Hole	Dia	ame	ter:	6 inch	6 inches							
	Depth (ft)	Probe Run	an	d probing me approximate l	Sort text for a protection of the state of t	oil De roper un tratificat tween s	escription aderstanding of tion lines indicated types. Ac	<b>)</b> of the subsurf cated below re tual boundari	ies may be	Depth, ft.	Symbol		PID, ppm	Ground Water	Des	le Nu script I Res		Depth (ft)	
				ay, Silt (ML)	l; moist.			ith Gravel (SP); wet.		55.2			Id	0 \$				55 —	
э <u>)</u> 21-20447.GPJ <b>42gr<i>4</i>/24</b> F Rev: Typ: MED		I	Gr	ay, <i>Claey G</i>	ravel with S		C); moist.			65.0					CONTINUED	NEXT	PAGE	65—	
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 429144	2. (	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.							Dillingham Airport PFAS Site Characterization Report Dillingham, Alaska  LOG OF SB09 / MW09-10										
WELL [		LEGEND  2" Plastic Sheath - No Soil Recovery 2" Plastic Sheath - Soil Recovery 2" Plastic Sheath - Soil Recovery Bentonite Chips/Pellets Bentonite Grout								May 2023 102581-009									
SEOPROBE										SHANNON & WILSON, INC. Geotechnical and Environmental Consultants  FIG. B-16 Sheet 3 of 4									

ſ	LOG OF GEOP										ROBE									
ı	Date	Starte	d	7/13/21	Location North of Airport Longterm Parking,					Ground Elevation: Approx. 76.0 feet										
I	Date	Compl	eted	7/14/21	Southwest of Lease Lots					Турі	cal	Rur	n Length	1 2.5 and	2.5 and 5 feet					
ĺ	Total	Depth	(ft)	80.0	Drilling Company: Discovery Drilling					Hole	Di	ame	eter:	6 inches	6 inches					
	Depth (ft)	Refer to the report and probing met approximate be different			Soil Description  It text for a proper understanding of the subsurface materials hods. The stratification lines indicated below represent the boundaries between soil types. Actual boundaries may be if soil shifted inside sample tubes during extraction.					, loquii,	symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)				
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42的42所をPF Rev: Typ: MED	2.	may han Ground conside Refer to 2" Pla	ve slid water I red ap KEY f	down in the to evel, if indicat proximate. for definitions neath - No So	NOT ery was low in ube prior to re ded above, wa and explanati  LEGE	ES the upmoval s estimon of s	Piezometer Screen	and Sand Filter	Ma)		PFA O	AS S	Dilling Site Cha Dilling	ham Airport aracterization nam, Alaska	N09-10	80				
SOBE		2" Plastic Sheath - Soil Recovery  Bentonite-Cement Grout  Bentonite Chips/Pellets  Bentonite Grout								May 2023 102581-009										
<b>BEOPF</b>										SHANNON & WILSON, INC. Geotechnical and Environmental Consultants  FIG. B-16 Sheet 4 of 4										

				LOG	OF GEOPR	OBI						
Date	Started	d 7/14/21	Location	North of Airport Long	gterm Parking,	(	Groun	d Ele	evation	n: Approx.	76.0 feet	
	Compl	7/14/21		Southwest of Lease L		1	Гуріса	ıl Ru	n Lenç	gth 2.5 and 8	5 feet	
Total	Depth	(ft) 80.0	Drilling C	Company: Discovery D	rilling	ŀ	Hole D	iam	eter:	6 inches		
Depth (ft)	Probe Run	and probing mate	Soort text for a paethods. The so	oil Description  oroper understanding of th  stratification lines indicated etween soil types. Actual d inside sample tubes duri	ne subsurface materials d below represent the boundaries may be	Depth, ft.	Symbol	PID, ppm	Ground	Sample Desc and F	Number, ription, Results	Depth (ft)
		Red-brown to	gray-brown,	, Silt (ML); moist; few or	rganics (roots).			0.1		SB9-0.0-0.5		
5		feet. Brown to light	t gray, with ir	(OL); moist; with 5-inch ron staining, Silt (ML); rof peat at 5.3 feet.		- 2.6 - 5.0		0.7		SB9-5.0-5.5		5 11 11 11 11 11 11 11 11 11 11 11 11 11
15								0.5 0.1		SB9-15.6-16.	2	10   15   10   12   12   13   14   15   16   16   16   16   16   16   16
30		_	rganic Soil w	Clay with Sand (CL), w vith Sand (OL) at 36.5 f		25.6			During Drilling I	SB9-36.6-36.	8	25
45	Ĭ I I			oorly-Graded Sand with Graded Sand with Silt an	• •	40.8						45
55	I	Gray, Silt (ML	_); moist.			55.2						55
60	工	Dark gray, Po	orly-Graded	Sand with Gravel (SP)	); wet.	60.8						60
65	I T	Gray, <i>Claey</i> 0	_ ∋ravel with S	Sand (GC); moist.		65.0						65 70
75	T					80.0						75 <u> </u>
= 80 = = = = = = = = = = = = = = = = = = =			BORING	G COMPLETED 7/23/20	021	00.0						00 =
2. (	may ha\ Ground\ conside	ve slid down in the	overy was low tube prior to rated above, w	in the upper part of the ru emoval from the ground. as estimated during prob ation of symbols.		1	PF.	AS	Site C	ngham Airport haracterization gham, Alaska	n Report	
   <sub>  </sub>	2" Pla	astic Sheath - No S		END □⊞□ Piezometer Sc	reen and Sand Filter				OF S	SB09 / MV		
	2" Pla	astic Sheath - Soil	Recovery	Bentonite-Cerr	I		2023				102581-0	09
		ut	SHA Geotec	NNO hnical a	N 8 ind Er	<b>WIL</b>	SON, INC. ntal Consultants	FIG. B-1	17			

				LOG O	F GEOPRO	OBE						
Date	Started	d 7/14/21		North of Airport Longtern	n Parking,		Groun	d Ele	evation	n: <i>Approx.</i>	76.0 feet	
	Compl	7/14/21	'	Southwest of Lease Lots			Гуріса	ıl Ru	n Lenç	gth 2.5 and 8	5 feet	
Total	Depth	(ft) 80.0	Drilling (	Company: <i>Discovery Drillin</i>	g	F	lole D	iam	eter:	6 inches		_
Depth (ft)	Probe Run	and probing n	<b>S</b> port text for a p methods. The s e boundaries b	Soil Description  proper understanding of the sub- stratification lines indicated belower ween soil types. Actual bound inside sample tubes during ex-	bsurface materials ow represent the ndaries may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Desci and F	Number, ription, Results	Depth (ft)
		Red-brown to	gray-brown	, Silt (ML); moist; few organi	ics (roots).			0.1		SB9-0.0-0.5		
5     10		feet. Brown to ligh	nt gray, with ir	(OL); moist; with 5-inch bed ron staining, Silt (ML); moist of peat at 5.3 feet.		2.6 5.0		0.7		SB9-5.0-5.5		5   10
15								0.5 0.1		SB9-15.6-16.	2	10   15   10   12   12   13   14   15   16   16   16   16   16   16   16
30			Organic Soil w	Clay with Sand (CL), with 8- vith Sand (OL) at 36.5 feet;		25.6			During Drilling IA	SB9-36.6-36.	8	25
45	エエエ	•		Poorly-Graded Sand with Gra Graded Sand with Silt and G		40.8						45
55	I	Gray, Silt (M.	L); moist.			55.2						55
E-60	工	Dark gray, Pe	oorly-Gradeo	d Sand with Gravel (SP); we	rt.	60.8						60
65 	I T	Gray, <i>Claey</i>	Gravel with S	Sand (GC); moist.		65.0						65 <del> </del>
75												75
80			BORING	G COMPLETED 7/23/2021		80.0	V.L. X					80
	,			<u>OTES</u>			1			1		
2.	may hav Groundv conside	e slid down in the	e tube prior to r cated above, w	in the upper part of the run, the removal from the ground. was estimated during probing a ation of symbols.			PF.	AS S	Site C	igham Airport haracterizatioi gham, Alaska	n Report	
$ig _{  op }$	2" Pla	istic Sheath - No S		SEND  Diezometer Screen	and Sand Filter				OF S	SB09 / MV	V09-65	
		stic Sheath - Soil	•	Bentonite-Cement C	Grout	May	2023				102581-0	109
			ilets	SHA Geotec	NNO hnical a	N 8 ind Er	<b>WIL</b>	SON, INC. ntal Consultants	FIG. B-1	18		

ſ							LOG	OF GEO	PRO	OBI	Ε					
	Date	Started	t	7/15/21	Location	airvie	w Drive and Ka	nakanak Road		(	Grour	nd Ele	vation:	Approx.	75.3 feet	
ĺ	Date	Compl	eted	7/16/21						7	Гуріс	al Rui	n Length	2.5 and 8	5 feet	
	Total	Depth	(ft)	75.0	Drilling Co	ompai	ny: Discovery Dr	illing		ŀ	Hole [	Diame	eter:	6 inches		
	Depth (ft)	Probe Run		nd probing me approximate b	So ort text for a pr thods. The st poundaries be	oil De roper un tratificat tween	escription  Inderstanding of the tion lines indicated soil types. Actual is	e subsurface maten I below represent th boundaries may be	ne	Depth, ft.	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
Rev: Typ: MED		Pro	В	own, <i>Poorly-</i> rown to light of	t if soil shifted Graded Sar gray-brown,	inside nd with with 2	sample tubes during Silt and Gravel	ng extraction.  (SP-SM); moist.  with iron staining		1.0	NS Syl	0.2	Gr.			10 —
Ì	- 20 - - - - - - -		Li	gh gray, <i>Silt</i> (	(ML); moist.	) Lean		t.		20.0		1		CONTINUED N	EXT PAGE	20 —
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4291424F	2.	may hav Groundv conside Refer to 2" Pla	ve slid vater red ap KEY	down in the to	ery was low in the prior to rested above, was and explanat LEGE	n the upermoval as esting ion of s	Piezometer Scr	ng and should be reen and Sand Filt ent Grout	er	May	LC	)G (	Site Cha Dillingh	nam Airport racterization am, Alaska		009
<b>SEOPRO</b>							Bentonite Chips Bentonite Grou			SHA Geotec	NNC chnical	ON &	WILSO vironmental	ON, INC. Consultants	FIG. B-1 Sheet 1 of	

ſ							LC	G OF	GEOPR	OBI	E						
Ī	Date	Starte	t	7/15/21	Location	- airvie	w Drive and	d Kanakanal	k Road	(	Ground	d Ele	evat	ion:	Approx.	75.3 feet	
	Date	Compl	eted	7/16/21						•	Typica	l Ru	n Le	engtl	h 2.5 and 5	i feet	
	Γotal	Depth	(ft)	75.0	Drilling C	ompar	ny: Discover	y Drilling		I	Hole D	iame	eter	:	6 inches		
	Depth (ft)	Probe Run	a	nd probing me approximate b	Sort text for a protection of the soundaries be	oil De roper ur tratificat etween s	escription nderstanding of tion lines indicasoil types. Ac		present the es may be	Depth, ft.	Symbol	PID, ppm	Ground	Water	Desci	Number, ription, lesults	Depth (ft)
-	- - - -30		Di		red, with iro	n stani	ng, <i>Poorly-</i> 0	el (SP); moist Graded Grave		- 26.7 - 30.0	50	1					30-
-	- - -35 - -			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									During Drilling I		SB10-26.8-3 SB101-26.8-3 SB10-36.0-37	32.0	35—
Rev: Typ: MED	- -40 - - -			ark brown to porly-Graded			•	Graded Sano	i to	··· 40.9							40 —
21-20447.GPJ 42gr.4PzhF	-45 - - -	Ï	R	ed, <i>Poorly-G</i>	raded Grave	el with	Sand (GP);	wet.		45.8					CONTINUED NAME	EYT PAGE	45
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42 <b>g</b> f/42bf	2.	may ha\ Ground\ conside	e slid water red ap	down in the to	rery was low i ube prior to re ted above, wa	emoval as estim	from the grounated during p	ne run, the soil und. probing and sh	•		PF	\ \ \	Site	Cha	ham Airport haracterization ham, Alaska		
WELL_DILLING	П	2" Pla	stic S	heath - No So	<u>LEG</u>	END [:H:	Piezomete	r Screen and s	Sand Filter			G (	OF	S	B10 / M\		
ROBE_V				heath - Soil R	•		Bentonite-0	Cement Grout Chips/Pellets	- 1		2023					102581-0	
3EOP!		Bentonite Chips/Peil						•		SHA Geoted	NNO chnical a	N 8 nd En	k W iviron	ILS menta	ON, INC. al Consultants	FIG. B- Sheet 2 of	

ſ							LO	OG OF	GEOP	RC	BE							
	Date	Starte	d	7/15/21	Location	airvie	w Drive an	d Kanakaı	nak Road		G	Fround	d Ele	evation:	Approx	c. 75.3 fee	et	
	Date	Compl	eted	7/16/21							T	уріса	I Ru	n Lengtl	h 2.5 and	d 5 feet		
	Total	Depth	(ft)	75.0	Drilling C	ompar	ny: Discove	ry Drilling			۲	lole D	iame	eter:	6 inche	es		
	Depth (ft)	Probe Run	ar	nd probing me approximate b	So rt text for a pr thods. The si	oil De oper ur tratificat tween s	escription anderstanding tion lines indi soil types. Ac	<b>n</b> of the subsi icated below ctual bounda	urface materials represent the aries may be	5	Depth, ft.	Symbol	PID, ppm	Ground Water	Des	le Numbe cription, l Results	er,	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ <b>429/4/½/</b> F Rev: Typ: MED			Da we	ark brown to st.	gray, Silty S  BORING  NO  ery was low in	COMF	Sample tubes Graded Sa.  Clay (CL); n  Clay (CL); n	nd with Silt	action. ' If (SP-SM);		50.0 56.0 56.0	Sym	GIA					55 — — — — — — — — — — — — — — — — — —
ILLINGHAM 102581.	2.	Ground conside	water l red ap	down in the to evel, if indicat proximate. for definitions	ted above, wa	as estin	nated during		d should be					Site Cha Dillingl	ham Airpo aracterizati nam, Alask	on Repo (a		
E_WELL_DIL				neath - No So neath - Soil R	•	END EH:	-	er Screen ar Cement Gr	nd Sand Filter		May∶	<b>LO</b> 2023	G (	OF S	B10 / N		<b>-40</b> 581-00	09
SEOPROB	_						_	Chips/Pelle		-			N 8	WILS vironmenta	ON, INC.	FIG	<b>i. B-1</b> et 3 of 3	9

				LOG OF	GEOPRO	OBE	=						
Date	Started	d 7/15/21	Location	Fairview Drive and Kanakaı	nak Road	G	Foun	d El	evat	tion:	Approx.	75.3 feet	
	Comple	7/16/21					уріса				h 2.5 and 5	i feet	
Total	Depth	(ft) 75.0	Drilling C	Company: Discovery Drilling		Н	lole C	)iam	eter	: 	6 inches		
Depth (ft)	Probe Run	and probing me approximate k	ort text for a pa ethods. The s boundaries be	oil Description proper understanding of the substatification lines indicated belowetween soil types. Actual bounded inside sample tubes during extra	urface materials v represent the laries may be	Depth, ft.	Symbol	PID, ppm	Ground	Water	Descr	Number, ription, Results	Depth (ft)
10		Brown to light	gray-brown, <i>Silt to Gravell</i>	and with Silt and Gravel (SP-S , with 2- to 4-foot beds with ire ly Silt with Sand (ML); moist.	on staining or	20.0		0.2					5
30		Ligh gray, Silt Gray, Clayey S Dark brown, P	Sand (SC) to Poorly-Grade	o Lean Clay (CL); moist.  ed Sand with Gravel (SP); moon staning, Poorly-Graded Gradel		21.7 23.3 - 26.7 - 30.0		1	During Drilling ₁⟨┐		SB10-26.8-32 SB101-26.8-3 SB10-36.0-37	32.0	25
7yp: MED		Poorly-Graded Red, Poorly-G	d Sand with Graded Grave	on staining, Poorly-Graded Sa Gravel (SP); wet. rel with Sand (GP); wet. Poorly-Graded Sand with Silt		40.9 45.8 50.0							45
60 65 65 65 65 65 65 65 65 65 65 65 65 65				Sand (SM); wet.		56.0							55
21-20447.GPJ 42974774F	포   		BORINC	G COMPLETED 7/15/2021		75.0							70 75 75
2. U	may hav Groundv consider	ve slid down in the t	very was low i tube prior to re ated above, wa	DTES in the upper part of the run, the semoval from the ground. ras estimated during probing and			PF	AS	Site	Cha	Jham Airport aracterizatior ham, Alaska	-	
WELL DILLIN		astic Sheath - No So	•	Piezometer Screen ar		Mov			OF	· SI	B10 / MV		00
PROBE	2" Plas	astic Sheath - Soil F	Recovery	Bentonite-Cement Gr		May 2					ON INC	102581-0	
SEOF				Bentonite Grout		Geotech	nnical a	and E	nviror	nmenta	ON, INC. al Consultants	FIG. B-2	:U

ſ							LOG	OF GEOPI	₹0	BE	•						
	Date	Started	t	7/17/21	Location	orthw	est Corner of L	ease Lots, Mulcha	tna	G	roun	d Ele	evation	ո։	Approx.	71.2 feet	
Ī	Date	Compl	eted	7/18/21		Air				Т	уріса	ıl Ru	n Lenç	gth	2.5 and 5	feet	
Ī	Total	Depth	(ft)	80.0	Drilling C	ompar	ny: Discovery Dri	lling		Н	lole D	iam	eter:		6 inches		
•	Depth (ft)	Probe Run	and	d probing me pproximate b	Sort text for a protection of the state of t	oil De roper ur tratificat tween s	escription	subsurface materials below represent the oundaries may be		Depth, ft.	Symbol	PID, ppm	Ground Water		Descr	Number, iption, esults	Depth (ft)
21-20447.GPJ <b>4<u>2</u>91/47<sup>H</sup>F Rev</b> : Typ: MED	5		Dar Rec Silt	d-yellow to I (ML); mois	ight gray-bro	Poorly-	Graded Sand to	rom 10 to 14 feet,	11	5.0		0 0 0	Ouring/Zilling		SB11-0.2-1.3  SB11-2.3-3.3  SB111-2.3-3.3	3	10
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447	2.	NOTES  1. In some cases where recovery was low in the upper part of the run, the soil samp 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 considered approximate.  3. Refer to KEY for definitions and explanation of symbols.  LEGEND									PF	AS	Dillin Site C	igh hai	am Airport racterizatior am, Alaska		
WELL DILL				eath - No So	een and Sand Filter	R /	lov '			OF S	SE	311 / MV		200			
PROBE		2" Pla	astic Sheath - Soil Recovery  Bentonite-Cement Grout  Bentonite Chips/Pellets  Bentonite Grout								2023 NNC		, WIL	sc	ON, INC. Consultants	102581-0	
GEC.			Bentonite Grout						Ğ	eotech	nnical a	ind Er	vironme	ntal	Cońsultants	Sheet 1 of	

ſ					L(	OG OF GEOPI	ROE	3E						
ĺ	Date	Starte	d 7/17/21	Location	Northwest Corne	r of Lease Lots, Mulcha	ntna	G	round	l Ele	evation:	Approx.	71.2 feet	
	Date	Compl	eted 7/18/21		Air			Ту	ypical	Rui	n Lengtl	h 2.5 and 5	i feet	
	Total	Depth	(ft) 80.0	Drilling C	ompany: <i>Discov</i> e	ry Drilling		Н	ole Di	ame	eter:	6 inches		
	Depth (ft)	Probe Run	and probing m approximate	Something of the second of the	oil Description roper understanding tratification lines indi	n of the subsurface materials cated below represent the ctual boundaries may be	3	рертп, т.	Symbol	PID, ppm	Ground Water	Desci	Number, ription, lesults	Depth (ft)
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42gf 4½F Rev: Typ: MED			Gray to light o	ray-brown, S	dy Lean Clay (CL)	moist.	40	.5				SB11-22.5-25 SB11-31.4-32	0	30 — 35 — 40 — 45 — — — — — — — — — — — — — — — — —
NGHAM 102581-009.GPJ	2.	may hav Ground conside	e slid down in the	very was low i tube prior to re ated above, wa	emoval from the gro as estimated during	he run, the soil sample und. probing and should be			PFA	\S S	Site Cha	ham Airport aracterizatior ham, Alaska	n Report	
WELL DILLIN			stic Sheath - No S	•	Piezomete	er Screen and Sand Filter	Ma		<b>LO</b> 0	G (	OF S	B11 / M\	<b>N11-35</b>	Λα
EOPROBE		2" Pla	stic Sheath - Soil	Recovery		Cement Grout Chips/Pellets Grout				N &	WILS	ON, INC.	FIG. B-2	<u>.</u>

ſ							LO	G OF C	GEOPR	OBE	=					
	Date	Starte	t	7/17/21			vest Corner	of Lease Lo	ts, Mulchatn	a (	Groun	d Ele	evation:	Approx.	71.2 feet	
	Date	Compl	eted	7/18/21		Air				1	Гуріса	l Ru	n Lengtl	າ 2.5 and ເ	5 feet	
	Total	Depth	(ft)	80.0	Drilling C	ompa	ny: <i>Discovery</i>	Drilling		ŀ	Hole D	iame	eter:	6 inches		
	Depth (ft)	Probe Run	and	probing me	Soundaries be	oil De roper un tratifica etween	escription nderstanding o tion lines indica soil types. Act sample tubes o	f the subsurfac ated below rep ual boundaries	resent the s may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42gf4がF Rev: Typ: MED			Brov	vn, <i>Sandy</i> vn, <i>Poorly</i>		noist.	n Silt (SP-SM,		?); wet.	- 60.0 65.0 66.7				CONTINUED N	EXT PAGE	55-
VGHAM 102581-009.GPJ	2.	may ha\ Ground\ conside	e slid do water lev red appr	own in the to rel, if indica oximate.	ery was low i ube prior to re	emoval as estir	pper part of the from the grout nated during p symbols.	nd.			PF	AS S	Site Cha	ham Airport aracterization nam, Alaska	n Report	
WELL_DILLII						:H:			Sand Filter	May		G (	OF S	B11 / M\	<b>W11-35</b>	വര
SEOPROBE	Ш	2" Pla	2" Plastic Sheath - No Soil Recovery 2" Plastic Sheath - Soil Recovery 2" Plastic Sheath - Soil Recovery Bentonite Chips/Pellets Bentonite Grout									N &	wironmenta	ON, INC.	FIG. B-2 Sheet 3 of	21

							LOG	OF GEOPF	ROE	3E						
	Date	Started	t	7/17/21			vest Corner of Le	ease Lots, Mulchat	na	G	round	l Ele	vation:	Approx.	71.2 feet	
	Date	Compl	eted	7/18/21		Air				Ту	ypical	Rui	n Length	1 2.5 and 5	i feet	
	Total	Depth	(ft)	80.0	Drilling C	ompar	ny: Discovery Drill	ling		Н	ole Di	ame	eter:	6 inches		
	Depth (ft)	Probe Run	and	l probing me oproximate l	Sort text for a protection of the state of t	oil De roper ur tratificat tween :	escription	subsurface materials below represent the bundaries may be	4 4	Deptn, rt.	Symbol	PID, ppm	Ground Water	Descr	Number, iption, lesults	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-2047.GPJ 42gf4分析 Rev: Typ: MED	2.	may hav Groundv conside Refer to	cases ve slid d water le red app KEY fo	where recove own in the to vel, if indicaroximate.	NO very was low i ube prior to re ted above, wa and explanat LEGI	TES  n the upermoval as estination of s	_	the soil sample	80	0	PF/	AS S	Dilling Site Cha Dilling	nam Airport aracterization nam, Alaska		85
JPROBE_WE				eath - No So eath - Soil F	oil Recovery Recovery		Bentonite-Cemer Bentonite Chips/l	1			2023 NNO	N_&	WILS	ON, INC.	102581-0 FIG. B-2	21
3EC		Bentonite Grout				Geo	tech	nıcal ar	nd En	vironmenta	i Consultants	Sheet 4 of				

						LO	G OF (	GEOPR	ОВ	E							
Date	Started	l 7	/18/21	_		est Corner	of Lease Lo	ts, Mulchatn	na	Gro	und	Ele	evati	on:	Approx.	71.2 feet	
	Comple	7	/18/21		ir					Турі	ical	Ru	n Le	ngth	1 2.5 and 5	feet .	
Total	Depth	(ft)	80.0	Drilling Co	ompan	ıy: Discovery	/ Drilling			Hole	e Di	ame	eter:		6 inches		1
Depth (ft)	Probe Run	and pi	obing met oximate b	So rt text for a pro thods. The str coundaries bet	oper un ratificati tween s	escription aderstanding of tion lines indica soil types. Act		oresent the s may be	Depth, ft.			PID, ppm	Ground	Water	Desci	Number, ription, results	Depth (ft)
21-2047.6PJ 4686.0PF Rev: 7yp: MED  The state of the stat		Red-yi Silt (M Dark r Sand feet; n Gray t Clay ( Dark t Brown Dark c	ed-brown, Poetlow to lift, moist to when the gray, moist to gray, sandy provided to gray, poorly-gray, Poorly	ay and Sandy ay-brown, Si st to wet.  Silty Sand (Si Silty Sand (S	Poorly-th 1.5-fo feet.  "Y Learn illt with d Sand with S	el with Sand th iron staini  Graded San oot bed of Si  Clay (CL); i  Sand (SM);  I (SP); wet.  vet.  Silt (SP-SM) vith Gravel a	d to Poorly-Gilty Sand (SM	o 14 feet,  Graded  I) at 33.7  with Lean	0.3 1.2 - 15.0 - 15.0 - 45.5 - 40.0 - 45.5 - 60.0 - 65.0 - 66.7			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	During Drilling		SB11-0.2-1.3 SB11-2.3-3.3 SB111-2.3-3.5 SB11-31.4-32	and 3	5   10   15   15   16   16   16   16   16   16
2. W	Groundv consider	vater level ed approx	, if indicat imate.		s estim	nated during p	robing and sh	ould be					Site Dill	Cha	aracterization nam, Alaska		
3E WELL [		stic Sheat stic Sheat		<u>LEGE</u> il Recovery ecovery	ND H		Screen and Screen Grout	Sand Filter	May			ا	UF	<b>ا</b>	וואו / ווכ	102581-0	09
SEOPROE				•			hips/Pellets		SHA Geotec	<b>\NN</b> chnic	<b>IOI</b>	N 8	k WI	LS(	ON, INC.	FIG. B-2	22

				LOG OF GEO	PROI	ΒE						
Date	Started	7/19/21	Location	Vindsock, North of Taxiway B					vation:	Approx.	76.8 feet	
	Comple	7/20/21							n Lengtl	າ 2.5 and 5	feet	
Total	Depth (	ft) 87.5	Drilling C	ompany: Discovery Drilling		Ho	ole D	iame	eter:	6 inches		
Depth (ft)	Probe Run	and probing me approximate b	Soundaries be	pil Description  roper understanding of the subsurface mater tratification lines indicated below represent to tween soil types. Actual boundaries may be inside sample tubes during extraction.		Depth, ft.	Symbol	PID, ppm	Ground Water	Descr	Number, iption, esults	Depth (ft)
				Silt (ML), with 10-inch bed of Organic Soot bed at 21 feet; moist to wet from 6 to		2		2 2 0.5 0.1		SB12-0.3-0.8  SB12-15.0-16 SB121-15.0-1	6.0	10
1.80ZOL 2.	may have Groundw considere	slid down in the to	ery was low in the prior to rested above, was	TES  In the upper part of the run, the soil sample emoval from the ground.  It is a sestimated during probing and should be sign of symbols.			PF	AS S	Site Cha	ham Airport aracterization nam, Alaska	n Report	
		tic Sheath - No Sc	•	Piezometer Screen and Sand Filt	er			G	OF SI	312 / MV		
	2" Plas	tic Sheath - Soil R	ecovery	Bentonite-Cement Grout  Bentonite Chips/Pellets	-		023				102581-0	
E CHO				Bentonite Grout	SI Ge	HAN otechr	INO nical a	N 8 nd En	willS vironmenta	ON, INC.	FIG. B-2 Sheet 1 of	

ſ							LO	G OF G	EOPR(	OBE							
	Date	Starte	t	7/19/21	Location	Winds	ock, North of	f Taxiway B		G	roun	d Ele	evat	ion:	Approx.	76.8 feet	
	Date	Compl	eted	7/20/21						T	уріса	l Ru	n Le	ength	1 2.5 and 5	feet	
	Total	Depth	(ft)	87.5	Drilling C	ompa	ny: <i>Discovery</i>	Drilling		H	lole D	iam	eter		6 inches		
	Depth (ft)	Probe Run	Re e	nd probing me approximate l	ort text for a pathods. The social boundaries be	oil De proper un stratifica etween	escription inderstanding of ation lines indica soil types. Actu	f the subsurface ated below represual boundaries rr luring extraction.	sent the nay be	Depth, ft.	Symbol	PID, ppm	Ground	Water	Descr	Number, iption, esults	Depth (ft)
1-20447.GPJ <b>4ggr.d/24</b> F Rev: Тур: МЕD	30 - 35 - 35 - 35 - 35 - 35 - 35 - 35 -		W R	ed-brown to gark gray, <i>Po</i>	eet bgs.  gray, Poorly  orly-Gradeo , Silt (ML), i	-Grade	ed Gravel with (SP); wet; find dded with less	e to medium sa than 8-inch be with Gravel (SF	end.	- 26.0 - 34.8 - 41.2 41.4		0.8	Dy Builling Building I		SB12-35.0-35	.6	35 — 40 — 45 — — — — — — — — — — — — — — — — —
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 492042MF	2.	may hav Ground conside	e slic water red a	down in the t	rery was low ube prior to r ted above, w	emoval as estir	from the groun	e run, the soil sand. obing and shoul			PF	AS S	Site	Cha	ham Airport aracterization nam, Alaska		
WELL_DILLIN				Sheath - No So	•		-	Screen and Sar	nd Filter	M		G (	OF	SE	312 / <b>MV</b>		200
ROBE		2" Pla	stic S	Sheath - Soil R	Recovery		_		 	May		c			ON 11:2	102581-0	
GEOP										SHA Geotecl	NNO hnical a	N 8 nd Er	k W nviron	ILS menta	ON, INC.	FIG. B-2 Sheet 2 of	

ſ							LO	G OF GI	EOPR	OBE						
ſ	Date	Starte	d	7/19/21	Location	Vindso	ock, North of	Taxiway B		(	Ground	I Ele	vation:	Approx.	76.8 feet	
Γ	Date	Comp	letec	l 7/20/21				-		٦	ГурісаІ	Rur	n Lengtl	n 2.5 and 8	i feet	
	Total	Depth	ı (ft)	87.5	Drilling Co	ompar	ny: Discovery l	Drilling		ŀ	Hole Di	ame	ter:	6 inches		
	Depth (ft)	Probe Run	R	and probing me approximate l	Sort text for a protection of the state of t	oil De oper ur tratificat tween s	escription  Inderstanding of the standing of t	the subsurface i ed below repres al boundaries m	ent the	Depth, ft.	Symbol	PID, ppm	Ground Water	Desci	Number, iption, lesults	Depth (ft)
47.GPJ <b>4<u>og</u>l 4<u>b</u>/h</b> Rev: Тур: МЕD				 Dark gray, <i>Po</i> c	orly-Graded of beds of Po	 Gravel	•	P), interbeddewith Sand (SF		50.4						55 —
J 21-2	-										0,0			CONTINUED N	EXT PAGE	_
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42874244	2. (	may ha Ground conside	ve sli lwate ered a	d down in the t	ube prior to re ted above, wa	n the up moval as estim	from the ground nated during pro	run, the soil sar d. bbing and shoul			PFA	AS S	Site Cha	ham Airport aracterization nam, Alaska	n Report	
VELL_DILLIN(	П	2" Pla	astic :	Sheath - No So	<u>LEGE</u> oil Recovery	END ∷H∷	Piezometer S	Screen and San	d Filter			GC	OF SI	312 / <b>M</b> V	V12-40	
OBE				Sheath - Soil F			Bentonite-Ce	ment Grout			2023				102581-0	
3EOPR										SHA Geotec	NNO hnical ar	N &	WILS vironmenta	ON, INC. al Consultants	FIG. B-2 Sheet 3 of	

ſ							LC	G OF	GEOPF	ROB	BE						
Ī	Date	Starte	d	7/19/21	Location	Vinds	ock, North c	of Taxiway	В		Gro	ound	Ele	vation:	Approx.	76.8 feet	
	Date	Comp	eted	7/20/21							Тур	oical	Rur	n Length	1 2.5 and	5 feet	
	Total	Depth	(ft)	87.5	Drilling Co	ompar	ny: Discovery	y Drilling			Hol	le Di	ame	ter:	6 inches	;	
	Depth (ft)	Probe Run	ar	nd probing me approximate b	So ort text for a pro thods. The st poundaries be	oil De oper ur tratificat tween s	escription	l of the subsun ated below n tual boundan	ies may be	Denth ff	(Labelly 14:	Symbol	PID, ppm	Ground Water	Desc	e Number, ription, Results	Depth (ft)
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-2047.GPJ <b>4ggr.d½√F</b> Rev: Typ: MED		In some may har Ground consider	e cases ve slid water I	ark gray, Poc	BORING  BORING  BORING  ery was low in the prior to rested above, was lead above, which was lead above, which was lead above, was lead above, which wa	FES of the upermoval as estimates as the company of the second of the company of	oper part of the from the groun nated during part of the ground nated during nated durin	e run, the so	il sample	75.	5			Dilling	nam Airpor aracterizatio nam, Alaska	n Report	85 — 90 — 95 — 95 — 95 — 95 — 95 — 95 — 9
OPROBE_WELL_DILLI				heath - No Sc heath - Soil R	•	END  SEND  S	Bentonite-C	Screen and Cement Grou Chips/Pellets Grout	ıt		y 20	)23			ON, INC.	102581-0	23
빙										Geot	CUITIO	oai an	ıu ⊏II\	oriinenia	OUIDUILINS	Sheet 4 of	4

						LOG OF	<b>GEOPR</b>	OBE	Ξ							
Date	Starte	d	7/20/21	Location		rth of Taxiway				und	Ele	evati	ion:	Approx.	76.8 feet	
Date	Compl	leted	7/20/21			-		Т	Гурі	cal	Ru	n Le	ngtl			
Total	Depth	ı (ft)		Drilling C	Company: Disco	- · · · · · · · · · · · · · · · · · · ·		F	lole	Dia	ame	eter:	:			
		Т	87.5					$\top$	Т	Т				6 inches		T
Depth (ft)	Probe Run	ar	nd probing me approximate b	ort text for a prethods. The siboundaries be	stratification lines etween soil types	tion  ding of the subsur indicated below r s. Actual boundar ubes during extra	represent the ries may be	Depth, ft.	-	Symbol	PID, ppm	Ground	Water	Descr	Number, ription, Results	Depth (ft)
10		Re (C	-		, , ,	10-inch bed of eet; moist to wet	•	0.2			2 2 0.5 0.1 0.5			SB12-0.3-0.8 SB12-15.0-16 SB121-15.0-1	5.0 and	10 15 20 25
30		W€	et below 29 fe	feet bgs.		and Gravel (CL		26.0		500	0.8	During Drilling ı⊠		SB12-35.0-35	5.7	30 35
40		1 —		-		et; fine to mediu		41.2 41.4	500					SB12-40.0-40	).6	40
45 	· 士 · 丁	Po an	oorly-Graded and 45.3 feet.;	d Sand or Po ; wet.	oorly-Graded S	h less than 8-ind Sand with Grave		50.4								50
55	<del></del>				Sand with Gra			57.5								55   60
60	± T	les		ot beds of Po		and (GP), interb Gravel with Sand			000000							65
70	T T	Di	ark gray, <i>P</i> oc	orly-Graded	Sand to Sand	with Gravel (SF	-); wet.	75.0	00000	000000000000000000000000000000000000000						70
80	I				COMPLETED	·		· 82.5								80
2. (	may ha Ground conside	ive slid dwater l ered ap	down in the to level, if indicat oproximate.	very was low in tube prior to re ated above, wa	emoval from the	of the run, the so ground. ring probing and			F	PFA	ss	Site	Cha	ham Airport aracterizatior ham, Alaska	n Report	
			heath - No So	•	Piezor	meter Screen and	1	May :			3 (	OF	SI	B12 / <b>MV</b>		100
	2" Pla	astic SI	heath - Soil R	ecovery		nite-Cement Gro nite Chips/Pellets nite Grout	<b>I</b>				<b>1 8</b>	<b>W</b>	ILS menta	ON, INC.	102581-0 FIG. B-2	

ſ						LOG	OF GEOP	ROB	BE						
Ī	Date	Starte	d 7/22	2/21	Location Sou	ıthwest Fire Train	ing Area		G	roun	d El	evation:	Approx.	NA feet	
ĺ	Date	Compl	eted 7/22	2/21					Ту	/pica	al Ru	ın Lengti	h 5 feet		
ĺ	Total	Depth	(ft)	10.0	Drilling Com	npany: Discovery D	Prilling		Н	ole C	Diam	eter:	2.25 inch	es	
	Depth (ft)	Probe Run	and probi	ing me mate b	Soil rt text for a propo thods. The strat oundaries betwe	<b>Description</b> er understanding of the	he subsurface materials ed below represent the I boundaries may be	Denth ff		Symbol	PID, ppm	Ground Water	Desci	Number, ription, lesults	Depth (ft)
İ	-		Dark gray	y to br	own, <i>Silty Gra</i>	vel with Sand (GM)	); moist.			X	-		SB13-0.0-0.5		-
MED			(GM) at 5	5.3 an wn, <i>O</i> wn, <i>S</i>	d 10 feet; mois rganic Soils (C ilt (ML); wet; fe	ot to wet.	y Gravel with Sand	10. 11. 13.	9		0.3	During Drilling I∕	SB13-10.9-11	.4	5 —
21-20447.GPJ <b>4ggr.4</b> /捡手 Rev. Typ: MED	- - - - - - - - - - - - - - - -		Dark brov	wn, <i>P</i> o	oorly-Graded S	Silt with Sand (ML): Sand with Silt (SP-S ML) at 17.8 feet.; m	SM), with 5-inch bed	16. 17.			0.8		CONTINUED NA		20
GEOPROBE WELL DILLINGHAM 102581-009.GPJ 21-20447.GPJ 4g好がかた	2.	may hav Ground conside	ve slid down ir water level, if red approxima	n the to indicat ate.	ube prior to remo	ne upper part of the roper part of the roper part of the product of the product of symbols.				PF		Site Cha Dilling	ham Airport aracterization ham, Alaska	n Report	
WELL			stic Sheath -		•	<u>J</u>		Ma	v 2	2023					100
OPROBE		2" Pla	stic Sheath -	Soil R	ecovery							& WILS	ON, INC.	102581-0 FIG. B-2	25
뜅								2000	. 511					Sheet 1 of	_

					LOG OF	GEOPR	OBI	=					
Date	Started	7/22/21	Loc	ation Southwest F	Fire Training Are	а	(	Ground	d Ele	vation:	Approx.	NA feet	
Date	Comple	ted 7/22/21						Гуріса	l Rui	n Lengtl	n 5 feet		
Total	Depth (	ft) 40.0	Dril	lling Company: <i>Di</i> s	scovery Drilling		ŀ	Hole D	iame	eter:	2.25 incl	ies	
Depth (ft)	Probe Run	and probing m approximate	ort text ethods. bounda	Soil Descri for a proper understa . The stratification lin aries between soil typ I shifted inside sample	ption anding of the subsules indicated below bes. Actual boundar	represent the ries may be	Depth, ft.	Symbol	PID, ppm	Ground Water	Desc	Number, ription, Results	Depth (ft)
21-20447 (5P) 4899 4921			ed Grav	dded Poorly-Grade vel with Sand (GP)	; wet.	el (SP) and	- 27.0		0.1		SB13-35.0-37 SB13-135-13		30
-102581 2.	may have Groundwa considere	slid down in the ater level, if indica ed approximate.	tube pr ated ab	NOTES as low in the upper prior to removal from toove, was estimated explanation of symbol	he ground. during probing and			PF	AS S	Site Cha	ham Airport aracterization nam, Alaska	n Report	
	2" Plas	tic Sheath - No S	Soil Red	<u>LEGEND</u> covery					J	LOG	OF SB1		
		tic Sheath - Soil I		•			May	2023				102581-0	
SEOPR							SHA Geoted	NNO hnical a	N &	WILS vironmenta	ON, INC. al Consultants	FIG. B-2 Sheet 2 of	

ſ							LOG	OF GEOPF	ROI	3E						
ľ	Date	Starte	t	7/22/21	Location A	lear S	outhwest Fire Tr	aining Area		G	roun	d Ele	vation:	Approx.	71.2 feet	
Ľ	Date	Compl	etec	l 7/23/21						T	уріса	I Rui	n Lengtl	າ 2.5 and ເ	5 feet	
Ŀ	Γotal	Depth	(ft)	82.5	Drilling Co	ompar	ny: Discovery Dril	ling		Н	ole D	iame	eter:	6 inches		
	Depth (ft)	Probe Run	R	and probing me approximate b	So rt text for a prothods. The st boundaries be	oil De oper ur tratificat tween :	escription	subsurface materials pelow represent the pundaries may be		Depth, ft.	Symbol	PID, ppm	Ground Water	Desci	Number, ription, Results	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42814推作 Rev: Typ: MED		in some may have Ground consider	F V case ve slii watered a	Dark gray to davet. Red-brown to great. Red-brown to revet.	ark red-browned, Poorly-Government of the prior to rested above, was	n, Poo	sample tubes during th Sand and Silt (  L); moist to wet be a Sand with Grave oper part of the run, from the ground. nated during probin	g extraction.  GP-GM); moist.  elow 5.8 feet.  el (SP); moist to  the soil sample	0. 1.	7		0.3	Dilling Site Cha	SB14-0.0-0.8  SB14-21.2-21  CONTINUED Notes that a caterization th	7 EXT PAGE	10
SEOPROBE_WELL_DILLIN				Sheath - No So Sheath - Soil R	•	END  SIND  S	Bentonite-Cemer			ay 2	2023			ON, INC.	V14-50 102581-0 FIG. B-2 Sheet 1 of	26

ſ							LO	G OF G	EOPR	OBI	Ε							
	Date	Starte	ed	7/22/21	Location A	lear So	outhwest Fir	e Training Ar	ea	(	Groun	d El	evatio	n:	Ap	prox. 7	71.2 feet	
	Date	Comp	oletec	l 7/23/21						•	Гуріса	al Ru	ın Ler	ngth	2.5	and 5	feet	
Ī	Total	Dept	h (ft)	82.5	Drilling Co	ompar	ny: Discovery	Drilling		ı	Hole D	Diam	eter:		6 iı	nches		
	Depth (ft)	Probe Run	R	and probing me approximate b	So ort text for a pro thods. The st poundaries be	oil De oper un ratificat tween s	escription nderstanding of tion lines indica soil types. Actu	the subsurface ted below repre al boundaries n uring extraction	sent the nay be	Depth, ft.	Symbol	PID, ppm	Ground	Water		Descr	Number, iption, esults	Depth (ft)
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ <b>\$2814</b> ≨f Rev: Typ: MED	1000   10	T Prob	F	approximate be different Red-brown, Positive with Sand Red-brown, Positive with Sand Red-brown, Positive Williams (ML) at 3. Brown, Sandy	oundaries be if soil shifted borly-Graded Silt (ML) at 2 Sandy Silt wild (ML); moist borly-Graded 5 feet; moist Silt (ML); mist soil (ML); mist soil (ML); moist soil (ML); mist soil (ML); mi	oist.	soil types. Actusample tubes del with Sand a moist to wet	ıal boundaries n	inay be Gravelly	25.0 - 26.7 - 30.7 - 40.0		1 0.1 0.1	During Drilling   △ Grou	Wate	SB14-	40.6-41 140.6-1	.8 and	30
LLINGHAM 102581-009.	2.	may ha Ground consid	ave sli dwate ered a	d down in the to	ube prior to re ted above, wa	moval s estim	from the groun nated during pr	run, the soil sa d. obing and shou					Site ( Dilli	Cha ngh	iam, A	izatior Alaska	n Report	
= WELL DI				Sheath - No So Sheath - Soil R	•	ND H		Screen and Sar	nd Filter	May	<b>LO</b> 2023		OF	SE	314 /	/ IVIV	/14-50 10258	
SEOPROBE		∠ PI	สรแบ	ысан - ЭОН К	.covery		Bentonite Co Bentonite Cr Bentonite Gr	nips/Pellets					<b>WII</b>	LS(	ON, IN	NC.	FIG. I	B-26

Γ							LC	G OF	GEOPR	OB	Ε							
	Date	Starte	t	7/22/21	Location	lear S	outhwest F	ire Training	Area		Gr	ound	d Ele	evation:	Арј	prox. 7	1.2 feet	
	Date	Compl	eted	7/23/21							Ту	pica	l Ru	n Lengt	h 2.5	and 5	feet	
ľ	Total	Depth	(ft)	82.5	Drilling C	ompar	ny: Discover	y Drilling			Но	le D	iame	eter:	6 ir	nches		
	Depth (ft)	Probe Run	aı	nd probing me approximate l	Sort text for a protection of the soundaries be	oil De roper ur tratificat tween s	escription nderstanding of tion lines indic soil types. Ac sample tubes	<b>I</b> of the subsurf cated below re tual boundari	epresent the es may be	Depth, ft.		Symbol	PID, ppm	Ground Water		ample   Descri and Ro		Depth (ft)
21-20447.GPJ <b>4ggr4检</b> F Rev: Typ:M <i>E</i> D			Da int	ay to brown	brown, Pool th Silty Sand	rly-Gra d (SM)	ided Sand w			·· 55.C					CONTIN	JI JED NE	XT PAGE	55—
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42的4处存	2. (	may ha Ground conside	e slid water l red ap	down in the t	rery was low i ube prior to re ted above, wa	emoval as estim	pper part of th from the grou nated during p symbols.	ınd.	ł			PF/	AS S	Site Ch	ham A	irport ization	Report	
WELL_DILLIN		2" Pla	stic S	neath - No So	<u>LEG</u>	END EH:	Piezometer	r Screen and	Sand Filter				G (	OF S	B14 /	MV	/14-50	
ROBE \		2" Pla	stic S	neath - Soil F	Recovery		_	Cement Grou Chips/Pellets	t	May							102581-0	
<b>3EOP</b>							_			SH/ Geote	AN echn	INO nical a	N 8 nd En	k WILS	ON, IN	NC. ants	FIG. B-2 Sheet 3 of	

ſ							LOG (	OF GEOPR	OB	BE							
Ī	Date	Starte	ed	7/22/21	Location A	lear So	outhwest Fire Tra	ining Area		Gı	roun	d E	lev	vation:	Approx.	71.2 feet	
	Date	Comp	leted	7/23/21						Ту	/pica	al R	lun	Length	2.5 and	5 feet	
	Total	Depti	h (ft)	82.5	Drilling Co	ompar	ny: Discovery Drilli	ng		Н	ole C	Diar	net	ter:	6 inches		
	Depth (ft)	Probe Run	Re a	nd probing me approximate b	So ort text for a protein the st thods. The st poundaries bea	oil De oper un ratificat tween s	escription Inderstanding of the suition lines indicated be soil types. Actual boustample tubes during the	ubsurface materials elow represent the undaries may be	Depth. ft.	Copin, III	Symbol	Mua Old	rib, ppili	Ground Water	Desc	Number, ription, Results	Depth (ft)
			G	ray, Silt (ML)	; moist.				··· 76.	7							
	- 80 - - - -		G	ray, <i>Silty Sar</i>	nd (SM); wet	; trace	organics.		80.0								80 <del>-</del> 
	- - - - - - 85				BORING	COMF	PLETED 7/23/2021		··· 82.	5		•					- - - 85 -
Typ: MED	- 90 - - - - -																90-
4位f Rev:	-  - 95 - 																95—
J 21-20447.GPJ 4991	- - - -																- - -
GEOPROBE_WELL_DILLINGHAM 102581-009.GPJ 21-20447.GPJ 42874处存	2.	may ha Ground conside	ive slid dwater ered ap	down in the to	ube prior to re ted above, wa	n the up moval	oper part of the run, t from the ground. nated during probing ymbols.	ŀ			PF	AS	S	ite Cha	nam Airport racterizatio nam, Alaska	n Report	
WELL_DILLING	П	2" Pl	astic S	Sheath - No Sc	<u>LEGE</u> oil Recovery	<u>:ND</u> [:]⊟::	Piezometer Scree	n and Sand Filter					C	)F SE	314 / MV		
ROBE_V				Sheath - Soil R			Bentonite-Cement	Grout	May	_						102581-0	
3EOPF							•		SH. Geote	AN echr	NNC nical a	N and E	& Envi	WILS( ironmenta	ON, INC. I Consultants	FIG. B-2 Sheet 4 of	

					LO	G OF GEOPR	OI	BE							
Date	Started	7/	/23/21	Location	lear Southwest Fire	Training Area		G	round	d Ele	eva	tion:	Approx.	71.2 feet	
Date	Comple	ted 7/	/23/21			-		Ty	уріса	l Ru	ın L	engtl	h 2.5 and 5	feet	
Total	Depth (	ft)	82.5	Drilling C	ompany: <i>Discovery</i> I	Drilling		Н	ole D	iam	ete	r:	6 inches		
	_				oil Description	Jg									
Depth (ft)	Probe Run	and pro appro	obing met oximate b different	ort text for a protection of the state of th	roper understanding of tratification lines indicate tween soil types. Actual inside sample tubes du	al boundaries may be Iring extraction.		Depth, ft.	Symbol	PID, ppm	2000	Ground Water	Descr and R	Number, iption, esults	Depth (ft)
	H	/		Graded Gra	avel with Sand and S	ilt (GP-GM); moist.	0. 1.			0.3			SB14-0.0-0.8		‡
<u> </u>	H	\Asphal			Silt (ML); moist to we	t balaw 5 8 feet		C	$\parallel \parallel \parallel$						10 15 20 25 30 30 30 30
E		Nou D.	Own to a	Jiay-brown,	SIII (IVIL), IIIOISE IS	E Delow J.O 1661.			$\parallel \parallel \parallel$	0.6					
10	H								$\parallel \parallel \parallel$	0.2					10=
= - 15															15
										0.3					15 =
20									$\  \  \ $						20=
		\	ray to da	ark red-brow	n, <i>Poorly-Graded Gr</i>	avel with Sand (GW);		1.1 2.6	• • •	1			SB14-21.2-21	.7	=
25	무ㅏ	\wet.						5.0	;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	0.7					25=
		∴\Red-br ∴\wet.	own to r	ed, <i>Poorly-</i> 0	Graded Sand with Gr	avel (SP); moist to :	26	3.7	1 1 1 1	•					=
= 30	Th	_:└──	own, <i>Po</i>	oorly-Grade	d Gravel with Sand a	: nd Silt (GP-GM), with :	30	).7	Щ	1					30 =
35		1:		-	5 feet; moist to wet.										35
	<u></u>	11		•	` ′	bedded with Gravelly	36	6.7		0.1					
40		٦/ 💳		d (ML); mois			40	0.0		0.2	Drilling I				40
		//		5 feet; mois	<i>d Sand (SP</i> ), with 8-ii t.	nch bed of Silt With				0.2	ng Dr		SB14-40.6-41 SB14-140.6-1		40
45	$\top$	1		Silt (ML); m							During		0014-140.0-1	41.0	45
		Red-br	own, Sil	ty Sand (SN	1), with 7-inch bed of	Sandy Silt (ML) at 50									]=
g = 50	I	feet; m	oist to w	vet.											50
05: WED 155	<u> </u>						55	5.0							55=
	4	Gray to	brown,	Silt with Sa	nd (ML); wet.										
60	-	Dark b	rown to	brown <i>Poo</i>			60	0.0							60
				th <i>Silty San</i> d	•	· Ciii (Cii · Ciii)									65
.; = 65	I				=										65
E 70		With 7	-inch bed	d of <i>Silt (ML</i>	.) at 70 feet.							$\times$			70=
£[''	1														"=
# 	-														75
GPJ 4	<u></u>	Gray, S	Silt (ML);	; moist.	•••••		··  76	6.7							=
. –	T	Gray, S	Silty San	nd (SM); we	t; trace organics.			0.0							80
21-20447	<u> </u>			BORING	COMPLETED 7/23/2	2021	··  82	2.5	وتمامما والمتر						=
J.GPJ	'			NO <sup>-</sup>	TES .										
1.1					n the upper part of the emoval from the ground						D	illing	ham Airport		
2. (		ater level, ed approxi		ted above, wa	as estimated during pro	bing and should be			PF	AS :			aracterization	n Report	
¥ 3.1				and explanat	ion of symbols.	_					D	illingl	ham, Alaska		
DING.															
				LEGE	END				LO	G (	OF	F SI	B14 / MV	V14-80	
MET				oil Recovery		creen and Sand Filter	M	av 2	2023					102581-0	Λα
	2" Plas	tic Sheath	ı - Soll R	ecovery	Bentonite-Ce  Bentonite Ch										
GEOPROBE WELL DILLINGHAM 102381-009.GPJ					Bentonite Gro	out	SI Ge	HAN otech	NNO nical a	N &	k W	VILS nmenta	ON, INC. al Consultants	FIG. B-2	27

### 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

Project Number: 102581-69	Project Name: 1	SOIL SAMPLE COLLECTION  Thylun PFAS Site Characterization						Page 1 of 4
Date: 6/7 9/71 - 714/12	1 tojout rumo.	Jean (11)	•					
Date: 6/29/21-7/8/24 Sampler: MON / DHF/	M.F							
the state of the s			Sample	Sample	Depth	Sample	PID	
Sample Number		Location Decription	Date	Time	(ft)	Туре	Reading	Analyses
SBI-5.4-6.0	Woodfrikansk	FA	6/29/21	0940	-	ESW		PFAS NIS None (conclud
581-15-7-16-3	1	organic-voch sitt @ GW interface	1	1015	-	IES	-	J PFASK 18
581-27.3-28.0	4	Bondy gravel, no fines		1043	-	4	_	11
carel		10		_	0-5	FS	0.6	More
rost 2				_	5-10	1	101	
care 3				-	10-15		1.7	
Core 4				_	15-20		2.4	
core 6	4			_	25-30	4	0.5	4
core 7	i			-	30-35		0.1	
care 8	2			-	35-40		0.2	
Core 9	1 8	clow Gw didn't need to messive up		-	40-45		0.9	
corelo	4	PID	4	-	45-50		1.3	4
COTEL (M)	Airpour Airpou	t Sour Rd	7/2/21	-	0-1-2		0.0	1
rove 1 (top)			care i	-97	1-2-608		0.0	
(ore 1 (bottom)			NAME		15-20		000	9
core 4 (SKIP Cores ZE	3)		1	-	15-2	0	0.0	
core 5				-	20-25		0.1	
core 6 (top)				-	25-25		0.0	
core Offo (bottom)			7	_	25.9-		0.0	4
SR2-31.7-32.3		mostly fines ~20% grav+Sa	7/2/21	1322		ES	_	PFAS × 18
\$82-37.5-38.4		gravel w/ fines + free water	4	1430	_	ES	-	4
care 87		0	i	-	30-35		0.0	None
Core 983			-	-	35-4	_	0.0	4
SB2-45-3-46.0			4	1505		ES		PEAS × 18
CHEZO 352		Split spons	74/21	-	7.5-10	FS	1.0	None >
Gores SS 3		1	11	-	10-125		1.2	( PID calleration
68 SS 4	4	7	4	-	12.5-1		0.6	Incorrect, biese
core!		om aprox wext to airport fence	7/6/21	1433	0-408		0,0	ACC
583-00-0.8	Soundo noar s	wface, organic-nich	710121	410	000	ES	0.0	PFASX18
Me2	1	VIII TO THE TOTAL THE TOTAL TO		8-	5-10		0.0	_
Core 3				-	10-15	1	0.0	
core 4	4			~	15-20	1	01	
583-10,0-11,0	for mortially	vet silt layer, midway bywn surface and aw		1227	10-11	ES	-	PFAS XIS
5831-10.0-11.0	Ab arreading	ter interface +		1217	10	₽ PD	-	PFAS X IS
563-20.0-20.9	Du of 583-			_		7-86		PEAS ALV
583-230-24-0		en interval of Shallow well	nui		23-24			PRAS XXX
584-05-112			7/8/21				0.1	PRASXIX
584-15.5-17.0		in limiting and halfman to GLU	1	1751	15,5-17		0,0	PEASX 18
584-20.0-21.5	Soy around	water interface		IKIO	20-215		-	PFASX18
504-27-8-28.5		Screen interval	1	1831		SES	-	PFASXIX
		ES = Environmental sample FD = Field duplicate TB = T	-	.07	-+0-0	200		110

hour dis

bject Number: 102591-009 te: 7110/21-7119/21	Project Name: DLG PFAS Site Characterization						Page 2 of
mpler: OHF VT							
mple Number	Location	Sample Date	Sample Time	Depth (ft)		PID Reading	Analyses
Corel	SBY	718121		0-5	FS	0.0	7 maryoco
Core 2		1131-1	/	5-10	1	0.0	
Gre 3				10-15		60	
Core 4	4		/	15-20		0,0	
care 1	585	7110/2	/	10-5	1	0.3	
Core 2	1	11107-	/	5-7		0.2	
coe3			/	2-10		0-0	
cered			-	10-15		0.0	
wes			/	15-20		0.0	
web			/	20-25			
6x7505-35,0-35,5			/			0.1	
core of			/	25-30		0.0	
585-350-35.5	A	-	1	30-35	1	0.9	0016
	At goundwater in terface		1853	35-35	D ES	_	PFASKI8
SB5-40.0-4N5	within some interval	V	1908	40-41	3 GZ		PEAS X 18
SB6-00-0.5	At ason end of wowen, surface	7/12/20	2030	0-05	FZ	_	AFAS XIS
586-69-7.9	" middle.	1	2050			0.0	PEASX 18
SBG-6.9-7.9	Duplicate of SBb-6.9-7.8		2400			00	PFASX18
(ive)	At sible north end of runway		-	0-5	FS	20	-
Core 2	N 11		-	5-10	1	0.2	
Core3	S 11		_	10-15	1	0.3	
536-11.8-12.4	Algorithmiter face in SBb			11,8-12,		-	PFASK18
587-00-11	At 587, NEwmer of apron	1.	2140	0-1.1	FS	Let.	?FASXI8
corei			1	105	FS	1.1	_
6200				5-10	1	0,9	
we3			/	10-15		1.4	_
core4				15-20		09	
we5				20-25		0.0	_
core 6	4	1	1	25-30		0.0	
587-28.8-30.7	At grandwater interface in SBF	7/12/21	2305			-	PERSXIX PROPERO GROU
587-16.7-17.1	in silt in middle of bodies	7/12/21		16,2-17		1.4	PFASXIS
588-010-0.6	SBS at Siend of which, surface sample	7(13/2)	0004	0-01	ES	0,0	PEASX18
carel	388, at south end of renway	1		0-5	FS	0.0	.,
cares			/	5-10	1	0.4	
wie 3			/	10-15		0.3	
wre4			/	15-20		0.0	
wre5			/	20-25		0,0	_
corele	•		/	25-3	-	_	
564 300-200	5 aroundwater interface in Subs	1 6	0106	30-305		0.1	PEAS X 18
CDS-11-4-11	of Middle of body SBR, from sit	1					ARASA 18
589-0.0-0.5	longtern wirder purking (SbF) at surface	21.211		16.4-16		0.0	
001-01	wager wiper pumal (Spr) of Sur 100	713/21	1300	0-05	EZ	0.1	PEAS XIB

hon dio

ate: 7/13/21 - ampler: 04F, VTY								
omper. Offer		Sam	nlo I	Sample	Donth	Sample	PID	
ample Number	Location	Dai		Time	(ft)	Туре		Analyses
ionel	SB9, At aimport long term parking	7119	_		0-5	15	n.l	- Thaifeed
CORZ	3	1			5-10	1	0.7	
Gre 3					15-20		0-1	
corey					25-26		0.5	_
Care S	•		,		30-39		0.5	
509-5.0-5.5	SB9, at groundwater interface				5-5.5	55	0.7	PEASX 18
889-36.6-36.8	589, at 2nd grandwaterintestace			1537				PEASY 18
589-15,6-16.2	SOO, near fairiew of	4	- /-	1648	19.6-16			PEASK18
Core(	SBIO, NEAR FAIRNEW Dr.	7/19	5/21	- 1	0-5	FS	0.2	
wis		-		_/	5-10	-	0.4	
corey		-		/	10-15	_	0,6	
				/	15-20	-	0,2	
are 6	V				20-25	1	1.2	
SAX0-30-0-32-0	Wyrain Screened interval for SB10			1220	25-30	<del>2</del> 5	1-4	PEASXI8
5010 - 26 4 - 230	within goundwater interface Jursilo			1221	26.8-32		1 /4	
32101 - 214 0-220	duplicate of 3B10-26.8-32.0				26.8-32		100	PEASXIS
SB10-34.0-37.1	within Screen interval	V		1659	his -37	56	1184	PF4SXI8
chel	At SBIL Mulchetra Air Nu corner lesse ist		7/21	100-1	0-5	FS	1	K-HSX18
Cores	I Some Course of the Course of	- 1	1100	/	5-10		ŏ	
cose 3				/	10-15		0	
	<b>√</b>			/	15-20	1	0.1	
3811-03-1-2	Atsurface in SBN			934	0.2-1.3	55	0	PEASKIS
SB11-2.3-33	At beginning of silt in SBU			1058	2,3-3.3		1)	PEASX 18
SBILL - 2.3-3.3	Dyplicate of SBII-23-3.3			1048	2,3-3.3	FD	0	PFAS XIS
6811-22,5-2504	At goundwater interface			1334	25-25	1 55	-	PFASKIS, DIRG RAPO, GRO, VOL
lere 5	Sent				20-25	ES	0.3	
5811-31.4-32.0	within screened interval	1		1508	314-3	LES		PEAS X IX
FB071721	Field Blank	7117	121	1918	-	ES	-	PRASKIR
corel	At SBIZ, who sock	7/19/	21	1	0-5	FS	1.60	_
Co.re Z					5-10	1	0.5	_
Core 3				-/-	10-15		0.1	_
GRY					19-20		0.5	_
cores				/	20 -36		0.3	
Core of				/	86-38		0.8	
SB12-03-0.8	In SAD (wind sour) at surgace			1510	30-35		0.4	2500000
5812-60-160	From wet Sift, above clay			1648	15-16	ES	1.6	PEASXIS
	Duplicate of 5812-1510-16-0				15-16		0.5	PEASYIS
3812-35.0-35.7				17:06			-	DPPAS XI8
	measurement only ES = Environmental sample FD = Field duplicate TB = Tr	in blas	nk.	1 7,06	0101	-)		KINS 10
ample Type TO - Field Screening	measurement only E3 - Environmental sample FD = Fleid duplicate TB = Tr	ib niat	IK.					

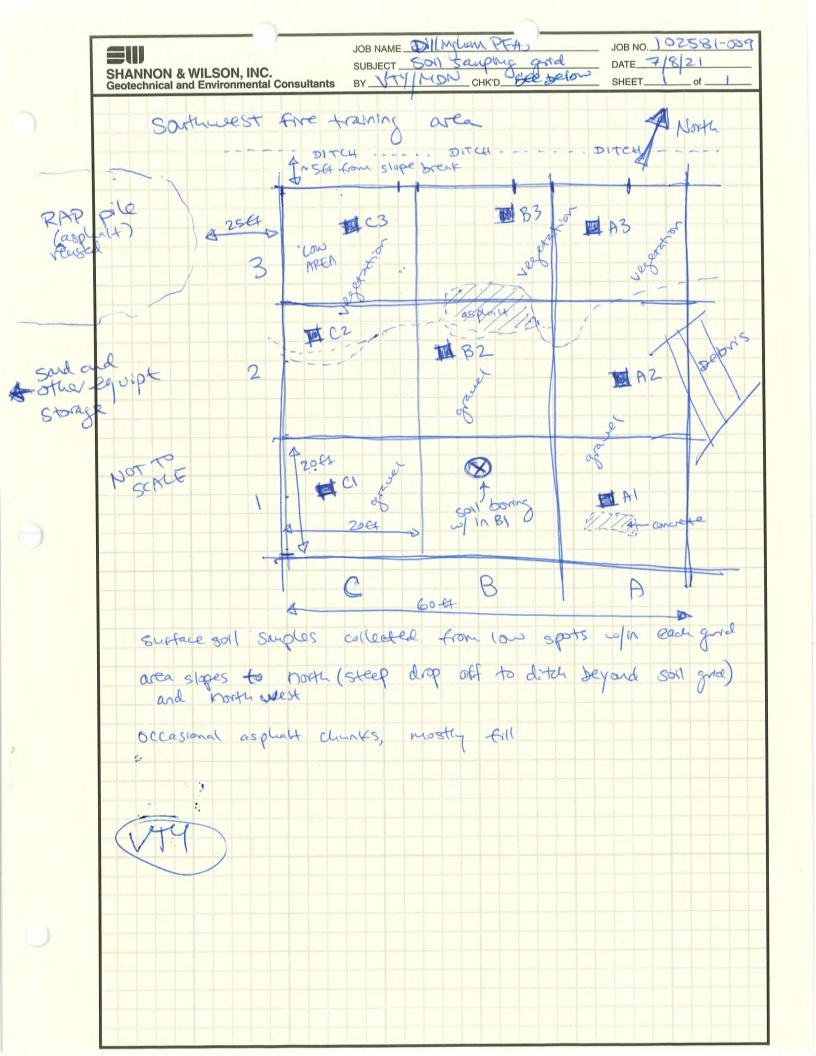
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oject Number. 102581-00	Project Name: DLG PFAS Site Chevacteri	tation					Page <b>P</b> of
ampler: AIF							
amper. 7(C)		Sample	Sample	Donth	Sample	PID	
ample Number	Location	Date	Time	(ft)		Reading	Analyses
SB13-0-015	5813	7-22-21		1	ES	0.3	PFAS
5B13-10.9-11.4	C	1	11:15		ES	0.6	1>FAS
SR13-36-37,5			11:20		ES	0.4	PFAS, GRO, DRO, VOCS, PI PFAS, GRO, DRO, VOCS, PI
5813 -135-137.5	<i>-</i>		11:10		EDG	-	DFAS, GRO, DRO, VOCS, PI
SB14-0-0,8	5814		12:10		ES	0.3	( PA )
5814-40,6-41,8			16:25		ES	0.2	PPAS, GRO, DRO, 12720, VOC.
5814-140.6-141.8			16:15		FD	_	PFAS, GRO, DRO, CRO, LOC, &
5814-21,2-21,7	The state of the s		16:45		ES	1.2	PPAS
FB13	Field black collected after SB13	5	11:45	1		_	PEAS
					-		
				-			
					-		
				_			
				-	-		
		1 1 -				(14 11)	
		11 11 11			1	1 1	
						1	
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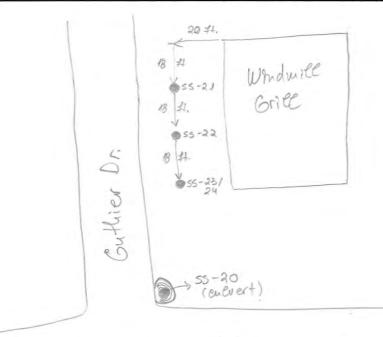
ple Number    Description   De	e: 7/7-7/11/21	Project Name: Dillingham PFAS SHE characterization Surface SSI Samping (borness la	sed !	seprot	ely)					- see	28
\$5.01 Blue Topining in 18 10th bookers 13 stiph loghes 17 11 1000 0-1" ES 0.0 FROS \$11(f. offered) 1 100 0-1" ES 0.0 \$11(f. offered) 1 100 0-1	npler: MONIVTY	( ) ( )	0	1	1/						_
\$5.01 Blue Topining in 18 10th bookers 13 stiph loghes 17 11 1000 0-1" ES 0.0 FROS \$11(f. offered) 1 100 0-1" ES 0.0 \$11(f. offered) 1 100 0-1								Amel. on		Descripto	2
SS-02   New Sendew, near third, which light 2 th is the pull   1100 0-1"   ES 0.0   611 (1 to the frame)	-	1490000			1 /				Analy	Ses	$\dashv$
35-05 New Sun Grand Revenuent, 24 water Du, veletable 115 0-1" 25 0.0 Eith fair to the second Du, 4 & Sof General Soft Du, 4 & Sof General Soft Du, 4 & Sof General Soft Du, 4 & Sof General 1125 0-1" 25 0.0 Eith fair to the second Du, 4 & Soft Du, 4 & S			7/7/21					PEAS			$\forall$
\$5-04 New feet Sorth River (See Secretary Vegetary) 1115 0-1" \$5 0.0 (114 14 14 14 14 14 14 14 14 14 14 14 14	55-02	Near Send Rw. near threshold light 2 ft was Rw		1100	0-1"	ES		***	1611(4.	base grower	4
\$5-04 New far Send put 44 & 50 personal  \$5-05 DUP of \$5-04  \$5-06 In Opt wy Von Shut Trimary  \$5-06 In Opt wy Von Shut Trimary  \$5-07 Ear Run Opt wy Von Shut Trimary  \$5-08 Fast side Run Shut Early reported. Close  \$5-08 Fast side Run Shut Early reported. Close  \$5-09 Fast side Run Shut Early reported. Close  \$5-09 Fast side Run Shut Early reported. Close  \$5-09 Fast side Run Shut Early Run	10.00	in a small depression	_		- "						-
\$5-05 Duz of \$5-04  \$5-05 Law copt will very \$w of removed 1200 of 1" ES 0.0 Salvy Revelouse \$5-07 Es peut our Sardy Jagontel 1215 01 \$3 0.0 II" " would (in \$5-02 East slike Put, slope break yeapthtel. (1058 1215 Put ) \$3 0.0 II" " would (in \$5-02 East slike Put, slope break yeapthtel. (1058 1235 ES 0.0 to 1" " good (ind east ) \$5-02 East slike Put, slope break yeapthtel. (1058 1235 ES 0.0 to 1" " good (ind east ) \$5-02 East slike Put, slope break yeapthtel. (1058 125 ES 0.0 to 1" good out of 1" good out out year \$5-02 Es out year year pour year \$5-02 Es out year year pour year year year year year year year yea		New SW corner RW powernant, 24x west of RW, Veget	50			-				(il 12 do	7
\$5-07   Ex all years Sank Jagonness   1200 only ES 0.0   11 years (10 SS-07   Ex all years   1215 0-1   ES 0.0   11 years (10 SS-07   Ex all years   1215 0-1   ES 0.0   11 years (10 SS-08   Ext stake Eu) stope break years   1215 0-1   ES 0.0   11 years (10 stake SEI) stope break years   1215 0-1   ES 0.0   12 years (10 stake SEI) stope break years   1215 0-1   ES 0.0   12 years (10 stake SEI) stope break years   1215 0-1   ES 0.0   12 years (10 stake SEI) years   1225 122   1225 1225 1225 1225 1225   1225 1225					-					4	_
SS-08 East side RW, slope break- projected. Close  SS-08 East side RW, slope break- projected. Close  1235 122-3 ES 0.0 107 Gazel and asp  to RW 28 is rack.  SS-09 Eminidiately S of talk was B proposed. 3 let from 1415 0-1 ES 0.1 teasify fill Ve do 1515 152-3 ES 0.0 teasify fill Ve do 152 ES 0.0 teasify f		DUP of SS-04				_					4
SS-08 Past side Ruy, slope breet, peopletted. Close 1235 Past Side Ruy, and the side Ruy and Ruy and the side Ruy and Ruy and side Ru		Law cost w vega Swot runwayo			1 1 1 1						4
## 19 P. W. S. 15 York   Stroke   Strok		E of Riv noir Sand, vagotated									. 16
SS-09 Emmidentey S of tax in B B motor 3 fet from 1415 0-1. ES 0.1 tensity Kill 1/2 do 540 Struct departasion, range puts present the Struct departasion, range puts present the Struct departasion, range puts present the Struct departs of the	55-08		0 10	1235	1-2-	3 'ES			topa 9	gazel and as	SP
Sing gillett depressed, "cose in the period of the period				-	_	-			organ	C 851 W/ 15	~ 1   6
SS-10 Slope break, close to built parted. New worlds. 3545 3-4" ES 0.2 too "gravel-again stand open east of Builton with acts to be the formal of 1600 0.1" ES 0.7 too most of Builton with acts to be the formal of 1600 0.1" ES 0.7 too most of gravel-actin stands of 1500 0.1" ES 0.7 too most of gravel-actin stands of 1500 0.1" ES 0.0 too most of gravel-actin stands of 1500 0.1" ES 0.0 to the stands of 1500 0.1" E	55-09	Immidestely S of Taxing B @ junction, 3 ft from	nt	1415	0-1,	ES			tonssi	ty Kil 1/2" de	aur.
\$3-11 Open post of Ru Clear wind side; 55-15 the former of 1600 0-1" E 0.0" most organics (fib)   \$3-13 Net least of 1600 (2) particular organics (fib)   \$3-14 Net least of 1600 (2) particular organics (fib)   \$3-15 Net least of particular organics (fib)   \$3-16 Net least of particular organics (fib)   \$3-17 Net " " E 5100 in American reverse of 1500 0-1" E5 0.0   \$1.00 organics organics (fib)   \$3-18 Past of particular organics organics (fib)   \$3-19 Net least of particular organics organics (fib)   \$3-19 Net least of particular organics organics organics (fib)   \$3-19 Net least of particular organics organics organics (fib)   \$3-10 Net least organics organics organics organics (fib)   \$3-15 Net least organics organics organics organics organics (fib)   \$3-15 Net least organics organics organics organics organics organics organics (fib)   \$3-16 Net least organics		2112 2012			_				Ksome:	reibu pout f	10
15-12 NE " ", E side in American and the property of presses" 1500 0-1" ES 1.12 actempte nature 150 0-1" ES 0.0 fill w/ restrances 150 0-1" ES 0.0 sith pare 16 to 16 t	35-10	Slope break, closer to pewis paved. New morton, 7	H SE	1545	3-4"				PTOU >	Mannet II . Mannet	PT VIII
15-12 NE " ", E side in American and the property of presses" 1500 0-1" ES 1.12 actempte nature 150 0-1" ES 0.0 fill w/ restrances 150 0-1" ES 0.0 sith pare 16 to 16 t		apron east of Rw even w) wind sock, 55 post of the	ve you	1600	0-1"	E.	FO	1000	MOSHLY	organics (fil	6)
15-12 NE " ", E side in American and the property of presses" 1500 0-1" ES 1.12 actempte nature 150 0-1" ES 0.0 fill w/ restrances 150 0-1" ES 0.0 sith pare 16 to 16 t		NE level tot, got side (20 paverson edge (26 moles)	17	1435	0-1"	150	2		DI KING	Soil Sill, So	M
SS-12 NE " ", E state in Anthonomy spot wy grosses 1500 0-1" ES 1.2 Attempte Attitude 25-14 East side put your Nead, inspirant neverus) publishes 1600 0-1" ES 0.00 Kill Wy restribus nets of the 94 SS-15 New Peu your NE corner of edge lights. I fe from pawer 1625 0-1" ES 0.00 Sity grave (t. bit) 1 New Peu your NE corner of edge lights. I fe from pawer 1625 0-1" ES 0.00 Sity grave (t. bit) 1 New Peu your Peu (t. bit) 1 New Peu your Peu (t. bit) 1 New Peu Peu (t. bit) 1 New Peu Peu Peu Peu Peu (t. bit) 1 New Peu	55-13	NETEROR Lotge side N side in ditch, 1864 from one o	\$ 5	ILLED	1-2"	Es a	0.0		GH (	C. SIK getive	) #4
25-14 East side Rev Nord, into an Neverway Revisits 1610 0-1" ES 0.0 fill w/ restrangement		NE " ", Eside in Altowallow spot wi workses"		1500	0-1	ES	1.2		action	pt@ netive	>
25-14 East side Ru Nor Nend, inapian vevenus Ruisits 1610 0-1" ES 0.0 fill w/ retts/agant  Some as of to 34  SS-15 New Ruy wear NE corner of edge trutts. 14 from pawed 1625 0-1" ES 0.0 Sity gravel (4 bit)  Minor siellation  SS-16 near 2600 At Cight I where plane crashed) 1821 0510 0-7" ES 0.0 At AS A field  (31 from pavewent to the corner of edge trutts. 14 from pawed 1625 0-1" ES 0.0 At AS A field  (31 from pavewent to the corner of edge trutts. 14 from pawed 1625 0-1" ES 0.0 At AS A field  (31 from pavewent to the corner of edge trutts. 14 from pawed 1625 0-1" ES 0.0 At AS A field  (32 from pavewent trutts) 1821 0510 0-7" ES 0.0 At AS A field  (33 from pavewent trutts) 1821 0510 0-7" ES 0.0 At AS A field  (34 from pavewent trutts) 1821 0510 0-7" ES 0.0 At AS A field  (35-18 between 2,000 ft and 2,000 ft and 2,000 ft and 3,000 ft as a field pawed 1625 0-1" ES 0.0 At AS A field pawed 1625 0-1" ES 0.0 At AS A field pawed 1625 0-1" ES 0.0 At AS A field pawed 1625 0-1" ES 0.0 At AS A field partition 1625 0-1" A field partitio		See East of Parement				-		17	7609	6 organes	
SS-15 New Pack NE corner of edge lights. I the from power 1625 0-1" ES 0.0 Sity grows (# 516)  Nord Pero, near NE corner of edge lights. I the from power 1625 0-1" ES 0.0 Sity grows (# 516)  Nord Decorate Ciciat I where plane crashed) 11821 0310 0-1" ES 0.0 PFAS (# 620)  (35-16 near 2 600 ft and 2 200 f	25-14	East sole Rw near Nend, indoor wever wil 20 by	5	1610	0-1"	ES	0.0	16.1	fill	/ verts/argon	Č,
SS-15 Next Peo, near NE come of edge lights. 144 (com panel) 1625 0-1 = 5 0.0 Sitty grave (4.516)	- W	no sour doed upin (looks white), 9 ft from pavement		-		-	-	-	Samo	as of to 9	4/
SS-16   near 2800 H Cight   where plane (rashed)   H8/21 0810 0 7" ES (10 PFAS (100))		Wend Per, wear NE corner of edge tritts. If from the	ave 7	1625	0-1"	ES	0.0		SOHO	grave (4. bil	6
( 55-16		MMON JERBEHT	-	-		-	-	4	W/O	aint flocks	1
55-17 Dup of 55-16  55-18 Detween 2,000 ft and 2,200 ft order 10915 0-1" ES 0.0 Sifty gravel with 155-19 new 1,200 ft and 2,200 ft order town win company 10935 (10-1" ES 0.0 Sifty gravel with 155-19 new 1,200 ft. Control (where town wins company) 10935 (10-1" ES 0.0 Sifty gravel with 155-19 SS-Grid-A1 Soil Sampling grid. Town sample accumulated shall 1855 0-1" ES 0.0 Sifty gravel with 155-19 SS-Grid-A2 SIGNAT depression accumulated shall 1855 0-1" ES 0.0 Sifty gravel with 155-19 SS-Grid-B2 Consoli patricus 1900 0-1" 0.0 Sifty gravel with 155-195-195 0-1" 0.0 Sifty gravel with 155-195-195 0-1" 0.0 William 150-195-195-195-195-195-195-195-195-195-195	( 55-16		18131	0910	0-10	ES	6.0				
SS-17 Dup of SS-16  Dup of SS-16  Deflueen 2,000 ff and 2,200 ff byth 0915 0-1" 65 0.0 sight gravel with 185-19  New 2,200 ff and 2,200 ff byth where from win stronged 0835 0-1" 65 0.0 sight gravel with 185-19  SS-Grid-A1 Soil Sampling grid. The source accumulated shill 1855 0-1" 65 0.0 silty gravel with 185-19  SS-Grid-A2 siraht depression 1900 0-1" 0.0 silty gravel sand 185-5 0-1" 65 0.0 silty gravel with 185-5 0-1" 65 0	. \	6 m from pavement			4243	~		i	11	4	
SS-18   Deflueen 2,000 ft and 2,200 ft light   0515 0-1" ES 0.0   Silty glavel up send     SS-19   New 2,200 ft light (where how was drough)   0535 0-1" ES 0.0   Silty gravel up send     SS-Grid-A1   Soil Sampling grid. I have spatial accumulated and 1855 0-1" ES 0.0   Silty gravel sand (SS-Grid-A2   Silty gravel soil accumulated and 1855 0-1" ES 0.0   Silty gravel sand (SS-Grid-A3   "" " Uzsetated (setal flow) 3") 1905 0-3"   0.0   U the soil sand sand (SS-Grid-B2   Conoff patrices   19820 0-1"   0.0   U tooks     SS-Grid-B3   Silth depression, vesetated   19825 0-1"   0.0   W foots     SS-grid-C2   Vunsef patrices   19235 490-1"   0.0   V viors (roots   SS-grid-C3   Vunsef patrices   193440 0-1"   0.0   V viors (roots   SS-grid-C3   Vunsef patrices   193640 0-1"   0.0   V viors (roots   SS-Grid-B4   D080 Grid-A3 for setaleum only   1910 1-3" Dubt   1925 (roots   193640 0-1"   0.0   V viors (roots   193640 0-1	for 3 55-17				D-14	EST	60		15, 14	cravel wit	5
SS-Grid-A1 Soil Sampling grid. 1000 Spatial accumulated shill 1855 0-1" ES 0.0 Sitty graving sand to SS-Grid-A2 Sitisht depression 1900 0-1" I 0.0 Sitty graving sand to SS-Grid-A3 III III Uzgetzeted (petal from 13") 1905 0-3" 0.4 + sec w/ roots SS-Grid-B2 Comoff patricing 19200-1" 0.0 W/ roots SS-Grid-B3 SIGHT depression, resetated 1925 0-1" 0.0 W/ roots SS-grid-C1 III III III III III III III III III I					0-11	ES	7 0				
SS-Grid-A1 Soil Sampling grid. 1800 South of accumulated shild 1855 0-1" ES 0.0 Sitty gravery sand to SS-Grid-A2 Sitght depression 1900 0-1" 0.0 134 Islandy subscribed (petrol from 13") 1905 0-3" 0.4 + 20 w/ roots SS-Grid-B2 Connoll patricing 1940200-1" 0.0 w/ roots SS-Grid-B3 SIRCH depression, regetated 194025 0-1" 0.0 W/ roots SS-grid-C1 VILLO					0-14	25	V		Secul	1	
SS-Grid-A2   Siraht depression   1900 0-1"   0.0   19th   Stock   Stock   SS-Grid-A3   1"   1   Jeststed (send form 13") 1905 0-3"   0.4   + sec   w roots   SS-Grid-B2   Consoli patricus   1940200-1"   0.0   w roots   SS-Grid-B3   Siraht depression, vestated   1940200-1"   0.0   w roots   SS-Grid-C1   1"   1920300-1"   0.0   w roots   SS-Grid-C2   Vunsil patricus   192035.000-1"   0.0   SS-Grid-C3   V   1920400-1"   0.0   w roots			1		V A				C. Hu	call we sand	t
SS-Grid-BZ  Consoli patricus  SS-Grid-BZ  Consoli patricus  SS-Grid-BZ  Signit dopresson, resetated 19825 0-1"  SS-Grid-CI  SS-Grid-CZ  VUNSES patricy  SS-Grid-CZ  VUNSES						1		(P94)	100	bady last	3
SS-Grid-BZ Conoff patricing 194000-1" (10 (10)) SS-Grid-B3 Sixint depression, repetated 1940500-1" (100) SS-Grid-CI "" 1940300-1" (10) SS-Grid-CZ VUNDER patricing 192035.400-1" (10) SS-Grid-C3 V "" Upperated 1930400-1" (10) SS-Grid-BY DUP of Grid-B3 for petaleum only 1910 1-3" DUP -		II II IDaptased hashed A	m1-3"						1 1.		4
SS-Grid-B3 Sixint depression, resetated 19825 0-1" 0.0 W 100ts  SS-grid-C1 " 192630 0-1" 0.0  SS-grid-C2 Vunotif patruly 192635 APO-1" 0.0  SS-grid-C3 V " " Uccerted 193640 0-1" 0.0 V w/0735 (100ts)  SS-Grid-B4 DUP of Grid-A3 for setaleum only 1910 1-3" DUP -			1				_		1 1	1.00	$\dashv$
SS-grid-CI 11 11 192830 0-1" 0.0  SS-grid-CZ VUNDES patruly 192835 ADD-1" 0.0 V WORTS (NOTES)  SS-grid-C3 V 11 11 Voyetated 193640 0-1" 0.0 V WORTS (NOTES)  SS-Grid-BY DUPOF Grid-A3 for setoleum only 1910 1-3" DUP									11	ul (nots	$\dashv$
SS-grid-CZ VUNDER patruly SS-grid-C3 V " Vogetated 192835.000-1" + 0.0 V V Org's (roots) SS-Grid-AY DUP of Grid-A3 for setoleum only V 1910 1-3" DUP	SS = anid = Ci	Silver actions, vegetates							1	1100	$\dashv$
SS-grid-C3 V " " Uggetated 193840 0-1" to 0.0 V w/ org's front	55-9-14-07	Superficient and the				4					$-\parallel$
SS-GAID-AY DUPOF GAID-A3 for personal only 1910 1-3" DUP	5> 900-02	Vulsas parting	-	1926	0-1"	90	00	1/		al Mak Com	44
35-6712-17 VUTOR GARATS AN DENOCUM ONLY 1910 1-3 101	SS-grid-US	D12201 C md-02 1 - 221-12	+	17334	1 2 "	Dis	0.0	V	V	1 013> 1100	~
	35-604-89	DUTOT GATATO FOR DENDERUM ONLY	10	1910	1-3"	60	-	_	-		$-\parallel$
		,			-	7			-		$\dashv$
					-				1		-
									1		-
											_

Project Number: 102581	-009 Project Name: Dill myhan PFAS							Page 3 of 2
ate:	J							
Sampler: —								
		Sample	Sample		Sample	PID	Analyses	Analyses Notes
Sample Number	Location	Date	Time	(ft)	Туре	Reading	1000	Analyses
(55-20	from culvest @ langkawak and Butliver inta.	7/11/2		0-1	ES	Alu	PFASX18	clay +siel, s
55-21	along Gutier, parallel to Windwill grill	1	1337	0-1	ES			sily gravet
55-22	18 fd from 55-21 towards kanaktinak	40	1342	0-1	FS		1	554
55-23	18 At from SS-22 towards Karakanak k	EP!	1355	0-1	ES F		1/	SSS
SS-25	10041. From center towards Johnsont		1500	10-1	ES	ע	V	I ssa
55-26	50 At from center towards Solmson's		1600	0-1	Es			1 359
55-25	center and a low my open field	11	1615	0 4	ES	4	V	ssa satura
22 44	contes and a law to open frech	W	1610	UN	()	V	V	1 334 54414
		1		-				
			_	-				
•								
				-	-			
		1		-	-			
		1						
		-		-	-			
		-		-				
				-				
-								



200 41.

RW lights (blue) @ 2,000 and 2,200 At Com Nend, factured south than lock in WP



Kanakanak Rd.

.

### SURFACE WATER SAMPLE LOG

ate: 7/13/21		Project	t: 102581	
ield Investigators: VTY				
lame of Water Body: Su	0-01	in	122/	
ocation of Water Body:	ed land 1	eed w	pear word Ry Fd and John Dearson	Li
Type of Water Body: Stan	ndring we	ater m	dotely	
Sample Location: widd	le of w	ater bo	ody	
Sample Number: Su	0-01	Samp	ole Time: 1430	
Method of Collection: 50	unple ja			_
Temperature (°C): 11.4				
pH: 5.78				_
Conductivity: 36.2				
DO (mg/l): 1.74				_
Turbidity (NTU): close				_
Appearance: brown	hue			
				_
Analyses requested: PFA	15×18			_
				-
- 6 - 1		77.79	der the water not	
Comments: 7075 87	Jege 197	und Am	der the water not usked collected	
granular sedimen	10 /	0.64	of the state of th	
A				
5/01/24/01-22/24/0	Yes	NO		
Product Observed? Product Collected?	Yes	NO		
Due divet Collegeog 2	res	IVIO		

## SURFACE WATER SAMPLE LOG

ate: 7/13/24		Project: 102581-009
ield Investigators: VTY		
lame of Water Body: と	ilvert r	north of lease lot
ocation of Water Body:	across re	oad to fire department
Type of Water Body: sten	drug 1	water in culvert
Sample Location: widdt	e of st	anding water
Sample Number: SW-C	2/5W-	102 Sample Time: 1630 /1640
SED-3	upte jar	
Temperature (°C): 12.2 pH: 4.47 Conductivity: 156.0 DO (mg/l): 5.33 Turbidity (NTU): close Appearance: close		
Analyses requested: PF4	75×18,	DEOIREOIGEO, VOCS, PAHS/TAg
Comments: —		
Product Observed?	Yes	No
Product Collected?	Yes	(No)

Checked By: MDN 8 421

# SURFACE WATER SAMPLE LOG

ate: 7/13/21		Project:	102581-009
eld Investigators: VTY			
ame of Water Body: ろい	1-03		
ocation of Water Body: Se			
ype of Water Body: Sen	ding w	ater In	a low spot byn road a
Sample Location: Middle	of the	e wate	to body
	03	Sampl	e Time: 1830 18 38
Method of Collection: Sau	ple jar		
Temperature (°C): 15.2			
pH: 6.22			
Conductivity: 113.4			
DO (mg/l): 1,10	1 1.1		
Turbidity (NTU): staglitly	turbra		
Appearance: organic SI	amung		
Analyses requested: PFAS	0×18, GR	201 D RO11	ero, vocs, PAHs/TA;H
Comments: —			
Product Observed?	Yes	No	

ate: 7/14/21	Project: 102581-009
ield Investigators: VTY	42
lame of Water Body: ຽ ແ	)-04
ocation of Water Body: bo	stom of slope on side of runway  site of AFFF release from 2 years ago  nant water on side of runway stop
Type of Water Body: Stage	rant water on side of rumay stop
	le of water body
Sample Number: Sw-0	-04/104
	to cup and trowel
Temperature (°C): 5.0°C	
Conductivity: 272.8	
DO (mg/l): 7.50	
Turbidity (NTU): cloar	
Appearance: brologica	
Analyses requested: PFA	45×18, GRO, DRO, RRO, PAHS, VOCS
Comments: samples	d soil arganic mother in the
water au	d soil
Product Observed?	Yes (46)

ate: 71/4/2/	Project: 102581-009
ield Investigators: VTY	
lame of Water Body: 5 🕊	005
ocation of Water Body:	grant water at pottom of runway slope 6 of water body
vpe of Water Body:	quant water at pottom of runway
JF- 5. 7	slope
Sample Location: widd	6 of water body
Sample Number: 5W-C	25 Sample Time: 1050
Sample Number: 5W-C 5ED-	05 1105
Method of Collection:	
Townsenture (SON O ODE)	
Temperature (°C): 8,2°C pH: 6,38	
Conductivity: 284.5	
DO (mg/l): 0.42	
Turbidity (NTU): clear	and the am was que state
Appearance: Ve	egetation growing suside
Analyses requested: PFA	ISXIB, GRO, DRO/RRO, VOCS, PAHS/TAGH
Comments:	
Comments:	
Comments:	
Comments:	
Comments:  Product Observed?	Yes No

ate: 7   14   21		Projec	t: 102581-009
ield Investigators: VTY			
lame of Water Body: 5 w	1-06		
ocation of Water Body:	thet of	Jayiwa	y A and the runway
ype of Water Body: cul	vert with	standi	ng water
Sample Location: midd	8 of w	iater b	dy
Sample Number: SW-OQ	>	Sam	ple Time: (150
SED-O Method of Collection: Solo	o cup for	water	1200 and howel for sedimen
Temperature (°C): \0.2 pH: 6.25 Conductivity: 251.2 DO (mg/l): 4.17 Turbidity (NTU): standard			PO, VOCs, PAHs HAgt
Comments: <u>sewer</u> c	odor pres	ient of	ter extracting sediment
Product Observed?	Yes	No	

ate:	7114/21		Projec	ct: 102581-009
eld Ir	nvestigators: VTY			
ame	of Water Body: Su	70-04		
				101- 4-10-0
ocati	on of Water Body: 5	W corner	of nu	nway, outside the tenee, estuary water
	00	ross from	44e e	steary
ype (	of Water Body: Curb	vert, 549	narng	Dais
amn	le Location: widd	6 of	water la	ody
amp	le Location. with			d .
				10.1.6
Samp	ole Number: Sw	70	Sam	nple Time: 1345 1400
	SED-	70-	. 1.	1400
Metho	SED- od of Collection: Sol	o cup o	and trov	wel
	perature (°C): 13.9	)		
OH:	6.82 Juctivity: 89.7			
	mg/l): 5,05			
Turhi	idity (NTU): Clear			
Appe	earance: prown	oiological	slagni	ng
		0		0
Anal	yses requested: PFA	5×18, DR	O, RRO,	GRO VOCS, PAHS MAGH
	ent. le V			
Com	nments:			
			10	
Proc	duct Observed?	Yes	No No	

Date: 7/14/24		Project: 102581-009
rield Investigators: V	ty	
Name of Water Body:	:w-08	
ocation of Water Body:	South end	a of runway putside of gode of randlownak Ra
Гуре of Water Body: 🦽	Heli	
		water body
Sample Number: 50		Sample Time: 1630
Method of Collection:	0-08	(643
Temperature (°C): 17 pH: 6,47 Conductivity: 207, DO (mg/l): 0,40 Turbidity (NTU): +u/k Appearance: +u/k	9	heen + week on surface 20 ID201R20 VOCS, PAHS/TAgH
Analyses requested:	FASY 18, GR	20 I DROI RRO VOCS, PAHS/TAgH
Comments: Lull	of plant n	uatter, nousediment
Product Observed?	Yes	(No
Product Collected?	Yes	(No)

Checked By: MDN 8421

Date: 7/1/4/2/		Project: 102581-009
Field Investigators: リアソ		
Name of Water Body: Sc	u-09	
Location of Water Body:	low spot	t along east side of runway, fence I water Howard through
Type of Water Body: cut	vert and	I water flowing through
Sample Location: widd	le of w	sater body
Sample Number: SE	J-09 D-09	Sample Time: 1800 1815
Method of Collection: 5	ample ja	· · · · · · · · · · · · · · · · · · ·
Temperature (°C): 7.5 pH: 6.06 Conductivity: 144.9 DO (mg/l): 6.35 Turbidity (NTU): clear Appearance: clear, 3	-	
Analyses requested: PF	ASX 18, G	SPO, RPO, DRO, VOCS, PAHS/TAgH
Comments: —		
TATE OF THE PARTY	Yes	No
Product Observed? Product Collected?	res	(NO)

Checked By: MDN 8/4/21

Date: 9/30/21	Project: 102581-009
Field Investigators: V	1
Name of Water Body: Foo	mer land fill SW-10
	on point with cutvert by road.
Sample Number: 5W-	- 10 Sample Time: 1620
Method of Collection: 50	ample bottle
Temperature (°C): 4, 4 pH: 6, 34 Conductivity: 79, 5 DO (mg/l): 1.00 Turbidity (NTU): Clar Appearance: grange	hue
Analyses requested:	GASX18
Comments:	
Comments:	
Product Observed?	Yes No

	SOIL SAMPLE COLLEC	HUN LOG				- 4 :		
oject Number: 102551-009	Project Name: Dillyham PRAS					Page 1 of		
ate: 6/28/21-7/26/2 ampler: MON DHE/AL	V V		1					
ampler: Mb DHE/AL	F	FYPEO (D)						
			nple Depth			200		
imple Number	Location		ne (ft)	Туре	Reading	Analyses		
Drum !	Wood RU Rd+ Karokarok (SBI / DLG-MOUSI)	G128-7/11	21	Soll				
2	x3 goil dilives, all full, @ SBI							
3	4	D		4				
Ч	BEEN WHEL MY MONDY	7/1/21		PHILA	THY	1102 (No a)		
5	ANDSHET ANDSHE SPUT (SB2/DLG-MUDZ)	7/2/21		Sál		,		
C X	to X2.6M	7/2-7/4/	25/21					
G A S	Airport S. from goron near is fence (SB3)	216/21		4				
8	* //	7/7/21		Soil				
9	\( \text{//}	717/21						
10 photo (MW3-2		7/8/21						
11	Maran Street, inside gate (384)	7/9/21	71111					
12	W //	Y						
13	* 11	7110121						
14 purtoshous	Holy Rosary church woner at Emperiday, 5B5	7/11/21						
15 x6drums								
16		1	4411					
17		1						
14		7/12/21						
19	<b>V</b>	al al		1				
	589, at Amport long term purving	7/13/21						
21 +7 drums	3077	1						
22 another show	15							
23 x9 diums		400						
24 : nelyding #		7114/2				2		
25								
26					· Partie			
27					250	4		
	S310 At Furniew Dr.	7115/21			división.	0		
39 x5 dims		11315		-	W.T.	A . 12		
	( like talin	-		3.	1/4			
30 stexton (	SBID GILLDE X5 draws (Ad X4)				F.J. / 1998	The state of the s		
22 photo in SB9	Airport Surface Soil + 586, 537, +589	7/12/21			543	Service Control		
	SBII, near Now corner leasels+ (Mulchartra)	7/17/21				<b>建筑企业公司</b>		
33 34	Soll, wear No corner waselst (Mulcharna)	111111				<b>《大学教》</b>		
						10000000000000000000000000000000000000		
35	cost a lokence to the					1000		
26 Voill-e	opply (skipped this #)	7/18/21				The last last		
.37	•					7 ( ) Y		
38		7/4/21				1		
39		7/19/21		7				
48	V	2		-		-12		

Project Number:  0258	Project Name: DLG PFAS						Page 2 of 2
Date: 6/28-7/26/21							
Sampler: MON DHE AL	E						
		Sample	Sample	Depth	Sample	PID	
Sample Number	Location	Date	Time	(ft)	Туре	Reading	Analyses
41	SBID at wind sock	7/19/21					
42		1					
43		1					
44		7-20-4					
45							
46							
48	SBOZ MUOZ-SO Install	7-21-21					
49	1500 11000 30 1751au	42000					
50							
SHED 57	5813/5814	7.12-4	9				
56 58	SBIU						
53 59							
GY		1					
59		7-3-2					
56		-					
		3 2/2	11 :12	, 1	- 11		TALO OF DATE ALL SIL
Drum 55	SB14 SBIL	7 21 21	16:15	was	eci	er.	TCLP RERA Wefols, SU
Drum 40	JE JEI	+-6-4	20:00			/	
halt samples	54 625						
by rely sant so	Wast						
go go							
continued:					-		
51 confirmed	G SB03 HW03-75 Install	7/21/21	1				
57 total down	an l	1	-			-	
53 \$125 water	< place	<b>*</b>					
60	Restdual sedit from auger/drilling d	ocon inside ta	rp bas	10. F	owner	quart	drum.
COL	Selet remaining after fitherion, very himself	y. 222 gallons.	'Spau	tor	sper	O GA	C. /
587 ducate	MODE MWON-045 ROBAIL @ Wood Peu Pel	7/24/21					
59 Edupais	(x3 druns filled)						-
60)	*	4					
Tabl 1							
GI lated							
- i not filled	(#36)						
+ duplicate	#32 0						
+ 3 duplicate							
63 druons 200	The rest were used for noter + decorned	(x21) or disp	rosed	DS (X	1, be	14)	
	ening measurement only ES = Environmental sample FD = Field dupl				,	-	

#### MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. Project Name Project Number 102581-009	Logge	ed By John Discover (Side, Isaac)
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	Diameter: 2" Slot Size: 0.01	SS Other
II. MID SECTION (CASING)  Number of Blank Sections  Length of Section(s):	V. BACKFILL	Depth Below GS  Bottom Top
10.00	+ CE *SLUF_PB/F BC *SLUF_PB/F BG	M_PB ~2.0 Surface (normal normal norm
Sum of Lengths:	*SLUF_PB/F *SLUF_PIL No.  SLUF_PB/F SLUF_PB/F	Fil_Ps ~25 ~21 Fil_Ps ~30 ~25 Pipe 44.5034 ~30 ~34 ~30 Fil_Ps ~34 ~34
Joint Length: O. OCe Prepark (5 th screen	VI. MONUMENTS	initally
Screened 4.85 Length: Total Pipe Length:	5 24 TOM to ATOC	to GS
Joint Length:  End Cap Length:  BOW to 0.30	VII. MOISTURE CONT Depth to Water Below	711 7 4711 777
Pointed   Flat   TOC to BOW:	Seas Perma	Sonal 1 Sonal 2 PT A TI
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)	ATIONS BELOW GROUND SURI	
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)	TOC to BOS 31.76  TOC to BOS 31.76  TOC to BOS 49.85	TOC to GS BOW bgs  TOC to TOS -TOC to GS TOS bgs  -TOC to GS -TOS bgs
<ul> <li>Circle filter-pack type</li> <li>Flushmount = Negative Number</li> <li>Stickup = Positive Number</li> </ul>	= TOC to TOS 26.3	TOC to BOS 31,76 - TOC to GS - 0.30 BOS bgs 32.06

4/9/2020

DIR

SHANNON & WILSON, INC.

Well No.

DLG-MW01-30

		AACTT DEAT	ELOPMENT LO	G	10 1 2 1 1 2 1 2 1 1 2 1 1 1 1 1 1 1 1 1	
Owner-Client	DOT&PF-DU	3 Airport	Well No.	DL6-1	MW01-31	)
Location	Kanakanalet	Word Rhu	Project No	1029	581-009	
Weather	Claude Si	0-60	Date	7-2	6-21	
Development P	ersonnel	15				
Development	ersormer					
Diameter and T	vpe of Casing:		7	" PVC		
	Well <b>Before</b> Develop	ment (feet belo	w top of casing):	3	2-10	
	Before Developmen			2	7.60	
	n Top and Bottom (fr			Top: 26-	91 Bottom:	31.76
Beptil to delice.	The same and the same of the s		ment Details			
Feet of water in	well 4	50	Time pumpi	ng started	8:26	
		17	Flow rate (g	TOTAL SECTION AND ADDRESS OF THE PARTY OF TH	i/gov	u
Gallons per foo	<u> </u>	1		eaşurement i	1	
Gallons in well	San La de a	- tulein	5-94	/ /	ket	
Surge method	1) Lance	18/	Time pump		10:0	1
Pump used	Watera	nemila	Gallons Pur		55	24
Tubing used (ft	)		Disposal:	Contain	en sel for	JEAN B
			Бізрозаі.	CONCIONA	91200 600	0000
	1	Obs	ervations		_	
Time	Water Clarity (V	/icual)	Time	Wa	iter Clarity (Visu	al)
0 0 .	VValer Clarity (V	1-1	711.110			ai,
1 8 30	10.00		1			aij
8:30	very lugi	200				aij
8:40	Pump 5 to	P	1			aiy
8:40 8:59	Pump 5 to	Put				aly
8:30 8:40 8:59 9:05	12 1	Part urbid				ai)
8:40 8:59 9:05 9:12	12 1	prt				aly
8:30 8:40 8:59 9:05 9:12	12 1	Part urbid				ai)
8:30 8:40 8:59 9:05 9:12 9:24 9:34	12 1	Aid whid.				ai)
8:30 8:40 8:59 9:05 9:12 9:24 9:34	12 1	And which				ai)
8:30 8:40 8:59 9:05 9:12 9:24 9:34 9:44 6:50	12 1	And which.				ai)
8:30 8:40 8:59 9:05 9:12 9:24 9:34 9:34	12 1	April . Tybid				aly
8:30 8:40 8:59 9:05 9:12 9:24 9:34 9:34 9:54 10:01	12 1	whide turbed				
8:30 8:40 8:59 9:05 9:12 9:24 9:34 9:34 10:01 NOTES:	12 1	Waterra	8:04-8:			ick vali
8:40 8:59 9:05 9:12 9:24 9:34 9:44 9:54 10:01	12 1	Waterra	8:04-8: DBMg.			
8:40 8:59 9:05 9:12 9:24 9:34 9:44 9:44 9:54 10:01	12 1	Waterra during su		24. Ro		
8:40 8:59 9:05 9:12 9:24 9:34 9:44 9:54 10:01 NOTES:	Mod. Tu Mod. Tu SlMod T SlMod T SlMod Sl. Turbi Very Sl. Surged with at Flowing	Waterra during su	sang.	24. Ro		

SHANNON & WILSON, INC

Well No. <u>DLG-MW01-30</u>

Owner/Client_	DOT 8	PF					Project No.	10a581-009
Location	DIG						Date_	7/20/21
Sampling Personnel	VYY				2000			DLG-HWOJ-30
Weather Conditions	overes	2st	Air	Temp. (°F)	30°F	Ti	Time started _ me completed _	1140
Sample No		1001-	30	Time				
Duplicate _ Equipment Blank _	010	-10001-	20 - 0	Time Time		2		
Pump _		peri						24010
Purging Method _	portable	/ dedicate	d pump	Annovin			ype of Casing _ Below MP (ft.) _	30
Pumping Start							Below MP (ft.) _	33.07
Purge Rate (gal./min.) _ Pumping End				Measu		- Charles and a second a second and a second a second and	Below MP (ft.)	27.56
r unping Life_	9						Below MP (ft.)	
Pump Set Depth Below	w MP (ft.)	30					Water in Well	4.51
KuriTec T	ubing (ft.)	_					allons per foot_	0.11
TruPoly T	ubing (ft.)	40					Gallons in Well	0-7667
510	deone	1.f.t.		4			Volume (gal.) _	1 Hors
	2000	1		Purge vvat	er Disposal	GAC		development
Monument Condition _	9000							acceptance
Casing Condition	90000							
	9000							
The state of the s								
Wiring Condition _	_/							
(dedicated pumps) _	/							
Measuring Point (MP)	Top of Ca	sing (TOC)			nent type:	Stickup	/ Flushmount	
			V	/leasuremen	t method:	Rod & level	/ Tape measur	e
T of series to many	mont (ft )	0.2	30		Dat	alogger type	n/a	
Top-of-casing to monu Monument to ground su			lugh	-		gger serial #		
Monument to ground so	mace (it.)	+(	age	– Me		le length (ft.)		
<ul> <li>Lock presen</li> </ul>	t and oper	ational		1111				
Well name le			ell					
Evidence of	40.20 miles 100 miles 100 miles		11				_	
Anne men Ar	1		40.50	A 600 2	14:			
Notes well de	reloped	prior to	purgen	d 2 samb	ing			
-								
			MELL	A CINIC VICE	LIMEC			
Diameter of Mell IID look1		CMT	WELL C	ASING VOL	UMES 3	4	6	8
Diameter of Well [ID-inches] Gallons per lineal foot		0.000253	0.08	0.17	0.38	0.66	1.5	2.6

492

Well No.

DLG-HW01-30

Field Parameter Instrument_	451 C	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations		( asser devely)
Notes_		

FIELD PARAMETERS [stabilization criteria]

		T IL	LD PARAMETERS (St	abilization ci	пепај	
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	seglitly turbid
1100	5.6	6.18	113,2	6.90	230.4	, 0
1106	5.5	5.75	126.4	6.64	232.3	
1109	5.5	5.65	127.9	6.61	235.3	V
11/2	sample	2		M. Y.Y.		
	1					
					/	
						A

	0	- 00	
Laboratory	SGS	Emsterne	rest Au

	Analysis	Sample Containers	Preservatives	Dup
X	PFASX18	2× 250 me		旦
				므
				므
므				旦
				므
				므

## Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-HW01-45	Date Installed	1/24/21
Project Name NLG PFAS	Logged By	
Project Number 102581-009	Drille	
Project Number		
L TOP SECTION (CASING)	IV. WELL DATA	
I. TOP SECTION (CASING) Initial Pipe Length	Pipe Type: PVC 🖾	SS Other
Cuttoff Length 1.82	Diameter: 2"	4" Other
Add-on Length	Slot Size: 0.01	
Total Length	8.18 Joint Pin End: Up	
II. MID SECTION (CASING)	V. BACKFILL	Depth Below GS
Number of Blank Sections		
Length of Section(s): 10 £1	CEM (No Pipe	
	+ CEM_PI	B 1 D.5 Monu
16.00	*SLUF_PR/FIL P	B) ) A grave
10.00	BCH_P	D Kente
10.00	*SLUF PRATIC P	B) 24 4 G(BU
	RGR P	
Sum of Lengths:	30.00 *SLUF_PB/FIL_P	
	*SLUF_PS/FIL_P	9 44 _ 39 -
	*SLUF/FIL (No Pipe	e)
III. SCREENED SECTION(S)	*SLUF_PB/FIL_P	В
n41.	Filter Pack Type of	or -12-
Joint Length: 0-40	Gradatio	sand 10/20
	+	
	VI. MONUMENTS	
	Stuckup  Flushmo	ount 🔼
476	TOM to G	
Screened 4.46 Total Pine	TOM to TO	C -0.23
Totallipe	5.78 ^TOC to G	S -0.23
Length: -	Lock typ	419 90
	VII. MOISTURE CONTEN	28/4
Joint Length: 0.07 BOS: 0.50	= Depth to Water Below G	s_~284
	0	0.101.00
End Cap Length:		Frozen Soil Below GS
Pointed Flat	112 00	Bottom
TOC to BOW:	43.96 Seasonal	1
	Seasonal	2
	Permafrost	11
	Permafrost	12
BCH = Bentonite Chips (gINT code)		
BGR = Bentonite Grout (gINT code)		
bgs = Below Ground Surface VIII. CALCUL	ATIONS BELOW GROUND SURFACE	CE
BOS = Bottom of Screen BOW = Bottom of Well		
CEM = Cement (gINT code)		TOC to BOW 43.96
FIL = Sand Pack (gINT code)		- TOC to GS 0.23_
GS = Ground Surface SLUF = Natural Collapse/ Pea Gravel (gINT code)	TOC to BOW 4396	BOW bgs 44.19
SS = Stainless Steel	BOW to BOS 0.56	N 5.7725 (6726765 F)
TOC = Top of Casing	= TOC to BOS 43.40	TOC to TOS 3864
TOM = Top of Monument		- TOC to GS - 0 - 2 3
TOS = Top of Screen PB = Blank Pipe (gINT code)	TOC to BOS 43.40	TOS bgs 38,81
PS = Slotted Pipe (gINT code)	- Screened Length 4.76	V 9
* Circle filter-pack type	= TOC to TOS 35.4.4	TOC to BOS 43.40
^ Flushmount = Negative Number	- 100 to 103 - DA	- TOC to GS - 0.23
Stickup = Positive Number		BOS bgs
		13.40m
		43.63

# \* This well obstructed by bertonte, re-drilled and deconssioned. \*

Monitoring Well No. MWO1-45	Date Installed 7/1/21
Project Name Dillymber SHC Cearly	Logged By MDN
Project Number (82581-007	Driller Discovery (See Teac)
TOP SECTION (CASING)	IV. WELL DATA
Initial Pipe Length 9.84	Pipe Type: PVC SS Other
Cuttoff Length 3.20	Diameter: 2 4" Other
Add-on Length	Slot Size: 0.01 🗘 0.02 🔲 Other
Total Length	Joint Pin End: Up ☐ Down ☐ Type
	V. BACKFILL (see photo) - threads down.
MID SECTION (CASING)	11 21 21 21 21 21 21 21 21 21 21 21 21 2
Number of Blank Sections	Depth Below GS
Length of Section(s):	Bottom Top
1000	+ CEM (No Pipe) Susface (numer
10.00	*SLUF_PB/FIL_PB
10.00	BCH_PB) ~26 ~1.0
10.00	SILIE PRIETER ~ 33 ~2 G Octoral
1102	BGR PB 2600 - college
Sum of Lengths: 4030	*SLUF_PB/FIL PB ~39 ~37
	*SLUF_PSFIL_PS ~44 ~39
CORENER OF CTION(C)	*SLUF_PB/FIL_PB ~ (3rd h
SCREENED SECTION(S)	Filter Pack Type or
Joint Length:	
Some Length.	+ Bentonte pellets/chips   ent
	+ VI. MONUMENTS Stickup   Flushmount   Flush
11.00	Stickup Flushmount TOM to GS
4.79	TOM to GS
Screened 5 Can Length: Total Pipe 5	TOM to TOC CONTROL CON
Length: 5	710C to GS
prepark -	Lock type
2 10120 55/10	AND MODELLINE CONTENT
OLEN)	VII. MOISTURE CONTENT
Joint Length: 0.21 BOW to 0.39	= Depth to Water Below GS
End Cap Length:	Frozen Soil Below GS
	Potters Ton
Pointed   Flat	Seasonal 1
Very sustriction to bow.	Seasonal 2
lainded!	Permafrost 1
	Permafrost 2
BCH = Bentonite Chips (gINT code)	
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface	
BOS = Bottom of Screen	ONS BELOW GROUND SURFACE
BOW = Bottom of Well	TOC to BOW
CEM = Cement (gINT code) FIL = Sand Pack (gINT code)	T00 to 00
GS = Ground Surface	TOC to BOW 51.88
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel	ROW to BOS
TOC = Top of Casing	= TQC to BOS 51.49 TOC to TOS
TOS = Top of Screen	- TOC to GS
PB = Blank Pipe (gINT code)	TOC to BOS 51.49 TOS bgs
PS = Slotted Pipe (gINT code)  * Circle filter-pack type	- Screened Length 4.79
	= TOC to TOS TOC to BOS
^ Flushmount = Negative Number Stickup = Positive Number	- TOC 6 GS
	BQŚ bgs
19/2020 (3745) - 720 SHANNO	and the
/9/2020 SHANNO	ON & WILSON, INC. Well No.
	DLG-MWOI-4

			WELL	DEVELOR	MENTLO			The second	
	Owner-Client DOT 8	EPF-DL	- Airpar	-	Well No.	D16-	MWO1.	-45	
	Location Kana	1 1		iver Rd.	Project No	1025	81-009		
	Weather	aud C	1-60		Date	7-	16-21		
		ovay =	AL E		Date				
	Development Personn	ei	44						
	Diameter and Type of	Casing:			29 PVC				
	Total Depth of Well Be		- coment (fee	t below top			44.26		
	Depth to Water Before					-	72.39		
	Depth to Screen Top a					Top: 38	Bottom:	43.40	
	Deptil to ocicell Top a	ina Bottom		velopmen					
	Estation to the mall	1	6.87	velopilien	Time pumpi	na started	10:41	D	
	Feet of water in well		17						
	Gallons per foot	2	DILT		Flow rate (g		19P	m	
	Gallons in well	1/6	71		Flow-rate m	easurement			
	Surge method Surg	f block	on tob	28	)-4	-	retet		
	Pump used	terra	Great	ral	Time pumpi		11,5	-	
	Tubing used (ft)	55			Gallons Pur	nped	290	al.	0
					Disposal:	Conta	herited	for OH	11 1
9	WAR TO A STATE OF THE STATE OF			7			27 41	± V.	Grat
	Depth to Water After I						(11) 22		
	Total Depth of Well Af	fter Develop	ment (feet	below top o	f casing):		99,00		
				Observe	tions				
				Observa	LIOTIS	_			
	Time Wa	ater Clarity	(Visual)		Time	Wa	ter Clarity (Visi	ual)	
Bow		T.	1-1		11:62	17, 51	inlette	Toland	
	10,43 00	7	CDITI-1		(1,00	0,00	gorag	11000	
~	10.56 100	12-Vi	urbia				V	_	
105	11:05	/	/						
Near PWL	11:06 Ve	vy TU	rbid.						
	11 . 10		urbid	1 2 2					
	11.17 51	mel. Ho	TAN	torlard		1			
Dar	11:00 16	Turky.	LOIDYX	Torbord	-				
Bow	11:29 V	DUPLOO	1.1			-			
nmid &	men (186 In	od, le	Moid		-				
264 1705	11:42 30	-Modi	world						
10-	11:44 SC	Turb	170						
	C	1	1	INITE	-14.7	C /1	1.	10.	
	NOTES:	rgal -	trom	10.45	1-10:3	2,10	water	flow	
	ave to fre	sharih	gs in (	check	Valve	2			
			WE	LLCASING	G VOLUMES				
	Diameter of Well [ID-inches	s]	11/4	1 2	3	4	6	8	
	Gallons per lineal foot		0.08	0.17	0.38	0.66	1.5	2.6	

Well No. DLG-MW01-45

0 10 10	The DC					Project No.	102581-0
Owner/Client 1	C				-	Date	7/26/21
DE LA CONTRACTOR DE LA	6				-		DLG-HWO1-
Sampling Personnel	2000 = 1	Λ:	Toma (%E)	40	-	Time started	1155
Weather Conditions	21005 +	All	Temp. (°F)	50	Tir		1725
Sample No. Duplicate Equipment Blank  Pump Purging Method Pumping Start Purge Rate (gal./min.) Pumping End  Pump Set Depth Below MF KuriTec Tubing TruPoly Tubing Signature Monument Condition Casing Condition	periable / dedicated of the periable / dedicated of the periable / dedicated of the periable o	01-8	Time Time Time	Di ate Total D red Total D De Depth to I	ameter and T Depth of Well I Depth of Well I Depth to Water I Ce (if frozen) I Feet of Garage Water	ype of Casing Below MP (ft.) Below MP (ft.) Below MP (ft.) Water in Well allons per foot ballons in Well Volume (gal.)	24 PUC 45 44.22 27.41 16.81 0.17 2.3 1.2+ ~9033 fon develo
Wiring Condition (dedicated pumps)							
Measuring Point (MP) Top	of Casing (TOC)	N	Monun /leasuremen	nent type: t method:	Stickup Rod & level	/ Flushmount / Tape measu	re
Library Charles and Control	0.25	2					
Top-of-casing to monumen			-		talogger type	n/a	
Monument to ground surface	e (ft.) They	34	17.1		ogger serial #		
Evidence of frost	e on outside of we -jacking _	day.			ole length (ft.)	n/a	
Notes well purges	land Simple	1 ngh	t after a	lovelop	ment		
		Maria I					
			ASING VOL	UMES	X		
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	10.17	0.38	0.66	1.5	2.6

HON

DLG-HWO1-45

Field Parameter Instrument	451C	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations Notes		

#### FIELD PARAMETERS [stabilization criteria]

		LIE	LD PARAMETERS (St	abilization C	ntenaj	
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	203.3	6.38	249.7	clock, brown hive
1209	5.5	2.33	305.2 303.5	6.43	245.4	closer
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	2				
						020
					3	
- 2						
					152	
		<i></i>				totaling.

Laboratory SGS Eurofus TestAn

	Analysis	Sample Containers	Preservatives	Dup
X	PFASX 18	2×250 me		旦
旦	7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			
旦				므
				ㅁ
口				므

#### MONITORING WELL CONSTRUCTION DETAILS

	340 Date Installed 7/5/21
Project Name Dilunction PEAS	Logged By Mon
Project Number 107591-009	Driller Discovery (Saltsane)
TOP SECTION (CASING)	IV. WELL DATA
Initial Pipe Length	Pipe Type: PVC SS Other
Cuttoff Length 3.50	Diameter: 2" 4" Other
Add-on Length	Slot Size: 0.01 0.02 Other
Total Length	6.50 Joint Pin End: Up Down Type
	Hurlands
. MID SECTION (CASING)	V. BACKFILL
Number of Blank Sections 23	Depth Below GS
Length of Section(s):	Bottom Top
0	CEM (No Pipe)Suckce
(0,00	+ CEM_PB ~2 /
10.00	*SLUF_PB/FIL_PB
10.00	BGR BET PB ~20 ~2
	SLUF PB/FIL PB ~21 ~20
Sum of Lengths:	SLUF PB/FIL PB ~ 33.5
Julii of Lengths.	*SLUF_PS/FIL_P9 ~38.5 ~33.5
	*SLUF/FIL (No Pipe)
II. SCREENED SECTION(S)	*SLUF_PB/FIL_PB)~39 ~38.5
7 TO TO TO THE POST OF THE POS	Filter Pack Type or
Joint Length: 0.05	Gradation 10 20 Sand and prepark
	t / 10 / 10 / 10 / 10 / 10 / 10 / 10 / 1
	VI. MONUMENTS
	Stickup  Flushmount  X
Screened 11 79	TOM to GS Mush
Screened 4.79   Total Pipe	TOM to TOC
Length:	3.54
	Lock type A
	WE MOISTURE CONTENT
	VII. MOISTURE CONTENT  = Depth to Water Below GS ~254
Joint Length: 0.17 BOW to BOS: 0.5	= Depth to Water Below GS
A 2/	Frozen Soil Below GS
End Cap Length:	
Pointed Flat TOC to BOW:	91.87 Seasonal 1
TOC to BOW:	ocasona.
	Seasonal 2
	Permafrost 1
	Permafrost 2
DOLL - Destanita China (-INT anda)	
BCH = Bentonite Chips (gINT code)	·
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen  VIII. CALCU	JLATIONS BELOW GROUND SURFACE
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen BOW = Bottom of Well	and Allahara and Article And Anti-Charles in Com-
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen BOW = Bottom of Well CEM = Cement (gINT code)	TOC to BOW 41.87
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	TOC to BOW 41.87 - TOC to GS - 0.30
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)	TOC to BOW 41.87 - TOC to BOW 90 42.17
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 to BOW 41.87 - TOC to BOW 53 - BOW to BOS 0.53  TOC to BOW 41.87 - TOC to BOW 42.17
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	TOC to BOW 41.87 - BOW to BOS 0.53 = TOC to BOS 41.34  TOC to BOW 41.87 - TOC to BOW 42.17  TOC to BOW 41.87 - TOC to BOW 42.17  TOC to BOW 53  TOC to TOS 36.55
BGR = Bentonite Grout (gINT code) bgs = Beltow 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	TOC to BOW 41.87 - BOW to BOS 0.53 = TOC to BOS 41.34  TOC to BOW 41.87 - TOC to GS
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)	TOC to BOW 41.87 -BOW to BOS 0.53 = TOC to BOS 41.34  TOC to BOS 41.34  TOC to BOW 41.87 -TOC to GS BOW bgs 42.17  TOC to TOS 36.55 -TOC to GS TOS bgs 36.35
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	TOC to BOW 41.87 -BOW to BOS 0.53 = TOC to BOS 41.34 TOC to BOS 41.34 TOC to BOS 55 TO
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	TOC to BOW 41.87 -BOW to BOS 0.53 = TOC to BOS 41.34 -Screened Length 4.79 = TOC to TOS 36.35  TOC to BOS 41.34  TOC to BOW 41.87 -TOC to GS 50.30 -TOC to GS 70.30 -TOC to GS 70.30 -TOC to BOS 41.34  TOC to BOS 41.34  TOC to BOW 41.87 -TOC to GS 70.30 -TOC to GS 70.30 -TOC to BOS 41.34  TOC to BOS 41.34 -TOC to BOS 41.34
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	TOC to BOW 41.87 -BOW to BOS 0.53 = TOC to BOS 41.34 TOC to BOS 41.34 TOC to BOS 55 TO

OK

Well No.
DLG-MW02-3840

WEL	I DE	VEL	OPI	WEN'	T LOG

	WELL	DEVELOP	MENT LO	G		
Owner-Client	DOT & PF		Well No.	DLG-	4-20wh	0
ocation	DLG		Project No		31-009	
Veather	overca st		Date	711012	21	
Development						
Diameter and	Type of Casing:	2" PV	C		The section	
Γotal Depth o	f Well Before Development (feet	t below top o	of casing):	37.09	+1.23 =	38.32
Depth to Wat	er <b>Before</b> Development (feet bel	ow top of ca	sing):	24,72		
Depth to Scre	en Top and Bottom (from Const	ruction Log):		Top: 36	SS Bottom:	28
	Dev	elopment	<u>Details</u>	3 -		41-34
eet of water	in well 13.6		Time pumpii	ng started	1740	
Sallons per fo	0.17		Flow rate (ga	al/min)	NO.5	
Gallons in we	0 0		Flow-rate m	easurement	method:	
Surge method	surge block		16	of cup		
Pump used	waterra		Time pumpi	ng ended	1940	
Tubing used			Gallons Pun	nped	60	
4 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			Disposal:	GAC		
	100 A 21 Y 3 X	Dept	1			
Time	Water Clarity (Visual)	- 1-1	Time	Wa	ter Clarity (Visu	ual)
1741	chocolate brown high	34 34	1918			above
1758	Chocalate broken turbel	35	1924	more to	ubid Han	above
1817	-11 - less tubid &	ion above	(35)1332	1055.	terbid to	een abo
1833	-11- same as above	36	1935	more &	word than	above
1843	1 2 1 1 10	u above	136) 1840	end		
1849	-11- Pass furbord the			1		
18 55	elgolitles testerd	TUOVE				
1002	0 0 -1-10					
1907	salue as allove					
	more lested than at	-mia				
1913	more say and the al	ove		-		
NOTES:						
instri _						
	WF	LL CASING	VOLUMES			
Diameter of Wel		(2)	3	4	6	8
Callons per lines	l foot	0.17/	0.38	0.66	1.5	26

Well No. <u>DLG-HWQ2-40</u>

Owner/Client DOTS	OF					Project No.	102581-009
Location DLG	11.					Date	
						10 t 2 t 2 t 2 t 2 t 2 t 2 t 2 t 2 t 2 t	DLG-4W02-30
Sampling Personnel VT7	· ofa.du	Λir	Temp. (°F)	700F		Time started	
Weather Conditions partice	coorg	All	remp. ( P)	70.	Ti	me completed	
Sample No. DLG-1	1W02-	384	Time_	1610			
Duplicate DIG -	HOMOS.	-200					
Equipment Blank			_ Time_				
Pump peri							OII CARS
Purging Method portable	/ dedicated	pump				Type of Casing	2" PVC
Pumping Start 1525			Approxima	ate Total D	epth of Well	Below MP (ft.)	38
Purge Rate (gal./min.) 0.05			Measur			Below MP (ft.)	37.03+1.37
Pumping End 1615.						Below MP (ft.)	24.84 38 41
	4			Depth to Id		Below MP (ft.)	- 50.46
Pump Set Depth Below MP (ft.)	36_					Water in Well	13.62
KuriTec Tubing (ft.)						allons per foot	
TruPoly Tubing (ft.)	40	-				Gallons in Well	
silicone	1 +4.					r Volume (gal.)	for development
			Purge Wate	r Disposal	GAC		four development
Monument Condition oped			SERVICE SERVICE	3 17 19 19			
0							
Casing Condition GOOD							
0							
Wiring Condition							
(dedicated pumps)							
Provide a firm to the							
Measuring Point (MP) Top of Ca	sina (TOC)		Monum	ent type:	Stickup	/ Flushmount	
Weddening Fount (iii.)	cg (1 - c)	N	/leasurement	Principle of the second second		I / Tape measu	ire
Top-of-casing to monument (ft.)	0.30			Da	talogger type	e n/a	
Monument to ground surface (ft.)			-		gger serial #		
Mortument to ground surface (it.)	7000	1	- Me		le length (ft.		
Lock present and open	rational		,,,,	acai ca caa			
		ii.					
		"					
Evidence of frost-jacki	- Ing					7	
Notes							
							-
		WELL C	ASING VOLU	JMES		V = _ ==	
Diameter of Well [ID-inches]	CMT	11/4	//2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

HOY

Well No. 40 016-4W02-39

Field Parameter Instrument	Y51	C	Circle one. Paramete	ers stabilized or	3 well volume	es 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)
1529	5.7	1015	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	clar
1541	5.00	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	cloar
1550	6.0	0.26	229.0	6.86	11.2	clear
1553	6.1	0.25	227.5	6.92	5.8	clar
1556	6.0	0.25	226.8	4.01	-1.4	clear
1559	601	0.24	222.5	7.09	-14.2	clear
160%	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	sampl	2				

Laboratory Ses Eusting Tost Am

	Analysis	Sample Containers	Preservatives	Dup
D	PFASXIB	2 x 250 me		×
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NOW

Well No.

## Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW02-50 Project Name DLF PFHS Site Character 102581-009	Date Installed 7-21-21  Logged By ALF  Driller Discovery
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	Pipe Type: PVC SS Other Diameter: 2" 4" Other Slot Size: 0.01 0000 Other Joint Pin End: Up Down Type
Number of Blank Sections Length of Section(s):	V. BACKFILL  Depth Below GS  Bottom Top  CEM (No Pipe)
10*4	+ CEM_PB 1.5 0.9  PG *SLUF_PB/FIL_PB 3.0 7.5  BGR_BGH_PB 40.0 4.0  *SLUF_PB/FIL_PB  *SLUF_PB/FIL_PB 43.0 41.0
Sum of Lengths:  III. SCREENED SECTION(S)  Joint Length:	*SLUF_PS/FIL_PS 48.1 43.0 SUF_SLUF/FIL (No Pipe) 49 48.6 SUF_PB/FIL_PB Filter Pack Type or Gradation Gradation
Screened 4,68 Length: Total Pip	VI. MONUMENTS  Stuckup Flushmount TOM to GS  TOM to TOC  ATOC to GS  TOM 50 TOC
Joint Length: 0,73	VII. MOISTURE CONTENT Depth to Water Below GS  Frozen Soil Below GS
End Cap Length:  Pointed Flat  TOC to BOW:	LIS 17 Bottom Top
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)	TOC to BOW 48.17
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	TOC to BOW 48.17 BOW bgs BOW bgs 48.56  TOC to BOS 47.68 TOC to TOS 43.00  TOC to GS -0.39  TOC to TOS -0.39
PB = Blank Pipe (gINT code) PS = Slotted Pipe (gINT code) Circle filter-pack type Flushmount = Negative Number Stickup = Positive Number	TOC to BOS

Well No.
DLG-MWO2-50

WEI	I DI	EVEL	OPI	/IENI	LOG

Weather Sunny	7001	Date	7/24/	21	
Development Personnel	VTY				
Diameter and Type of Casing:		grpvc			
Total Depth of Well Before De	evelopment (feet belov	w top of casing):	46.56+	1.37 =	47
Depth to Water Before Development			20.72		7
Depth to Screen Top and Bott		The second secon	Top: 43,	O Bottom:	47
	A 4 - 1	ment Details			
Feet of water in well	2+.21	Time pumpii		1430	
Gallons per foot	Oolt	Flow rate (ga		0.5	_
Gallons in well 4.6	0 1		easurement m	ethod:	
Surge method Surge		16	07 CU	1705	-
Pump used <u>waterra</u>	7	Time pumpii Gallons Pun	-	7703	
Tubing used (ft)		Disposal:	GAC _		
		- 0.07 (0.4-1)			drawd
Total Depth of Well After Dev		ervations	77		
Total Depth of Well After Dev			7.4	1/4000	
			Wate	er Clarity (Vis	ual)
	Observity (Visual)	ervations	Wate	er Clarity (Vis	ual)
Time Water Cla	Observity (Visual)	ervations Time		r Clarity (Vis	ual)
Time Water Cla  1445 diocolate  1500 sleptly	Obsority (Visual)	Time 46 1655	500	er Clarity (Vis	ual)
Time Water Cla  1445 diocolate  1500 slightly  1515 loss flat	Obsinity (Visual)  Brown, v. trubi	Time 46 1655	500	r Clarity (Vis	ual)
Time Water Cla  1445 diocolate  1500 sloghtly  1515 loss fla	Observity (Visual)  Brown, v. trub  Cogs textbook	Time 46 1655	500	er Clarity (Vis	ual)
Time Water Cla  1445 diocolate  1500 slightly  1515 loss flu  1530 loss flu	Observity (Visual)  Brown, v. trub  Cogs textbook	Time 46 1655	500	er Clarity (Vis	ual)
Time Water Cla  1445 diocolate  1500 slightly  1515 loss fur  1530 loss fur  1545 saa	Observity (Visual)  Brown, v. turb  Cogs turbiod  bid	Time 46 1655	500	r Clarity (Vis	ual)
Time Water Cla  1445 discolate  1500 streptly  1515 loss flu  1530 less fu  1545 saa  1600 saa  1615 less fur	Observity (Visual)  Brown, v. turb  Cogs turbiod  bid	Time 46 1655	500	er Clarity (Vis	ual)
Time Water Cla  1445 discolate  1500 streptly  1515 loss flu  1530 less fu  1545 saa  1600 saa  1615 less fur	Observity (Visual)  Brown, v. trub  Cogs textord  bid	Time 46 1655	500	r Clarity (Vis	ual)
Time Water Cla  1445 diocolate  1500 slightly  1515 loss fur  1530 loss fur  1545 saa  1600 saa  1615 loss fur  1625 loss fur	Observity (Visual)  Brown, v. trub  Cogs textord  bid	Time 46 1655	500	r Clarity (Vis	ual)
Time Water Cla  1445 chocolate  1500 slightly  1515 loss fur  1530 loss fur  1545 saa  1600 saa  1615 loss fur  1635 loss fur  1635 saa	Observity (Visual)  Brown, v. trub  Coss textbook  bid  bid  bid	Time 46 1655	500	er Clarity (Vis	ual)

Well No. DLG-HWO2-50

Owner/Client	0078	PP					Project No.	102581-00
Location	016						Date	
Sampling Personnel	1174					-	Well	
Weather Conditions	sunny		Air	Temp. (°F)	70	•	Time started	
Weather Conditions	0		7 111	10,1,10,1 (17)		Tim	ne completed	
Sample No.	DLG-1	woz-	50	Time	1820			
Duplicate	_	_		Time	_			
Equipment Blank		_		Time	_			
b.co.	-05:				2			
Pump Purging Method	peri	/ dedicated	pump		Di	ameter and Ty	ne of Casing	24PK
Pumping Start	1725	dedicated	pump	Approxim	ate Total D	epth of Well E	Below MP (ft.)	48
Purge Rate (gal./min.)				Measu	red Total D	epth of Well E	Below MP (ft.)	47.93
Pumping End						pth to Water E		
r diliping End	1020					ce (if frozen) E		
Pump Set Depth Bel	ow MP (ft.)	46			200		Water in Well	23,40
	Tubing (ft.)						allons per foot	
	Tubing (ft.)					G	allons in Well	4
	silicone					Purge Water	Volume (gal.)	4 tuto galle
	310,00,10	- /		Purge Wate		GAC		from develo
Monument Condition	appd			200				
AND MANAGEMENT OF THE	0 ,							
Casing Condition	DOOD							
		2						
Wiring Condition								
(dedicated pumps)								
Measuring Point (MP)	Top of Cas	ing (TOC)			nent type:		/Flushmount	
			N	leasurement	t method:	Rod & level	/ Tape measi	ire
T	nument (ft )	0.60			Da	atalogger type	n/a	
Top-of-casing to mor				-		ogger serial #		
Monument to ground	surrace (it.)_	70031	Λ	- 140		ole length (ft.)		
		Transfer		ivie	asured car	ole length (it.)	11/a	
	ent and opera							
	legible on o		11					
Evidence o	of frost-jackin	·g _						
Notes								
			William Z	inchi aki				
			WELL C	ASING VOL	UMES			
Diameter of Well [ID-inches	1	CMT	11/4	(/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-MW02-50

Field Parameter Instrument
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	4.05	150.8	turbid
433	5.8	0.76	127.2	7.03	135.8	sogget Cer turbid
1736	5.0	0.78	123.9	7.03	125.0	5d9 U
738	6.0	0.77	132.0	7.01	115.1	ass furbid
759	4.7	0.66	129.2	6.35	86.1	Cos furbid
1802	4.7	0.66	129.3	6.95	81.6	500
1805	4.7	0.64	128.4	6.95	78.8	599
1898	4.7	0.63	129.4	6.95	75.1	slightly turbid
1811	4.7	0.62	128.5	6.95	72.2	396; ()
1814	4.6	0.65	128.0	6-55	68.8	50.9
18/4	4.6	0.62	127.7	6.94	66.2	599
1820	sample			707 4 4		
37	V					

Laboratory ses Eurofus Test Am

	Analysis	Sample Containers	Preservatives	Dup
1	PFAS x18	2 x 250 we		<u></u>
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므				旦
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## Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No.  Project Name  Project Number  102581-005	terization Logge	ed By OHE Driller Discovery Dolling
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	IV. WELL DATA  Pipe Type: PVC Diameter: 2" Slot Size: 0.01  4.113.33 Joint Pin End: Up	
II. MID SECTION (CASING)  Number of Blank Sections	V. BACKFILL	Depth Below GS
Length of Section(s):	*SLUF_PB/F	Bottom Top o Pipe) O Pipe O Pi
Sum of Lengths:	*\$LUF_PB(F *\$LUF_P\$(F *\$LUF/FIL (No	FIL_PS 28 23 o Pipe) 28
III. SCREENED SECTION(S)	*SLUF_PB/F	
Screened 7.85 Length: Total Pipe Length:	+ VI. MONUMENTS Stuckup   Flu TOM TOM t	T/31/21 obs annular seal has ushmount & sunk ~50. Add are seal has rough of to TOC -0.50 og/21: add grack to TOC -0.50 to fill void syck type
BOW to 2 5	VII. MOISTURE CON  = Depth to Water Bel	-0.01
Joint Length: 0.14 BOS: 0.5	\$ - abo - a to - a - a - a - a - a - a - a - a - a -	Frozen Soil Below GS
Pointed A Flat	0 - 70/1	Bottom Top
TOC to BOW:  BCH = Bentonite Chips (gINT code)	Seas Perma	sonal 1 sonal 2 afrost 1 afrost 2
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen BOW = Bottom of Well	ATIONS BELOW GROUND SUR	
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	TOC to BOW	TOC to BOW

Well No.

<b>WELL DEVEL</b>	OPMENT LOG
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The second secon	0110.00	
Diameter and Type of Casing:  Total Depth of Well <b>Before</b> Development (feet below Depth to Water <b>Before</b> Development (feet below Depth to Screen Top and Bottom (from Construc	top of casing):	7+1.37 = 27.82 25Bottom: 281
	opment Details	Committee of the Control of the Cont
Gallons per foot  Gallons in well  7 · 21  0 · 17  1. 2	Time pumping started Flow rate (gal/min) Flow-rate measurement me	1408 / 1954 0-5 ethod:
Surge method <u>surge black</u>		exp
Pump used	Time pumping ended Gallons Pumped	2 1920 / 1936
Tubing used (ft) 35	Disposal: GAC	
	ow top of casing): 23.91  oservations	
Time Water Clarity (Visual)  1908 Chocolate brown it	Time Wate	· Clarity (Visual)
Time Water Clarity (Visual)  1908 chocolate brown its 1910 purged dry @ 35.	Time Wate	Clarity (Visual)
Time Water Clarity (Visual)  1908 chorolate brown its  1910 purged dry @ 35.	Time Wate	Clarity (Visual)
Time Water Clarity (Visual)  1908 chocolate brown its 1910 purged dry @ 35.	Time Wate	Clarity (Visual)
Time Water Clarity (Visual)  1908 chorolate brown it  1910 purged dry @ 25.  1934 restarted recharged  1956 purged dry	Time Wate	
Time Water Clarity (Visual)  1908 chorolate brown it  1910 purged dry @ 25.  1954 restarted reclarged  1956 purged dry  1956 purged dry  1956 purged dry  1956 purged dry  19515	Time Wate  About  1 +0 2.65	(Also (W 14:55)
Time Water Clarity (Visual)  1908 chorolate brown it  1910 purged dry @ 25.  1954 restarted reclarged  purged dry  purged dry  1956 purged dry  1956 purged dry  1956 purged dry  1957 purged dry  1958 purged dry	Time Wate	

EFP

Owner/Client DOT	2 PF					Project No.	102581-009
Location DLG						Date	7/25/21
Sampling Personnel VT9				- 11 11 1		Well	DLG-HW03-28
Weather Conditions Dierco	ist	Ai	r Temp. (°F)	50°F	Tii	Time started me completed	
Sample No. DLG-DLG-Equipment Blank	-MW03-2 - MW103-	8		1000	1		
Pump Purging Method Pumping Start Purge Rate (gal./min.) Pumping End Pump Set Depth Below MP (ft KuriTec Tubing (ft TruPoly Tubing (ft Silicons  Monument Condition Casing Condition	) 36 ) 35 1 1 1 4	d pump	Measu	ate Total D red Total D Dep Depth to lo	epth of Well epth of Well oth to Water ce (if frozen) Feet of G	Below MP (ft.) Below MP (ft.) Water in Well allons per foot Gallons in Well Volume (gal.)	08 06.68+1.23=27.5 21.66 6:25 6.17 1.06
Wiring Condition (dedicated pumps)							
Measuring Point (MP)	Sasing (TOC)	ı	Monun Measuremen	nent type: t method:	Stickup Rod & level	/Flushmount /Tape measu	
Top-of-casing to monument (ft	050			Da	talogger type	n/a	
Monument to ground surface (ft		4	-		gger serial #		
Monument to ground surface (it	.)		- Me		le length (ft.)		
Lock present and operation Well name legible on Evidence of frost-jac	outside of we	II		asured cas	ne length (it.)	1174	
Notes							
10.0							
		WELLO	ASING/VOL	IMES			
Diameter of Well [ID-inches]	СМТ	11/4	/ 2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MON

Well No. 30 DLG - MW03-35

Field Parameter Instrument	451 C Circle one: Parameters stabilized or >3 well volumes purged	
Sample Observations		
Notes		
-	Statement in the Control of the Cont	

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	1.20	55.1	6.24	204.1	cloar
0340	3.7	1.10	51.6	5.66	173.5	clar
0943	3.7	0.84	51.2	5.56	165.5	clear
0946	3.7	0,99 6.52	51.3	5,50	152.6	clear
0952	3.9	6.67	50.9	5.50	149.3	clear
0955	3.9	6.71	51.3	5,30	149.8	rear
1000	sample	2			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6-2-01
	1					
- V						
_						
			4 1			

Laboratory	Ses®	Eurofus	TestAmerica
			100

	Analysis	Sample Containers	Preservatives	Dup
X	PFAS	Dx 250ml		2
口				<u></u>
				旦
1				
2				

## Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG - NW03-48	Date Installed 717121
Project Name Dillingham PFAS Sit	Characterization Logged By DHC
Project Number 102581 - 009	Driller Discovery Doilling
TOP SECTION (CASING)	IV. WELL DATA
Initial Pipe Length	Pipe Type: PVC SS Other
Cuttoff Length 4, 0 +2.2	23+0.59+0.52 Diameter: 2" 🛛 4" 🗆 Other
Add-on Length	
	Slot Size: 0.01 🔀 0.02 🔲 Other
Total Length	h 738 2.62 Joint Pin End Up Down Type
MID SECTION (CASING)	V. BACKFILL
Number of Blank Sections	Depth Below GS
Length of Section(s):	Bottom Top
	CEM (No Pipe) 0.5
	+ CEM_PB 1.5 0.5
	*SLUF_PB/FIL_PB
	BCH_PB 4 3
	*SKUF_PBJFIL_PB 3 1.5 pengi
	BGR PB 40 4
Sum of Lengths	
	*SLUF_PS(FIL_PS) 40 48
	*SLUF/FIL (No Pipe)
. SCREENED SECTION(S)	*SLUF_PB/FIL_PB
	Filter Pack Type or
Joint Length: $0.03$	Gradation oreface & 12/22 Sand
Joint Length.	Gradation prepared & 1000
	VI MONUMENTO
	VI. MONUMENTS
	Stuckup  Flushmount
Screened a sec	TOM to GS
Screened 4, 85 Length: Total Pi	TOM to TOC - 5.36
Iotai i i	
Length:	Lock type locking cap
	Lost typo incoming carp
	VIII MOISTURE CONTENT
	VII. MOISTURE CONTENT
Joint Length: 0.14 BOS:	= Depth to Water Below GS N218
	21
End Cap Length: 0.21 -	Frozen Soil Below GS
Pointed Flat	Bottom Top
TOC to BOW	57 #T 4X0+
100 to 5011	10 10 10 10 10 10 10 10 10 10 10 10 10 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 VIII. CALC	CULATIONS BELOW GROUND SURFACE
BOW = Bottom of Well	TO SECURE OF THE SECURE OF THE PROPERTY OF THE
CEM = Cement (gINT code)	TOC to BOW 4734
FIL = Sand Pack (gINT code)	
GS = Ground Surface	
	TOC to BOW bgs
SLUF = Natural Collapse/ Pea Gravel (gINT code)	
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel	17.9
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel TOC = Top of Casing	= TOC to BOS 46.83
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel TOC = Top of Casing TOM = Top of Monument	= TOC to BOS 46-83 TOC to TOS 46.83
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel TOC = Top of Casing TOM = Top of Monument TOS = Top of Screen	= TOC to BOS 46.83  TOC to BOS 46.83  TOC to BOS 46.83  TOC to BOS 46.83
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)	= TOC to BOS 46.83  TOC to BOS 46.83  TOC to TOS 46.83  TOC to GS 70.36  TOS bgs 47.19
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	= TOC to BOS
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	= TOC to BOS
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	= TOC to BOS

#### WELL DEVELOPMENT LOG

Owner-Client	DOTAPF			Well No.	Man	100	MW03-0	15
Location	SE of 16	Page lots		Project No	10259	51-007	* * 1 1 1	
Weather	Overcoist			Date	7/25/2	4		
Development F	Personnel	ALF/HON			,			
Diameter and 1	Type of Casing:		20	PVI				
Total Depth of		A CONTRACTOR OF THE STATE OF	et below top	of casing):	4	6.58		
Depth to Water					7	5391		
Depth to Scree					Top: 40	Bottom	: 46.87	\$
			velopment		4	1.98		
Feet of water in	n well	21.19		Time pumpin	g started	14:30	)	
Gallons per foo	ot _	0.17		Flow rate (ga	al/min) 1/2	to3/4 , pi	m, varias	le
Gallons in well	3.60			Flow-rate me				
Surge method	water Sur	ge block a.	beginning	Measure	e w/ ga	llon jug		
Pump used	Wettera ?		0	Time pumpin	g ended	1754		
Tubing used (fi	(60	,		Gallons Pum	ped	N13090	.1(	
				Disposal:	contan	enge fil	GAC	
Depth to Water Total Depth of	사용하는 사람들이 되었다.				PAY	47.99		064)
	사람들이 얼마나 보다 아니다.			casing):	· N	47.99		oet)
	사람들이 얼마나 보다 아니다.		below top of	casing):		47.99		061)
	Well <b>After</b> Dev		below top of	casing): ions Time	• >	47.99	sual)	064)
Total Depth of	Well <b>After</b> Dev	elopment (feet	below top of	casing): ions Time ~ 1630	Wat	47.99	sual)	oft)
Total Depth of	Well <b>After</b> Dev	rity (Visual)	below top of	casing): ions Time	Wat No imp	ter Clarity (Vis	sual)	064)
Time	Well <b>After</b> Deve	rity (Visual)	below top of	casing): ions Time ~ 1630	No imp	ter Clarity (Vis	no mi	('S
Time  MY30  1442	Water Clar	rity (Visual)	below top of	Time	No imp	ter Clarity (Vistorial Control of the Control of th	no mi	
Time	Water Clar	rity (Visual)	Observat	Time ~1630	No imp	ter Clarity (Vis	ow down	
Time  1442	Water Clar Surge, O Turbid Murbidite Mod. turb	rity (Visual)	below top of	Time ~ 1630	No imposurge upose	ter Clarity (Vistorial Control of	ow down	
Time  //430  1442  1505  1520	Water Clar Surge, O Turbid Murbidite Murbid Turbid	rity (Visual)	Observat	Time ~1630	No imposurate upose upos	ter Clarity (Vistorial Vistorial Vis	r NIO my low down od. tusbid	1
Time	Water Clar Surge, no Furbid Mad. turb turbid turbid, u sl. turbid	rity (Visual)	Observat	Time ~1630 1704 1712 1722 1728	No imposure up	ter Clarity (Vistorial Control of the Control of th	no min	1
Time  //430  1442  1505  1520  1535  1538	Water Clar Surge, no Furbid Mad. turb turbid turbid, u sl. turbid	rity (Visual)  a water real  at the bottow	Observat	Time ~1630 1704 1712 1722 1728	No imposurge was up of the sold in the sol	ter Clarity (Vistorial Control of to top	r NIO my low down od. tusbid	1
Time 1430 1442-5 1505 1520 1526 1535 1538 1540	Water Clar Surge, n Turbid Muibidite Mod. turbid turbid, u Sl. turbid move bad	rity (Visual)  a water central day, wase	Observat	Time ~1630 1704 1712 1722 1728 1734	Man	ter Clarity (Vistorial Control of the SI)	r NIO my low down od. tusbid	1
Time //430 //430 //4249 //505 //520 //526 //535 //538 //542	Water Clar Surge, Co Surge	rity (Visual)  a water ren  about 7 mare  to battor	Observat	Time ~1630   704   1704   1712   1722   1728   1734   1752   1754	Man	ter Clarity (Vistorial Control of the SI)	r NIO my low down od. tusbid	1
Time	Water Clar Surge, no Furbid Mad turb turbid, u sl. turbid more bad mod turb	rity (Visual)  o where ren  about 1  doty, wase  to bottow	Observat	Time ~1630 1704 1704 1712 1712 1728 1734 1752 1754	Man	ter Clarity (Vistorial Vistorial Vistoria Vistorial Vistorial Vistorial Vistorial Vist	r NIO my low down od. tusbid	1
Time	Water Clar Surge, C. Turbid Misbidite Med. turbid turbid, u SI. turbid move bad inod. turb  Cut cas	rity (Visual)  o where ren  about 1  doty, wase  to bottow	Observat	Time ~1630 1704 1704 1712 1712 1728 1734 1752 1754	Man	ter Clarity (Vistorial Vistorial Vistoria Vistorial Vistorial Vistorial Vistorial Vist	r NIO my low down od. tusbid	1

Well No. DLG-MW03-450

Owner/Client	DOTAPE						Project No.	102581-009
Location	SEOF lea	se lots					Date	7/25/21
Sampling Personnel	KLFIMON				1-1		Well	DLG-01003-1
Weather Conditions	SMANY		Air	Temp. (°F)	Coos	Ti	Time started me completed	1750
Sample No Duplicate	DLG-HO			Time Time	1827	- Cat		
Equipment Blank	-	_	( ) ( )	Time	_	-		
	peri pun							2101
	portable / d	dedicated	pump	Ammunis			ype of Casing	2 PVC
Pumping Start	1810						Below MP (ft.)	11-00
Purge Rate (gal./min.) _	1020			ivieasu			Below MP (ft.) Below MP (ft.)	47.99
Pumping End	1830						Below MP (ft.)	25.39
Pump Set Depth Belov	MD (ft )	4 100			Deptil to I		Water in Well	22.60
	ubing (ft.)	Ch					allons per foot	
	ubing (ft.)						Ballons in Well	
Trui diy T	,billig (it.)	SUCT					Volume (gal.)	
Manument Condition	200	0.1		Purge Wate		1 C 1 C 1 C 2 C 1 C 1 C 1 C 1 C 1 C 1 C	nte, filter	
Monument Condition	god, r						***************************************	
Casing Condition	and N	ew						
	god, n							
Wiring Condition _ (dedicated pumps) _	NA							
Measuring Point (MP) _	Top of Casing	(TOC)	N	Monum leasurement	ent type: method:	Stickup Rod & level	/ Flushmound / Tape measu	re
Land Sunday London	0.54/1216	- 20			1 5			
Top-of-casing to monu		0.36		-		talogger type		
Monument to ground su	rface (ft.)	Hush				ogger serial #		
The state of the s	and operation gible on outsi rost-jacking	de of well	100	wed are	asured car	ole length (ft.)	n/a	
Notes well de	veloped f	mar to	pury	ing \$ Sa	npling			
		V	VELL CA	ASING VOLU	JMES			
Diameter of Well [ID-inches]		СМТ	11/4	(2)	3	4	6	8
Gallons per lineal foot	0.0	000253	0.08	(0.17)	0.38	0.66	1.5	2.6

HEN

Well No.

Field Parameter Instrumen	YSI	C	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations		-	
Notes	Small	bubbles	in the

#### 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	610	46.1	SI. tubid
1815	4.6	1.11	100.5	6.07	5011	SI TUBIN
1818	4.6	1.09	100.1	6.06	51.1	cloor
1821	4.5	1.01	99.7	6.12	52.3	clear
1824	4.5	1.01	99.7	6,04	53.1	dear
-					-	
			-			
				-		

Laboratory - 905 Test America

	Analysis	Sample Containers	Preservatives	Dup
M	PFAS X18	X2 HOPE SOUNL	None	9
旦				旦
므				□
므				므
				旦

## Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MW03-75  Project Name DLG PEAS SHE Chara  Project Number 102581-009	Date Installed 7-21-21  Logged By ALF  Driller Discovery
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	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
II. MID SECTION (CASING)  Number of Blank Sections  Length of Section(s):	V. BACKFILL  Depth Below GS  Bottom Top
16,00 × 6	+ CEM (No Pipe) 0.3 CEM_PB 1.5 PG *SLUF_PB/FIL_PB 3 T.5 BGR_BCH_PB 60.6 *SLUF_PB/FIL_PB
Sum of Lengths:	*SLUF_PS/FIL_PS/* 73 *SLUF/FIL (No Pipe) 75
III. SCREENED SECTION(S)	*SLUF_PB/FIL_PB
Joint Length:	Gradation Silica 10/20
	VI. MONUMENTS
	Stuckup Flushmount X
Screened 4/68	TOM to GS Flus L TOM to TOC 0.34
Length: Total Pipe	5,38 ATOC to GS -0,34
Length: —	Lock type
	VII. MOISTURE CONTENT
BOW to	= Depth to Water Below GS ~266
Joint Length: 6.23 BOW to 99	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
End Cap Length: O166	Frozen Soil Below GS  Bottom Top
TOC to BOW: 7	Seasonal 1
	Seasonal 2
	Permafrost 1
BCH = Bentonite Chips (gINT code)	Permafrost 2
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen  VIII. CALCULAT	TIONS BELOW GROUND SURFACE
BOW = Bottom of Well CEM = Cement (gINT code)	TOC to BOW _ 73.21
FIL = Sand Pack (gINT code) GS = Ground Surface	-TOC to GS - 0,34
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel	TOC to BOW BOW bgs 73.55
TOC = Top of Casing TOM = Top of Monument	= TOC to BOS 72.72 TOC to TOS 68.04
TOS = Top of Screen	77 77 - TOC to GS -0.34
PB = Blank Pipe (gINT code) PS = Slotted Pipe (gINT code)	TOC to BOS 72.172 TOS bgs 68,38
* Circle filter-pack type ^ Flushmount = Negative Number	= TOC to TOS (8.04) TOC to BOS 72,72
Stickup = Positive Number	- TOC to GS -0,34
	BOS bgs 73.06

#### WELL DEVELOPMENT LOG

Diameter and Type of Casing: 2" PVC					
Total Depth of Well Before Development (feet below top of casing): 73.02					
Depth to Water <b>Before</b> Development (feet below top of casing): 25, 73					
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 Flow rate (gal/min)					
Gallons in well Flow-rate measurement method:					
Surge method Surge block on tubiles Gallan Jug					
Pump used Waterra Thertial Time pumping ended 13:27	5				
Tubing used (ft) 95 Gallons Pumped ~130 gcl					
Disposal: Continuented for GHE	1 1-				
Depth to Water After Development (feet below top of casing):  Total Depth of Well After Development (feet below top of casing):  Observations					
Time Water Clarity (Mayor)					
Time Water Clarity (Visual) Time Water Clarity (Visual)					
10:04 Very Turbial 11:48 69-69.5 She Turbial					
11.01 000 1000					
11.13 Remove singe block (11.31 60-601)	r 7/				
11:28 725-73 Mod. Torked 11:57 130 Top of Water Column V	ery lod				
11:35 72-72.5 Mod. Turb.d 12:03					
11:37 71.5-72 StMode Turked 12:08 " Stop pour	trone				
11:39 71,-71,5 Sl,-Med tobid 12:31 Start Pump	A				
11:41 70:5-71 Sl-Mod Turbed 12:37 ~30 Sl-Mod Turbed	161				
11:44 70-70,5 Slightly Torbid 12:41 130'Sly Turbid					
11:46 \$9:5-70 4 1d	-				
NOTES: Worked screened interval man 6" sections with	1				
Sucar block duting in trad descelopment (20 minutes).					
Y-y-A-1					
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					

SHANNON & WILSON, INC

Well No. Dr.G-MW03-75 Cont. on back

12:50 72.5-73: Mod Turbid 12:56 72.5-73: Sh. Turbid 13:00 72-72.5: Sh. Turbid 13:02 71.5-72: 13:04 71-71.5: 11 13:10 62.370.5-71: 11 13:18 69.5-70: Very Sh. Turbid 13:20 69-69.5: "

13:23 68.5-69 Mostly Clear 13:26 68-68.5 Clear

NOW

Owner/Client	DIE	PF Dalla	y home !	troort			Project No.	102581	
Location		Lease for	tr					7/25/21	
Sampling Personnel					)au	_		DCG-HW03	1-75
Weather Conditions	<i>wescus</i>	+	Ai	r Temp. (°F)	605		Time started		
						Ti	me completed	1615	0
Sample No.	DLG-	HW03-	15		1609	(			
Duplicate		_		_ Time		_			
Equipment Blank				_ Time		-			
Pump	Hurric	are B							
Purging Method	-		d pump		D	iameter and T	ype of Casing	ZIPUC	
Pumping Start				Approxim			Below MP (ft.)		
Purge Rate (gal./min.)	0.2 90	Vi.					Below MP (ft.)	73.12	,
Pumping End				1.0	De	epth to Water	Below MP (ft.)	25.83	1
					Depth to	Ice (if frozen)	Below MP (ft.)	_	,
Pump Set Depth Bel	ow MP (ft.)	24'			YYMY A		Water in Well	47.29	1
	Tubing (ft.)					G	allons per foot	0.17	
	Tubing (ft.)						Ballons in Well	8,04	w130
	3 10 7 10 1					Purge Water	Volume (gal.)		2000
				Purge Wat	er Disposa		erite filte		
Monument Condition	Good	new		100000000000000000000000000000000000000					
Casing Condition	Good,	new							
Wiring Condition (dedicated pumps)	AJU								
Measuring Point (MP)	Top of Ca	asing (TOC)	٨	Monur Measuremen	nent type: t method:	Stickup Rod & level	/Flushmount /Tape measu		
Top-of-casing to mor	nument (ft )	-031			D	atalogger type	n/a		
Monument to ground s				-		ogger serial #			
Moriament to ground s	surface (it.)	+1200)		- NA					
1 444			a lack	, seeme	d area	ble length (ft.)	n/a		
Lock prese					(24)				
		outside of we		40,					
Evidence o	r frost-jacki	ng P	, view				-		
Notes DIT	coupler.	nock	Dava -	n seci d	2.huc				
Notes Diff	1	1	State !	P	my g				
well de	veloped	priorta	brown	g and sa	moung				
-					-0				
· ·			Kini. 4	14.1.4.140	Milha				
Elow wat i population a 15 15		1 100		ASING VOL		_			
Diameter of Well [ID-inches]		CMT	11/4	12	3	4	6	8	
Gallons per lineal foot		0.000253	0.08	0.17	0.38	0.66	1.5	2.6	

KEN

Well No.

DLG-4003-75

Field Parameter Instrument	YSI	C	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations	_		
Notes	_		

FIELD PARAMETERS [stabilization criteria]

		1.15	LD PARAMETERS [SI	abilization	interiaj	
Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1] ~	ORP (mV) [± 10 mV]	Water Clarity (visual)
15 50	Start P	mag; >>3	well vol's pur	pd dun	y devel	prient
1552	4.4	1.34%	225.2	5.40	85.8	close
1555	4.5	0719	224.2	6.00	64.0	ii i
1558	5.0	0.50%	224.9	6.10	46.3	0.
1601	4,7	0.500	224.8	6.14	38.1	146
1604	5.0	0.464	226.7	6.16	32.4	4.7
16098	4.8	0.37/5	226.2	6.18	24.1	**
1609	Sample					
-9 "						
					1	

Laboratory ses Eurofins Testan

Analysis	Sample Containers	Preservatives	Dup
PEAS XIB	25ML HDPE	None	므
			므
			旦

SFD

Monitoring Well No. DLG -NWO 4 - 25	Date Installed Pho(2)
Project Name DLG PFAS Site C	Logged By DHE
Project Number 1025gt - 009	Driller Discoury Dalling
TOP SECTION (CASING)	IV. WELL DATA
Initial Pipe Length	Pipe Type: PVC SS Other
Cuttoff Length	
Add-on Length	
Total Len	
MID SECTION (CASING)	V. BACKFILL
. MID SECTION (CASING)  Number of Blank Sections	Depth Below GS
Longth of Continu(s)	
Length of Section(s).	Bottom Top
	CEM (No Pipe) 0.5
	+ CEM_PB D, 5
F = 0 ,	*SLUF_PB/FIL_PB \$
	(BCH_PB/\f)
	*SLUF_PB/FIL_PB
	BGR PB
Sum of Lengt	
	*SLUF_PS/FIL_PS 25 20
	*SLUF/FIL (No Pipe)
. SCREENED SECTION(S)	*SLUF_PB/FIL_PB
003 500 0	Filter Pack Type or
Joint Length:	Gradation prepark and 6/20
	(A0/40)
	VI. MONUMENTS
	Stuckup Flushmount X
Screened 4.45	TOM to GS flush
Length: Total	Pine 5 3 6
Lengt	
Lengt	Lock type P/A
	U0012
	VII. MOISTURE CONTENT
now.	
Joint Length: 0.14 BOS: 1	1.51 Deptil to Water Below GS
End Cap Length: 0.37	All
	Frozen Soil Below GS
Pointed D Flat	Bottom Top
TOC to BC	OW: 24.18 Seasonal 1
	Seasonal 2
	Permafrost 1
The second secon	
	Permafrost 2
BCH = Bentonite Chips (gINT code)	
BGR = Bentonite Grout (gINT code)	LAND ARRANG BELOW SECURIS SUBELLE
BGR = Bentonite Grout (gINT code)	ALCULATIONS BELOW GROUND SURFACE
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen BOW = Bottom of Well	ALCULATIONS BELOW GROUND SURFACE
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen BOW = Bottom of Well CEM = Cement (gINT code)	ALCULATIONS BELOW GROUND SURFACE  TOC to BOW 24.18
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)	TOC to BOW 24.18
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	TOC to BOW 24.18 -TOC to GS -0.31
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)	TOC to BOW 24.18  TOC to BOW 24.18  -TOC to GS -0.31  BOW bgs 24.49
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	TOC to BOW 24.18 - BOW to BOS 0.51  TOC to BOW 24.18 - TOC to BOW 598 - TOC to BOW 24.18
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	TOC to BOW 24.18 -BOW to BOS 23-67  TOC to BOW 24.18 -TOC to BOW 598 74.49  TOC to TOS 18.82
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	TOC to BOW 24.18 -BOW to BOS 23-67  = TOC to BOS 23-67  TOC to BOW 24.18 -TOC to GS -0.31  TOC to TOS 18.82 -TOC to GS -0.31
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)	TOC to BOW 24.18 -BOW to BOS 0.51 = TOC to BOS 23-67  TOC to BOW 24.18 -TOC to BOW 24.18 -TOC to BOW 5.51 -TOC to BOS 18.82 -TOC to BOS 10.31 -TOC to BOW 24.18 -TOC to BOW 5.51
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)	TOC to BOW 24.18 -BOW to BOS 23-67 TOC to BOS 23-67 TOC to BOS 23-67 -Screened Length 4.35  TOC to BOW 24.18 -TOC to BOW 24.18 -TOC to BOW 24.18 -TOC to GS -0.31 TOC to TOS 18.82 -TOC to GS -0.31 TOS bgs 19.13
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	TOC to BOW 2H.18 -BOW to BOS 0.51 = TOC to BOS 23-67 TOC to BOS 23-67 TOC to BOS 23-67 -Screened Length 4.35
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)	TOC to BOW 24.18  -BOW to BOS 5.51  = TOC to BOS 23.67  TOC to BOS 23.67  -Screened Length 4.35  = TOC to TOS 18.82  -TOC to BOS 23.67  TOC to BOS 23.67
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	TOC to BOW 2H-18 -BOW to BOS 0-51 = TOC to BOS 23-67 TOC to BOS 23-67 TOC to BOS 23-67 -Screened Length 4-35

#### WELL DEVELOPMENT LOG

	DOT + PT		Well No. Project No	1025	HW04- 31-009	
Location Weather	52° Cloudy		Date	July 21, 25		
Development	The second secon					
Diameter and	I Type of Casing:	24 PVC	2			
	of Well Before Development (fee			21.75.	+1.37	= 2
	er Before Development (feet be			21.3	1	101
Depth to Scre	een Top and Bottom (from Cons	truction Log):			ZZ Bottom:	33
	De	velopment	<u>Details</u>			
Feet of water	in well <u>1.8\</u>		Time pumpii		120	
Gallons per f	oot 0.17		Flow rate (ga	al/min)	0.25	
Gallons in we	0.3017			easurement n	nethod:	
Surge metho	d surge block		1607 W		100	
Pump used	Walerra		Time pumpi	17 To 17 Land 19 Land	111	
Tubing used	(ft) 30		Gallons Pun	9000 km s	30	
			Disposal:	GAC		
		Г	<u>ons</u>	1		
	*				7.0.1	
Time	Water Clarity (Visual)		Time	Wat	er Clarity (Vis	ual)
Time		22.5		Wate	er Clarity (Vis	ual)
	Water Clarity (Visual) Choustate Moure Tyrond Shently les trobal	22.5	Time		er Clarity (Vis	ual)
923	Chocolate Brown Turbid	22.5	Time //08	SAA	er Clarity (Vis	ual)
923 934	Chocolate Bourn Turbed Slightly less turbed	22.5	Time //08	SAA	er Clarity (Vis	ual)
923 934 845	Shouth less turbed Shouth less turbed	22.5	Time //08	SAA	er Clarity (Vis	ual)
923 934 945 955	Slightly less turbed Stightly less turbed Sag	22.5	Time //08	SAA	er Clarity (Vis	ual)
923 934 745 955 1010	Should her tribal Should her tribal Should her tribal Soa	22.5	Time //08	SAA	er Clarity (Vis	ual)
923 934 945 955 1010 1020	Should how Turbed Should less turbed Stightly less turbed Saa " Sloghtly less turbed more turbed		Time //08	SAA	er Clarity (Vis	ual)
923 934 945 955 1010 1020	Shouthy less turbed Shouthy less turbed South less turbed South less turbed South less turbed Most clear so for	22.5	Time //08	SAA	er Clarity (Vis	ual)
923 934 745 955 1010 1020 1028 1033	Shouthy less turbed Shouthy less turbed Stightly less turbed Saa " Slaghtly less turbed Most clear so for slaghtly less turbed		Time //08	SAA	er Clarity (Vis	ual)
923 934 745 555 1010 1020 1028 1033 1043	Shouthy less turbed Shouthy less turbed Shouthy less turbed Saa "Sleghtly Cass turbed more turbed Most clear so for sleghtly less turbed saa		Time //08	SAA	er Clarity (Vis	ual)
923 934 745 555 1010 1020 1028 1033 1043	Shouthy less turbed Shouthy less turbed Soughtly Cass turbed Most clear so for sloghtly less turbed Sag Less turbed see the	flian above	Time 1/08 1/10	SAA	er Clarity (Vis	ual)
923 934 745 955 1010 1020 1028 1033 1043	Chocolate Change Turbed  Slightly less turbed  Saa "  Slightly less turbed more turbed"  Most clear so for  slightly less turbed saa less turbed see the		Time 1/08 1/10	SAA	er Clarity (Vis	ual)

Well No. DLG - MW04-25

0 /0"	DOT 8	PE					Project No.	102581-0
Owner/Client _ Location	N1 (°	17				-	Date	7/2//22
Sampling Personnel	1179 <	AH				1	Well	NG-HWO4.
Weather Conditions			Air	Гетр. (°F)	50	Tin	Time started _ ne completed _	1330
Sample No		UW04-	25	Time_	1300			
Duplicate _ Equipment Blank _		HW04-	25	Time _ Time _	1310	-		
Pump	,	Teane / dedicated	numo		Di	ameter and Ty	ne of Casing	2" pvc
Purging Method _ Pumping Start _ Purge Rate (gal./min.)	1200 0,1	/ dedicated	pump		te Total D	epth of Well E	Below MP (ft.)	25
Pumping End				Wiodou		pth to Water B		21.31
r uniping End_	1 510	45.5			Depth to I	ce (if frozen) E	Below MP (ft.)	
Pump Set Depth Beld	w MP (ft.)	22.5			100		Water in Well	1.79
KuriTec 7	ubing (ft.)	30					allons per foot_	0017
TruPoly <sup>-</sup>	ubing (ft.)						allons in Well_	0.5
							Volume (gal.) _	from deve
Monument Condition	apped			Purge Wate	r Disposa	I_GAC		Hom beve
	-0 1							
Casing Condition	2000							
Wiring Condition (dedicated pumps)								
Measuring Point (MP)	Top of Ca	sing (TOC)	Me	Monum easurement	ent type: method:		/ Flushmount / Tape measur	re
	0.00	**					n/o	
Top-of-casing to mor						atalogger type	n/a n/a	
Monument to ground s	urface (ft.)	-0.31		Mar		ogger serial # ble length (ft.)		
Lock prese Well name Evidence o	legible on	outside of we		Wes		ole length (tt.)		
Notes well do	reloped	right be	Fre pu	ngthy t	Sangha	9		
			WELL CA	SING VOL	JMES			
Diameter of Well [ID-inches		СМТ	11/4	/2	3	4	6	8
Gallons per lineal foot		0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MON

Well No. DLG- HW 04-25

Field Parameter Instrument	951 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	turbad
1205	murp	off to a	dough Itow 1	ate		
1211	14.91	7.48	95.9	5.85	d360 7	turbad
1214	5.1	7.33	96.4	5.83	240.7	turbid
1218	5.2	7.35	97.7	5.83	243.4	less terribid
1021	5.3	7.28	98.1	5.83	243.6	sciglifty terbid
1224	5.3	7.38	97.6	5.83	243.5	cteard
1230	Flow			Decame	turbed	
1239	5.3	6.91	90.6	5.79	253.4	turbid
10191	6.2	6.48	97.7	5.81	255.8	turbol
1250	6.5	6,68	99.4	5.82	254.0	less turbed
1253	6.5	6.63	99.3	5.83	257.5	soghtly less fist
1256	6.6	6.73	99.3	5,84	257.7	etoard
1300	sample					
					1.	
					T V	

Laboratory ses Eurofus TestAM

	Analysis	Sample Containers	Preservatives	Dup
M	PFASY 13	2 x 250 mc		2
므	AT LIKY OF			<u></u>
므				<u></u>
므				旦
				旦



Screened 136  Length: Total Pipe Length: Stuckup Flushmount John to GS  ToM to ToC O 32  ATOC to GS O 32  Lock type A/A  VII. MOISTURE CONTENT  Depth to Water Below GS  Bottom Top  Frozen Soil Below GS  Bottom Top  ToC to BoW: 54.16  BCH = Bentonite Chips (gINT code)  BGR = Bentonite Chips (gINT code)  BGR = Bentonite Chips (gINT code)  BGR = Bentonite Grout (gINT code)  BGR = Ground Surface  BOW = Bottom of Screen  BOW = Bottom of Well  CEM = Cement (gINT code)  GS = Ground Surface  BOW = Bottom of Screen  BOW = Bottom	Monitoring Well No. DLA - MWG4 - 53  Project Name DLA REAS Site Character 2000000  Project Number 102581 - 609	Date Installed 7/9/21  Logged By Diff  Driller Discovery Dalling
Number of Blank Sections Length of Section(s):  Length of Section(s):    CEM (No Pipe)	Cuttoff Length Add-on Length	Pipe Type:         PVC         SS         Other           Diameter:         2"         Z         4"         Other           Slot Size:         0.01         M         0.02         Other
Sum of Lengths:  Sum of Length:  VI. MONUMENTS  Sum of Length:  Tom to Tom of Company of Flushmount of Gradding	Number of Blank Sections Length of Section(s):	Depth Below GS  Bottom Top  CEM (No Pipe) 0.5  CEM PB (
Filter Pack Type or Gradation Gradut \$ \( \begin{align*}{ c c c c c c c c c c c c c c c c c c c		*SLUF_PB/FIL_PB  BGR_PB44  *SLUF_PB/FIL_PB48  *SLUF_PS/FIL_PS63  *SLUF/FIL (No Pipe)
Total Pipe Length:  VII. MOISTURE CONTENT  Depth to Water Below GS  Frozen Soil Below GS  Bottom Top  Seasonal 1  Seasonal 2  Permafrost 1  Permafrost 2  Permafrost 1  Permafrost 2  VIII. CALCULATIONS BELOW GROUND SURFACE  Will. CALCULATIONS BELOW GROUND SURFACE  Total Bow by Seasonal 1  Seasonal 2  Permafrost 1  Permafrost 2  Total Pipe Length:  Total Pipe Length	Joint Length: 0.03	VI. MONUMENTS  Stuckup   Flushmount   Flushm
Joint Length: End Cap Length: Pointed Flat ToC to BoW:  BOW to BoS:  Frozen Soil Below GS  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) 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) TOC to BOS TOC to BOS TOC to BOS TOC to TOS TOC to GS TOC to TOS TOC to GS TOC to TOS TOC to GS TOC to TOS T	Length: Total Pipe 539	TOM to TOC - 0:32  ^TOC to GS - 0:32  Lock type _ 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 Ripe (gINT code) TOC to BOS TOC to BOS TOC to BOS TOC to Tos TOC to Tos TOC to GS TOC to GS TOC to Tos TOC to Toc TOC to	Joint Length:  End Cap Length:  Pointed   Flat   BOS:   ### BOS: #### BOS: ####################################	Depth to Water Below GS 33  Frozen Soil Below GS  Bottom Top
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) PS = Slotted Pipe (gINT code) PS = Slotted Pipe (gINT code)  Will. CALCULATIONS BELOW GROUND SURFACE  TOC to BOW SUBJECT TOC to BOW TOC to BOW TOC to BOW SUBJECT TOC to BOW TOC to BOW TOC to BOW TOC to BOS TOC to TOS TOC to GS TOC to TOS T	BCH = Bentonite Chips (gINT code) BGR = Bentonite Grout (gINT code)	Permafrost 2
TOC = Top of Casing TOM = Top of Monument TOS = Top of Screen PB = Blank Pipe (gINT code) PS = Slotted Pipe (gINT code) TOC to BOS TOC to BOS TOC to TOS - TOC to GS - TOC to GS TOS bgs TOS bgs	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) TOC to	TOC to BOW 54.(6 -TOC to GS -0.3-2 BOW bgs 54.44
* Circle filter-pack type  * Circle filter-pack type  * Flushmount = Negative Number  Stickup = Positive Number  * Circle filter-pack type  - Screened Length  - TOC to BOS  - TOC to GS  BOS bgs  5 3.97	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  = TOC	Toc to BOS 53.65  BOS 53.65  TOC to TOS 48.8  - TOC to GS  TOS bgs  TOC to BOS 53.65  TOC to BOS 53.65  TOC to BOS 53.65  TOC to BOS 53.65

	WELL	DEVELOR	MENT LO	
Owner-Client	DOT & PF		Well No. DL	6-HW04-53
ocation	DLG		Project No	102581
Veather	overcast 50°C		Date	7/2//21
Development P	ersonnel <u>V94, SP4</u>			
Diameter and T	ype of Casing:	2" PVC		
Total Depth of	Well <b>Before</b> Development (fee	et below top	of casing):	51.02 + 1.23 = 52.25
Depth to Water	Before Development (feet be	low top of c	asing):	20.67
Depth to Scree	n Top and Bottom (from Cons	truction Log	):	Top: 4 Bottom: 52
	De	velopmen	t Details	48.8 53.65
eet of water ir	well 36.58		Time pumpir	ng started
Gallons per foo			Flow rate (ga	
Gallons in well	5.36		Flow-rate me	easurement method:
Surge method	surge block		1402 0	
oump used	waterra		Time pumpir	
Tubing used (f	(00)		Gallons Pum	
			Disposal:	GAC
	After Development (feet belowell After Development (feet		casing):	32.06 (2 52.24 37.06 (2
				/
	A Mark of the Park Landon		Time	Water Clarity (Visual)
Time	Water Clarity (Visual)			
Time 1130	Water Clarity (Visual)	48	1350	SAIA
1130	V. Turbil Gray	48	1350	ess turbid brown
1130	V. Twbil Guy	43	1400	less turbed brown
1130	V. Turbil Gray	43 47 47		1 1

Time	Water Clarity (Visual
1130	V. Turbil Gum
1145	sag
1200	Saa
1210	599
1220	500
1240	500
1250	Sag
1305	SAA
1320	SAA
1335	SAA

	/
Time	Water Clarity (Visual)
8 1350	SAIA
1 1+00	less turbed brown
7 1410	coss to bid brown
9 1430	loss foldid brown
9 1430	SAJA
10 1442	AAB
L 1505	uss tubid gellow- power
1587	Very turbul
0 1528	less tudad.
1540	less tucked

NOTES:

Diameter of Well [ID-inches]	11/4	2	3	4	6	8
Gallons per lineal foot	0.08	(0.17)	0.38	0.66	1.5	2.6

Well No. DLG-HW04-538

Owner/Client Dor +P	F					Project No.	102581-009
Location Dilling	an				3	Date -	1/21/21
Sampling Personnel SAH	VTY						LG-MW0 4-53
Weather Conditions <b>QAIN</b>		Air	Temp. (°F)	55	- Tir	Time started me completed	745
Sample No. DL G - M Duplicate	W04-53		Time	1720	1		
Equipment Blank EB-	HWOY		Time	180	20		
Pump Humi (a) Purging Method portable		ed pump		Di	ameter and T	ype of Casing 2	d .
Pumping Start 1/255		2 1 4 4 4 4	Approxim			Below MP (ft.)5	
Purge Rate (gal./min.) 1.2 L	Tmin = 0	.05 gpm	Measu			Below MP (ft.)5	
Pumping End 1735	Max	drowdown	0.11	De	pth to Water I	Below MP (ft.) Below MP (ft.)	
Pump Set Depth Below MP (ft	50					Water in Well	20.02 30
KuriTec Tubing (ft	) 60					allons per foot	0.17
TruPoly Tubing (ft	) —					allons in Well	3.47.5
	′					Volume (gal.)	2.5 and + deve
			Purge Wat	er Disposa			)
Monument Condition apod							
1							
Casing Condition appear							
Casing Condition							
Wiring Condition (dedicated pumps)	-						
Measuring Point (MP)	asing (TOC)		Monun leasuremen	nent type: t method:		/ Flushmount / Tape measure	e
T	9 27			De	talannar tuna	2/2	
Top-of-casing to monument (ft		01 11	-		talogger type		
Monument to ground surface (ft		flush			ogger serial #		
o contratal and alama			IVIE	easured car	ole length (ft.)	n/a	
Lock present and open							
Well name legible on		ell					
Evidence of frost-jacl	king						
							7
Notes well project & So	moved di	rectly o	Her dev	elopmen	t		
1.0		)					
		WELL CA	ASING VOL	UMES			
Diameter of Well [ID-inches]	CMT	11/4	/ 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-HW04-83

Field Parameter Instrument	YSI C Circle one: Parameters stabilized or >3 well volumes put				
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)
1655	6.2	1.37	208.4	6.13	99.5	Turbid
17:00	0.4	0.90	209.1	6.23	96.1	Turbid Less turbid
17:10	4.7	0.87	215.7	6.23	86.2	less turbia
17:15 SAW	1 8 PLE 17:	0.84	20.5	6.26	75.4	Clear
SAL	1 66 11	-				
	V.——					
			Z			
					-	

Laboratory	-SGS	Eurohns Texton
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	Analysis	Sample Containers	Preservatives	Dup
è	PFF6 × 18	2x 250 ml		
口				므
므				_
				旦
旦				므
				旦



Monitoring Well No. DLG - MW05 - 45 Project Name DLG 8FR3 Site Characterizate Project Number 102581 - 009	Date Installed & 7112/21  Logged By DIFC  Driller Discovery Drilling
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length 7.5	Pipe Type: PVC SS Other Diameter: 2" 4" Other Slot Size: 0.01 0.02 Other Joint Pin End: Up Down Type
Number of Blank Sections Length of Section(s):  Sum of Lengths:	V. BACKFILL  Depth Below GS  Bottom Top  CEM (No Pipe) 0 5 0  CEM PB 1 0 5  SLUF PB/FIL PB 5 1 pengravel  *SLUF PB/FIL PB 6 5 bentonike Compared to the compar
Joint Length: 0.03	*SLUF_PS/FIL_PS/ 45  *SLUF/FIL (No Pipe)  *SLUF_PB/FIL_PB  Filter Pack Type or Gradation Crepade + 10/20  VI. MONUMENTS  Stuckup   Flushmount
Screened 1.85 Length: Total Pipe Length:	TOM to GS  TOM to TOC  TOC to GS  Lock type  TOM to TOC  TOC to GS  TOC to GS
Joint Length: End Cap Length: Pointed Flat  TOC to BOW:  BCH = Bentonite Chips (gINT code)	VII. MOISTURE CONTENT Depth to Water Below GS Frozen Soil Below GS Bottom Top  Seasonal 1 Seasonal 2 Permafrost 1 Permafrost 2
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  VIII. CALCULATIONS II CALCULATIONS II TOC to	TOC to BOW   42.89   TOC to BOW   42.89   TOC to GS   BOW bgs   43.47

#### WELL DEVELOPMENT LOG

Owner-Client Dot & PF  Location Dillingham Emperor WAN  Weather 58° Sommy  Development Personnel VTV SAH	Well No. DLG - MW05 - 45 Project No 102581-809 Date 1/17/21	
Diameter and Type of Casing:  Total Depth of Well <b>Before</b> Development (feet below top of Depth to Water <b>Before</b> Development (feet below top of Depth to Screen Top and Bottom (from Construction Log	casing): 25.36 @ 10:24	4-05
Developmen	nt Details	200
Gallons in well  Surge method   Flow-rate measurement method:		
Pump used water Tubing used (ft)	Time pumping ended  Gallons Pumped  Disposal:  GAC	
Depth to Water After Development (feet below top of car Total Depth of Well After Development (feet below top of	1 1 1 1 2 1 1 2	

#### Observations

epter 195	Time	Water Clarity (Visual)	V74	Time	Water Clarity (Visual)
11	1057-158	chocolate brown	37	1225	Sag
41	1110	choracate brown	38	1240	stightly more turbed
4	1125	Cess terbord than ab	7.0	1257	less texts id
40	1131	seure as above sac	a) 39	1303	more turbed than abo
40	1137	saa	39	1323	less fulbod
39	1147	599	40	1335	more furbid
39	1157	stiglitter less fus	bid 40	1345	Coss terrord
38	1207	more turbic tecno	abovo 41	1347	saa
38	1214	less turbed thean al		1357	Saa
27	1220	less turbed	41	1480	Laa

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	11/4	(/2	3	4	6	8
Gallons per lineal foot	0.08	(0.17)	0.38	0.66	1.5	2.6

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Owner/Client	DOT	RPF					Project No.	102581-009
	LG 7	Superor	way			-	Date	7
Sampling Personnel 1/	74 5	ALI	10009			<del>-</del>		DIG-HW05-45
	inny	1711		ir Temp. (°F)	TOOF	-	Time started	
Weather Conditions	- Cana			tir remp. ( r)	40	Tir	me completed	1620
Sample No. Duplicate Die Equipment Blank	LG-H	W05	-45 -45	Time	1620			
Pump Pump Pump Purging Method Pumping Start Purge Rate (gal./min.)	ortable / 33 5		d pump	Approxim	ate Total D	epth of Well E epth of Well E		45 41.84+1.37-43.21
Pumping End/	623				De	pth to Water E	Below MP (ft.)	25.35
	W. 174.				Depth to I	and the state of t	Below MP (ft.)	
Pump Set Depth Below I						Feet of	Water in Well	17.86
KuriTec Tub		55					allons per foot	
TruPoly Tub	ing (ft.)						allons in Well	
Monument Condition Of Casing Condition	-			Purge Wat	er Disposa	Purge Water	Volume (gal.)	from dovelopment
Wiring Condition(dedicated pumps)		/						
Measuring Point (MP)	p of Casin	g (TOC)		Monun Measuremen	nent type: t method:		/ Flushmount / Tape measu	re
Top-of-casing to monume	ent (ft.)	0.58			Da	talogger type	_n/a	
Monument to ground surfa		flust		_		ogger serial#		
□ Lock present at  Well name legit □ Evidence of fro	nd operati	onal		Me		ole length (ft.)	n/a	
Notes well progr	ed \$ 50	mpledu	ight.	after de	velopm	ent		
			WELL C	ASING VOL	UMES			
Diameter of Well [ID-inches]		CMT	11/4	/2	3	4	6	8
Gallons per lineal foot	(	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

hos

Well No.

Field Parameter Instrument	451 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	126.0	4.48	202.0	turbid
1548	4.5	1.13	110.4	7,17	2158	justid .
1555	4.5	0.95	106.7	1.01	223.2	Jurbod
1600	4.7	0.94	107.9	6.95	225.2	seglifty furbid
1606	4.7	0.94	107.1	6.91	226.6	slightly turbid
1612	400	0.88	105.0	6.85	024-2	sofet of terord
1620	sample				-2-	
					-	

Laboratory	8GS	Eurofus	Testau

Sample Containers Preserv	atives Dup
3 24250 me -	_ 🗶
	Sample Containers Preserva

Monitoring Well No. 516 - MW05-67 Project Name DLG PERS Sife Characterization Project Number 103581-009	Date Installed 7/11/21  Logged By Duc  Driller Discovery Dailing
I. TOP SECTION (CASING) Initial Pipe Length	IV. WELL DATA  Pipe Type: PVC ☑ SS ☐ Other
Cuttoff Length	Diameter: 2" 🔀 4" 🔲 Other
Add-on Length	Slot Size: 0.01 🖾 0.02 🔲 Other
Total Length	Joint Pin End: Up 🔽 Down 🔲 Type
II. MID SECTION (CASING)  Number of Blank Sections	V. BACKFILL
Transer of Blank Cooling	Depth Below GS
Length of Section(s):	Bottom Top CEM (No Pipe)
+	CEM PB 1 0.5
	*SLUF_PBIFIL_PB 5 Pergr BCH_PB 59 57 *SLUF_PBIFIL_PB 6 5
Sum of Lengths: 60	*SLUF_PB/FIL_PB 62 59
Sum of Lenguis.	*SLUF_PE/FIL_PS 62 59 *SLUF_PS/FIL_PS) 67 62
	SLUF/FIL (No Pipe) 67 pergr
III. SCREENED SECTION(S)	*SLUF_PB/FIL_PB
0,03 [ ]	Filter Pack Type or
Joint Length: 1	Gradation prepark and 10/20
+	VI. MONUMENTS
	Stuckup Flushmount
	TOM to GS Slugh
Screened 4.85	TOM to TOC -0.60
Total Pipe 5 25	^TOC to GS -0, GO
Length:	Lock type 1/6
	VII. MOISTURE CONTENT
BOW to	Depth to Water Below @\$ ~ 29.30
Joint Length: BOS: DBOS:	70C
End Cap Length:	Frozen Soil Below GS
Pointed Flat	Bottom Top
TOC to BOW: 65.57	Seasonal 1
	Seasonal 2
	Permafrost 1
January and the Sty	Permatrost 2
BCH = Bentonite Chips (gINT code) BGR = Bentonite Grout (gINT code)	
bgs = Below Ground Surface VIII CALCULATIONS	BELOW GROUND SURFACE
BOS = Bottom of Screen BOW = Bottom of Well	Amount to the wind prefer to the
CEM = Cement (gINT code)	TOC to BOW C 5.57
FIL = Sand Pack (gINT code) GS = Ground Surface	- TOC to GS - 0,60
SLUF = Natural Collapse/ Pea Gravel (gINT code) TOC t	to BOW 65.57 BOW bgs 66.12
SS = Stainless Steel - BOW	/ to BOS
TOW - TOP OF WIGHTIEFIE	C to BOS 65,06 TOC to TOS 60,21
TOS = Top of Screen	- TOC to GS - 0.60 TOS bgs
* Circle filter-pack type - Scree	ened Length 4.85 C to TOS - 60, 2\ - TOC to BOS 65,06
^ Flushmount = Negative Number = TO Stickup = Positive Number	C to TOS - (00, 2) - TOC to BOS - TOC to GS - 0.(00)
	DOO!
	ng casing cutoff BOS bgs \$5.68
	ry casing cutoff BOS BGS B5.68
proximate based on measured well depth, Missing from \$10/26/2015 well. SHANNON & V	Well No.

DHE

WELL DEVELOPMENT	LOG

WELL DEVELO	DPINENT LOG
Owner-Client DoT + PF  Location Dillingham Empero v Way  Weather Sunny 70°F  Development Personnel VTY EAH	Well No.  Project No  102531 - 905  Date  7   17   21
Diameter and Type of Casing:  Total Depth of Well <b>Before</b> Development (feet below to Depth to Water <b>Before</b> Development (feet below top of Depth to Screen Top and Bottom (from Construction Lo	pp of casing): 65.34 (420 )
Developme	ent Details
Feet of water in well  Gallons per foot  Gallons in well (a. 2373)  Surge method  Pump used  Tubing used (ft)  Surge block  Pump used  Tubing used (ft)	Time pumping started 1458  Flow rate (gal/min) 0.375  Flow-rate measurement method:  1607 cup 4xCed for 2056  Time pumping ended 1810  Gallons Pumped  Disposal:
Depth to Water After Development (feet below top of control Depth of Well After Development (feet below top Observ	asing): 29.30 44.34 +1.23=65 57

Time	Water Clarity (Visual)	Time	Water Clarity (Visual)
1507	Voturbid: grey	61 1716	SAA
1530	turbed green	(0) 1723	SAA
1535	Cossturbid grey	(02 1733	lose tudid more avanters u
1600	saa '00	62 1743	824A
1610	saa	(3 1755	SAA
1620	less turbed them above	64 1303	More tund + speen
1630	sag	*	0
1640	683 turbid		
1655	saa		

WELL CASING VOLUMES

Diameter of Well [ID-inches]	11/4	2	3	4	6	8
Gallons per lineal foot	0.08	(0.17)	0.38	0.66	1.5	2.6

Well No. DFG - MW05- 270



NOTES:

Owner/Client	DOT & PF					Project No.	102581-009
Location	DLG					Date	7/17/21
	JTY, SAH						DLG-4005-6
Weather Conditions	unny	Air Te	emp. (°F)	70	Tir	Time started ne completed	1820
	O .				A.2	ne completed_	2000
Duplicate	DLG-HW05-	67	Time	1920			
Equipment Blank	ER-HWOS		Time_	1940	-		
Purging Method	0.25 020 MP (ft.) 63 bing (ft.) 40		Measur	ate Total D ed Total D De Depth to lo	pepth of Well I pepth of Well I pth to Water I ce (if frozen) I Feet of Ga Purge Water	ype of Casing Below MP (ft.) Below MP (ft.) Below MP (ft.) Below MP (ft.) Water in Well allons per foot Ballons in Well Volume (gal.)	29.30 37.5 36.25 05.17 6.29
Wiring Condition(dedicated pumps)							
Measuring Point (MP)	Top of Casing (TOC)	Mea	Monum surement	ent type: method:	The second secon	/ Flushmount / Tape measu	re
		,	Mea	Datalo	talogger type ogger serial # ole length (ft.)	n/a n/a n/a	
Evidence of fr							
Notes							
	W	ELL CASI	NG VOLL	MES			
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

May

Well No. DLG-HW05-870

Field Parameter Instrument	451 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)
1848	3.8	1.09	121.9	6.52	40.5	v. Heirbid
1855	3.7	0.51	119.9	6.50	7.9	turbid
1858	3.7	0.46	118.2	6.50	0.3	turbid
1901	3.7	0.42	118.3	6.51	-4.8	tur bird
1904	3.7	0.39	1/7.9	6.52	-10.4	tu i biel
1907	37	0.31	1913.7	6.53	-13.8	turbid
1910	3.7	0.33	47.2	6.54	-21.9	Sightly feesbid
1913	3.7	0.32	116.5	6.56	-25.3	softly turbed
1916	sample	0.00	11(61)	6,00	-26.4	saying resid
) &	Sampo					0 0
				-		

Laboratory ses Further Test Am

	Analysis	Sample Containers	Preservatives	Dup
X	PFASX 18	2× 250 me		<u></u>
旦				므
旦				므
므				므
				므
므				

Well No. DLG- HW05-64

EFO.

Charles in a firm and subsequent	Date Installed 7/14/24
Monitoring Well No. Dub- Mw 09-11	
Project Name Dillingham PFAS Site Character Project Number 102581-009	Driller Discovery Drilling
Project Number 1875 81 - 209	Diller Discovery Drilling
, TOP OFOTION (CARING)	IV WELL DATA
I. TOP SECTION (CASING)	IV. WELL DATA
Initial Pipe Length	Pipe Type: PVC SS Other
Cuttoff Length 0.32 to 5 = -82	Diameter: 2" 4" Other
Add-on Length Total Length 9.18	Slot Size: 0.01 🔀 0.02 🔲 Other  Joint Pin End: Up 🔽 Down 🔲 Type
	144.42
II. MID SECTION (CASING)	V. BACKFILL  Depth Below GS
Number of Blank Sections  Length of Section(s):	Bottom Top
Length of Section(s):	CEM (No Pipe) O S
+	CEM PB 1 0.5
	SLUF PBAPIL PB 3
	BCH PB 4 3
	*SLUF_PB/FIL_PB
	BGR_PB
Sum of Lengths:	*SLUF_PB/FIL_PB
	*SLUF_PS/FIL_PS) (1 6
ar melana kanada hada hada b	*SLUF/FIL (No Pipe)
III. SCREENED SECTION(S)	*SLUF_PB(FIL_PB) 6
0.03 [ ]	Filter Pack Type or
Joint Length:	Gradation
T and the state of	VI. MONUMENTS
	Stuckup Flushmount
	TOM to GS
Screened u 95	TOM to TOC -0.35
Length: Total Pipe 5.39	^TOC to GS _0.35
Length:	Lock type
	Look type
	VII. MOISTURE CONTENT
BOW to =	Depth to Water Below GS ~5 Page (perched)
Joint Length: 0.14 - BOW to BOS: BOS:	The state of the s
End Cap Length: 0.51	Frozen Soil Below GS
Pointed Plat	Bottom Top
TOC to BOW: 14.57	Seasonal 1
	Seasonal 2
	Permafrost 1
	Permafrost 2
BCH = Bentonite Chips (gINT code)	
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface VIII CALCIII ATIONS B	
BOS = Bottom of Screen VIII. CALCULATIONS B	ELOW GROUND SURFACE
BOW = Bottom of Well	14.57
CEM = Cement (gINT code) FIL = Sand Pack (gINT code)	TOC to BOW 14.57
GS = Ground Surface	14.57 - TOC to GS -0.35
SLUF = Natural Collapse/ Pea Gravel (gINT code)  TOC to	BOW
SS = Stainless Steel - BOW t TOC = Top of Casing - TOC	0000
TOM = Top of Monument	100 100
TOS = Top of Screen	TOS bas 4.50
PB = Blank Pipe (gINT code)  PS = Slotted Pipe (gINT code)  TOC to	135
* Circle filter-pack type - Screen	
^ Flushmount = Negative Number = TOC Stickup = Positive Number	
Sucrup - Fostave Number	- TOC to GS -0.35  BOS bgs 14,41
	503 bys 17,41

Well No.

#### WELL DEVELOPMENT LOG

Diameter and Type of Ca Total Depth of Well <b>Befo</b>			
	re Development (feet be	low top of casing):	9,40 + 1.37 = 10,77
Depth to Water <b>Before</b> D	evelopment (feet below	top of casing):	5.04
Depth to Screen Top and	Bottom (from Construct	ion Log):	Top: 9.21 Bottom: 14.06
	Develo	opment Details	
Feet of water in well	5.13	Time pumping	-
Gallons per foot	017	Flow rate (gal	and the state of t
Gallons in well	791		asurement method:
Surge method WWW.		16 02	10.0
Pump used <u>wate</u> Tubing used (ft)	)	Time pumping Gallons Pump	
Tubing used (ft)		Disposal:	GAC
[교리() (1일 - 일일	Development (feet belo	하다 아들은 아들이 아들이 가다니다.	5.35 (not recliarged
Total Depth of Well <b>After</b>	Development (feet belo	w top of casing): servations	10.76
Time Water	Development (feet belo	w top of casing):	
Time Water	Development (feet belo	w top of casing): servations	10.76
Time Water	Development (feet belo	w top of casing): servations	10.76
Time Water	Development (feet belo	w top of casing): servations	10.76
Time Water	Development (feet belo	w top of casing): servations	10.76
Time Water 1004 Two	Development (feet belo	w top of casing): servations	10.76
1004 Twid 1014 SAA 1020 purge	Development (feet belo	w top of casing): servations	10.76
Time Water 1004 Two	Development (feet belo	w top of casing): servations	10.76
Time Water 1004 Two	Development (feet belo	w top of casing): servations	10.76
Time Water 1004 Twod 1014 SAA	Development (feet belo	w top of casing): servations	10.76

Well No. DLG - HWOg - NO

Owner/Client DOT	Q PF					Project No.	102581-009
Location # DL	/0			_	-2	Date.	7118121
	SAL				-		DLG-MWOS-11
		Λ:	- T (°F\	40	<del>)</del>		
Weather Conditions sunn	f	A	ir Temp. (°F)	70		Time started	
					11	me completed	1600
Sample No. DLG	- MWOS	3-1710	Time	1552			
Duplicate			- Time		_		
Equipment Blank			- Time	_	7		
Equipment Blank			_ ,,,,,,		-		
Pump Heuri	cane						a,
Purging Method portable	e / dedicat	ed pump		Di	iameter and 7	Type of Casing	2" PVC
Pumping Start 1427	1 1 1 1 1 7 7		Approxim	ate Total D	epth of Well	Below MP (ft.)	11
Purge Rate (gal./min.) 0.05	_		Measu	red Total D	epth of Well	Below MP (ft.)	9.39+1.37=10.76
Pumping End 1553	_		11/1/2022	De	oth to Water	Below MP (ft.)	5. 35 (not 100%)
1 amping 2na <u>455 -</u>	_					Below MP (ft.)	
Pump Set Depth Below MP (fi	1 8			Deptilito	the said of the sa	Water in Well	
KuriTec Tubing (fi		-				allons per foot	
TruPoly Tubing (fi		-				Gallons in Well	
True oly Tubing (ii	.)	-					
			Durge Wet	or Dionago	ruige water	volume (gai.)	= ~ 5gall total
M			Purge vvai	er Disposa	0170		= 20 Seall 19191
Monument Condition good							
Casing Condition good							
0							
Wiring Condition							
(dedicated pumps)							
Measuring Point (MP) Top of C	Casing (TOC)		Monun	nent type:	Stickup	/ Flushmount	
		1	<i>l</i> easuremen	t method:	Rod & level	/ Tape measu	re
						,	
Top-of-casing to monument (ft	.) 0.35			Da	talogger type	n/a	
Monument to ground surface (ft		6	_		ogger serial #		
diameter and a series of the	7		- Me		ole length (ft.)		
Lock present and op	erational		1010	abarba bak	olo longui (i)	- 1//4	<del></del>
		e II					
Well name legible or		ell					
Evidence of frost-jac	king					-	
Notes	1 - 5	6- 100	2 60000		10 0.0.	-01 0.9	51
Notes well sampled	nghtan	er adve	Coppert	- we	11 reclu	and wi	396.
(8045	remarge	= 2014	60019	47)		<u> </u>	
P							
1							
		WELL C	ASING VOL	JMES			
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6
The state of the s	_						

hay

Well No. 10 DLG-MWOG-MO

Field Parameter Instrument

Sample Observations

Sample Coffeeted when teubid due to purguagely

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	turble
1449	13.3	3.15	511	5.87	117.5	V
1450	purged			904.		
1549	16.9	2.32	415.8	5.79	107.2	feurbld
1552	sample	1 2 7	1-= V			
	V				1	
	_					

Laboratory_	SES	Eurofins	Test AM

Analysis	Sample Containers	Preservatives	Dup
PFASX18	2x250ml		_
71 W. VA 777			旦
_			
			므

Monitoring Well No. DLG - Mu Project Name Dilling ham f Project Number 1025 81 - 00	PEAS site characterization	Date Installed _ Logged By _ Driller <u>C</u>		Ling
I. TOP SECTION (CASING)  Initial Pipe Length  Cuttoff Length  Add-on Length	IV. WI 10 10 11/10-75+0.47 = 5.37 otal Length 4.67			
II. MID SECTION (CASING)	V. BA	CKFILL		
Number of Blank Sections	4		Depth Below	GS
Length of Section(s):	10	CEM (No Pipe)	Bottom O.S	Тор
	+	CEM_PB	-1	0.5
		SLUF_PB/FIL_PB		1 pergravel
			39	37 pel-plug
	123	SLUF PB/FIL_PB	37	bertonite chips
Sum o	of Lengths: 40	*SLUF_PB/FIL_PB	45	39
		*SLUF_PS/FIL_PS	50	45
III. SCREENED SECTION(S)		*SLUF/FIL (No Pipe) *SLUF_PB/FIL_PB		
0.0350		Filter Pack Type or		
Joint Length:		Gradation o	repack 20/40	and 10120
	+	DNUMENTS NZ	4.4	1122 27117
	VI. IVIC	ONUMENTS ~2 Stuckup ☐ Flushmount		re per gravel
		TOM to GS	Leest	Au void
Screened 4,85	Total Pipe	TOM to TOC	-0.37	Space
] [ }	Length: 5.39	^TOC to GS	-0,57	9,
		Lock type	1918	
	VIII MI	OISTURE CONTENT		
La company and the contract of		Depth to Water Below GS	25.57	
Joint Length: 0.19	BOW to 6.51			
End Cap Length:			Frozen Soil Beld	ow GS
Pointed 🔀 Flat 🗆	oc to BOW: 50 . 66		Bottom	Тор
то	OC to BOW:	Seasonal 1		
		Seasonal 2 Permafrost 1		
		Permafrost 1		
BCH = Bentonite Chips (gINT code)		remailostz		
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface				
BOS = Bottom of Screen	VIII. CALCULATIONS BELOW	GROUND SURFACE		
BOW = Bottom of Well CEM = Cement (gINT code)		т	OC to BOW 50	,06
FIL = Sand Pack (gINT code) GS = Ground Surface		A2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		37
SLUF = Natural Collapse/ Pea Gravel (g			OW bgs 50	.43
SS = Stainless Steel TOC = Top of Casing	- BOW to BOS	40 00	en J Can Line	- Quu +
TOM = Top of Monument	= TOC to BOS		OC to TOS	37 94,70
TOS = Top of Screen PB = Blank Pipe (gINT code)	TOC to BOS			9.42 45.07
PS = Slotted Pipe (gINT code)  * Circle filter-pack type	- Screened Length	4-85	V	
^ Flushmount = Negative Number	= TOC to TOS		OC to BOS	1.55
Stickup = Positive Number			TOC to GS	T.S.C
		В	OS bgs	9.92
10/26/2015	SHANNON & WILSON, IN	10		Well No.
IUIEUIU	DITAMINON & VVILOUN, IN	O.		

	WELL D	프로마카 교육 시대를 열리고 있다.	
Owner-Client	DOT& PF	Well No.	DLG - MW09-50
Location	long term parkong	Project No	102581-000
Weather	SUBMY GOOF	Date	7113121
Development	Personnel VTY, SAH		
	Type of Casing:	a"pvc	
	f Well Before Development (feet		47.62+1.37 = 48.
	er Before Development (feet belo		25.57
Depth to Scre	en Top and Bottom (from Constru		Top: 44.7 Bottom: 49.
		elopment Details	2010
Feet of water	7 14	Time pumpi	
Gallons per fo	0 00	Flow rate (g	
Gallons in we			easurement method:
Surge method			of cup
Pump used	waterra	Time pumpi	0 -
Tubing upper	EL C		
Tubing used (	(ft) 60	Gallons Pun	
Tubing used (	(ft) 60	Disposal:	GAC
	er <b>After</b> Development (feet below	Disposal:	6AC 25,93
Depth to Wate		Disposal: top of casing):	GAC
Depth to Wate	er <b>After</b> Development (feet below f Well <b>After</b> Development (feet be	Disposal: top of casing):	6AC 25,93
Depth to Wate	er <b>After</b> Development (feet below f Well <b>After</b> Development (feet be	Disposal: top of casing):	6AC 25,93
Depth to Wate	er <b>After</b> Development (feet below f Well <b>After</b> Development (feet be	Disposal: top of casing):	6AC 25,93
Depth to Wate	er <b>After</b> Development (feet below f Well <b>After</b> Development (feet be	Disposal:  top of casing): elow top of casing):  Dbservations	25.93 48.38
Depth to Wate Total Depth o Time	er After Development (feet below f Well After Development (feet be	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025	25.93 48.98 Water Clarity (Visual)
Depth to Wate Total Depth o  Time  0848	Water Clarity (Visual)	Disposal:  top of casing): elow top of casing):  Disposal:  Time  46 1025  47 1035	25.93 48.98 Water Clarity (Visual)
Depth to Wate Total Depth o Time 0848	Water Clarity (Visual)	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025 47 1035 48 1045	Water Clarity (Visual)  Sag  sag  slightly more tulbid
Depth to Wate Total Depth o Time 0848 0らって 0ちって	Water Clarity (Visual)  v. turbad arey  V. twhal sha	Disposal:  top of casing): elow top of casing):  Disposal:  Time  46 1025  47 1035	25.93 48.98 Water Clarity (Visual)
Time 0848 0500 0710 0930	Water Clarity (Visual)  V. two d. arey  V. two d. arey  Sha	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025 47 1035 48 1045	Water Clarity (Visual)  Sag  sag  slightly more tulbid
Time 0848 0500 0710 0930	Water Clarity (Visual)  v. turbed arey  Shall Sh	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025 47 1035 48 1045	Water Clarity (Visual)  Sag  sag  slightly more tulbid
Time 0848 0520 0530 0530 0530 0530	Water Clarity (Visual)  v. two bid arey  Shall s	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025 47 1035 48 1045	Water Clarity (Visual)  Sag  sag  slightly more tulbid
Time 0848 0500 0510 0910 0950 0955	Water Clarity (Visual)  V. two d. arey  V. two d. arey  Sighty was two d.  SHA  Slighty by Cass Jurbed  Saa  Saa	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025 47 1035 48 1045	Water Clarity (Visual)  Sag  sag  slightly more tulbid
Time 0848 0500 0930 0930	Water Clarity (Visual)  v. two bid arey  Shall s	Disposal:  top of casing): elow top of casing):  Dbservations  Time  46 1025 47 1035 48 1045	Water Clarity (Visual)  Sag  sag  slightly more tulbid

WELL CASING VOLUMES

Diameter of Well [ID-inches]	11/4	2	3	4	6	8
Gallons per lineal foot	0.08	(0.17)	0.38	0.66	1.5	2.6

Well No. DLG- HW09-50

Owner/Client	DOT	X PF					Project No.	102581-009
	DLG	74.				-	Date	1,50,0
Sampling Personne		SAH				-		MWD9-50
Weather Conditions			Air T	emp. (°F)	60		Time started	
A restrict a reference for	000				00	Ti	me completed	
Sample No Duplicate Equipment Blank		EB-M	w09	Time Time Time	1223	-		50_1
Pump	Hun	icane			1240			
Purging Method Pumping Start Purge Rate (gal./min.)	poctable 1205	/ dedicated	d pump		ate Total D ed Total D	epth of Well epth of Well	ype of Casing Below MP (ft.) Below MP (ft.)	50 47.59+637=48.96
Pumping End	1225	2					Below MP (ft.)	25.93
	I May Life and	1,4			Depth to I		Below MP (ft.)	
Pump Set Depth Be							Water in Well	
	Tubing (ft.)						allons per foot	
TruPoly	Tubing (ft.)						Sallons in Well	
				Purae Wate		GA	Volume (gal.)	3 + acceptance
Monument Condition	goo	d		uige vvaic	зі Бізрозаі			
Casing Condition	900	d						
odding condition	7	-						
Wiring Condition (dedicated pumps)								
Measuring Point (MP)	Top of Ca	sing (TOC)	Mea	Monum asurement	ent type: method:	Stickup Rod & level	/ Flushinount / Tapemeaso	) ure
Top-of-casing to mo	nument (ft.)	0.37	2		Da	talogger type	n/a	
Monument to ground	The first of the second section of		ush			gger serial #		-
	annana Vey			Mea		le length (ft.)		
Well name	ent and ope legible on of frost-jacki	outside of wel	D					
			sel or	1-0-	d North			
Notes 1. PU	and L	and alan				m /1		
Notes well pu	raped & s	upled o	ght wh	Cr aceu	elspre	V <del>+</del>		
Notes well pu	vaged & s	upled o	anr w	C 200	elsprie	V <del>I</del>		
Notes well pu	raped ts		oleria.	710° (5.70.)		V <del>1</del>		
Notes well pu			WELL CAS	710° (5.70.)		4	6	8

LON

Well No.
DL G-HW09-50

Field Parameter Instrument	JS1C	Circle one: Parameters stabilized or >3 well volumes purged
Sample Observations		0
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	4.1	2.83	405.9	6-12	-41-9	Cloudy
211	4-0	1-18	409.5	6:17	-60.41 ·	clavely.
1214	4.0		411.9	6.07	-95.4	1955 hard translucut
1217	4.0	0.43	411.9	0.15	-108.4	A'A'S
1220	4.0	0.35	412.60	6.18	-119.0	SAA
1223	samp	Co		TLL T	74	
2000	1					
	1					
-					1	
	4					
-						
-						
				-		
					1	land and the second

Laboratory	Ses	Europus	TestAnu
m / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1	_		

_ =	
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므	

#### MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG - NW09 - 65 Project Name Dillington PFAS Si Project Number 102581-009	ite Characterization	Driller Discovery	Dollina
I. TOP SECTION (CASING)	IV. WELL DAT	TA	
Initial Pipe Length	Pipe Typ	be: PVC SS SS Other	
Cuttoff Length 7.55+	0.50.39+114 Diameter	er: 2" 😡 4" 🔲 Other	
Add-on Length	Slot Size		
Total Leng	gth 3.97 Joint Pin	End: Up 📝 Down 🔲 Type	
II. MID SECTION (CASING)	V. BACKFILL		
Number of Blank Sections	V. BACKFILL	Depth P	elow GS
Length of Section(s):	<del></del>	Bottom	
Length of Section(s).		CEM (No Pipe) 0.5	Тор
	<b>-</b>	CEM_PB (NO PIPE)	0.5
	151	UF_PB/FIL_PB 9/55	1 000
		RCH_PB) 53	1 pea
	*81	UF_PB/FIL_PB \$ 7.5	Q455 ben
		BGR_PB 51	875
Sum of Length	hs: \$50 \text{\st}	UF_PB/FIL_PB	be
The second secon		UF_PS(FIL_PS) 65	60
		IP/FIL (No Pipe) 15	65
III. SCREENED SECTION(S)		UF_PB/FIL_PB 60	53
0.13 == =	Filte	er Pack Type or	2 To 10 S. 17
Joint Length: 0.33		Gradation paro ack (20)	
	+ 7/31	21: observe grand &	ed has sunk ?
	VI. MONUMEN	NTS will add more	pea gravel . oc
	Stuckup	☐ Flushmount ☑	ein c
Screened ,, ,,		TOM to GS 4Cus	sh pe
Length: 4.85	Pine	TOM to TOC - 0.58	
Length		^TOC to GS -0.58	)
Lengu		Lock type	
	100 2000		
	VII. MOISTUR		2
Joint Length: 6.14  BOW to BOS: 0		Vater Below GS 26.89	3
Joint Length: 0.17 End Cap Length: 0.37  BOS: 0.	, 31	Farmer 64	n-1
End Cap Length:		Frozen Soi	
Pointed A Flat	w. 63-36	Bottom	Тор
TOC to BO	w: 65-76	Seasonal 1	
		Seasonal 2	
		Permafrost 1	
English State of the same of State of the		Permafrost 2	
BCH = Bentonite Chips (gINT code) BGR = Bentonite Grout (gINT code)			
has - Bolow Ground Surface	CUI ATIONS BELOW CROUN	D CUDEACE	
BOS = Bottom of Screen	LCULATIONS BELOW GROUN	D SUKFACE	
BOW = Bottom of Well CEM = Cement (gINT code)		F-2022 North 2020 No. 10	1220
FIL = Sand Pack (gINT code)	The state of		6336
GS = Ground Surface	TOO DOWN	63.36 -TOC to GS -	-0.58
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel	100100011		63.94
TOC = Top of Casing	- DOVV 10 DOO	25	
TOM = Top of Monument	= TOC to BOS62	1,000,000	58.00
TOS = Top of Screen	TOC to BOS 62.	- TOC to GS	-0.58
PB = Blank Pipe (gINT code) PS = Slotted Pipe (gINT code)	14 0	100 595	58.58
	- Screened Length		4 10 -
* Circle filter-pack type			
<ul><li>Circle filter-pack type</li><li>Flushmount = Negative Number</li></ul>	= TOC to TOS	TOC to BOS	62.85
* Circle filter-pack type	= TOC to TOS	TOC to BOS _ TOC to GS _ BOS bgs	-0.58

\*clay at top and bottom of screen. Coreful to not over-surge during development

DLG-MUOT-65

WELL DEVE	LOPMENT LOG
Owner-Client DoT *PF  Location long term parking tot  Weather Sunny, Foo F  Development Personnel VTY, SAH	Well No. DLG-HW0g-65  Project No 102581-009  Date 4/18/21
Total Depth of Well <b>Before</b> Development (feet below Depth to Water <b>Before</b> Development (feet below top Depth to Screen Top and Bottom (from Construction	of casing): 28.04 @ 13.13 to 4.2.   Cop.: 58.00 Bottom: 65 62-8.
[16] - [16] [16] [16] [17] - [16] [17] [18] [18] [18] [18] [18] [18] [18] [18	nent Details
Feet of water in well 35.32  Gallons per foot 2.17  Gallons in well 00044  Surge method Nature + surge block	Flow rate (gal/min)  Flow-rate measurement method:
Pump used <u>boters</u> Tubing used (ft) 80	Time pumping ended B20 Gallons Pumped 54 Disposal:
Depth to Water After Development (feet below top of Total Depth of Well After Development (feet below to	op of casing): 63.37
Obser	rvations

				i e
Time	Water Clarity (Visual)		Time	Water Clarity (Visual)
1352	vturbed area	62	1810	Saa
1410	saa 00	62	1820	Saa
1426	stightly less turbed			
1506	saa			
1558	Saa			
1603	soa			
1713	less torid	0 )		
1730	Saa			
1152	roce turis			
1800	Cos turbid			

NOTES: Stert svigues (21335

Diameter of Well [ID-inches]	11/4	/ 2	3	4	6	8
Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6

Well No. DLG- MW09- 65

Owner/Client DoT +PI	= DLG				_	Project No.	102581-009
Location DL						Date	7119121
Sampling Personnel VTY	304					Well	DLG -4009-65
Weather Conditions Surn	W.	Ai	r Temp. (°F)	600x		Time started	1030
	)		7 777		Т	me completed	1150
Sample No. DLG  Duplicate	- HWO	)-65	Time				
Duplicate DLG	-HW10	3-65		- 4 4	)		
Equipment Blank			_ Time	_	-		
Pump Hur	ricane						A. A. T.
	/ dedicate	d pump		Di	ameter and	ype of Casing	2"PVC
Pumping Start 1040		a pamp	Approxim	ate Total C	enth of Well	Below MP (ft.)	63
Purge Rate (gal./min.)	_						62.14+1.23=63.37
Pumping End 1/40	-		Modoc			Below MP (ft.)	
, amping Lina	_					Below MP (ft.)	
Pump Set Depth Below MP (ft.	61			Doptii to i		Water in Well	
KuriTec Tubing (ft.						allons per foot	
TruPoly Tubing (ft.						Sallons in Well	
Trui siy rusing (it.							15+development
			Purge Wat		GAC		7.000
Monument Condition 400 d	/		95		6//		
World World Containent							
Casing Condition good							
Casing Condition							
-0							
Wiring Condition							
(dedicated pumps)							
						Anna Anna Anna	
Measuring Point (MP)	asing (TOC)		Monun	nent type:	Stickup	/ Flushmount	
Service Associated Personal Property		V	/leasuremen	t method:	Rod & level	/ Tape measu	ire
	-0	50		5			
Top-of-casing to monument (ft.	/	.58	_		talogger type		
Monument to ground surface (ft.	) _ Flag	1	- 175		ogger serial #		
			Me	asured cab	ole length (ft.)	n/a	
Lock present and ope							
Well name legible on		ell					
Evidence of frost-jack	ing						
Mater							
Notes							
Notes							
Notes							
Notes		n čes v	ASING YOU	IMES			
Notes	СМТ	n čes v	ASING VOL	UMES 3	4	6	8

Well No. DLG-HW09-65

Field Parameter Instrument	551 C	Circle one: Paraméte s 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%]	[± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1047	4.3	3.09	232-4	6.47	20.0	Cloudy Brown
050	4.2	0.50	110.5	6.30	-44.4	Claudy No Brown Not
053	4.2	0.38	207.0	4.35	-49.3	8AM
1054	4.2	0.36	1940	6.57	-105.8	SIAM
1059	4.6	0.34	191.5	(0.40	-133.3	KH3
1102	5.0	0.35	183.4	0.44	-170-3	Claural Prown Have
1105	5.2	9.38	134.8	6.47	-186.0	IN)A
1103	5.2	0.4)	197.5	0-47	- 191.1	EMA
HH	48	0.30	195.7	6.49	-213.9	4AS
1114	4.8	0.31	192.7	6.50	-223.4	SYM
1117	4.7	0.210	188.4	(0.5)	-239.5	RAPA APPLY
1123	47	023	184.4	6.53	-264.3	less torbid
Ins	4.9	022	184.5	4.54	-200.0	SWA
126	4.7	0.24	185.4	6.54	-201.5	GIA
1129	4.0	0.21	133.5	6.54	-207.1	
1132	4.7	0.21	193.7	10-66	-272.3	
185	4.7	0.22	182.9	10.55	-273.5	<b>V</b>
1140 8	AMPLE		//	4		
	קינות					
					1	

Laboratory 858 Further Testan

	Analysis	Sample Containers	Preservatives	Dup
X	PFA3×18	2x250me		×
	CC/CLC_			旦
旦				므
旦				므
므				ㅁ

Monitoring Well No. DLG-NW 10-38 40 Project Name DIG 1978 Site Characterization Project Number 102581-004	Date Installed 7116/24  Logged By  Driller Discovery Dailing
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	Pipe Type: PVC SS Other Diameter: 2"  Other Slot Size: 0.01  Other Joint Pin End: Up Down Type
II. MID SECTION (CASING)  Number of Blank Sections  Length of Section(s):  +	V. BACKFILL  Depth Below GS  Bottom Top  CEM (No Pipe) 0.5  CEM PB 1  **ELUF_PB/FIL_PB 8  Depth Below GS  **Section 1.5  **Section 2.5  **Section 3.5  **Sec
Sum of Lengths: 30	*SLUF_PB/FIL_PB  *SLUF_PB/FIL_PB  *SLUF_PB/FIL_PB  *SLUF_PB/FIL_PB  *SLUF_PB/FIL_PB  *SLUF_PB/FIL_PB
Joint Length: +	Filter Pack Type or Gradation 2 pack 2040 and 12120  VI. MONUMENTS
Screened 4.85 Length: Total Pipe Length:	Stuckup Flushmount TOM to GS TOM to TOC  ^TOC to GS Lock type
Joint Length:  End Cap Length:  Pointed  Flat	VII. MOISTURE CONTENT  Depth to Water Below GS  Frozen Soil Below GS  Bottom  Top
TOC to BOW:	Seasonal 1 Seasonal 2 Permafrost 1 Permafrost 2
BOS = Bottom of Screen BOW = Bottom of Well	BELOW GROUND SURFACE
SS	TOC to BOW 37.58  TOC to BOW 57.58  TOC to GS  BOW bgs 37.98  TOC to TOS 37.98  TOC to TOS 37.98  TOC to TOS 37.98  TOC to GS 7.07  TOC to GS 7.07  TOC to GS 7.09
* Circle filter nack type - Scree	Toc to Bos 37.07  - Toc to GS - 0.40  BOS bgs 37.47

10/26/2015

WELL DEVELOPMENT LOG							
Owner-Client Location Weather Development P	DOT+PF  DOG  Rain 55 T  ersonnel Yry, 84H	Well No. Project No Date	DLG - MW10-38 102581-009 7/20/21				
Diameter and T	ype of Casing:	M PVC					
Total Depth of	Well <b>Before</b> Development (fe	et below top of casing):	37.49				
•	Before Development (feet be		31.96				
•	n Top and Bottom (from Cons		Top: 32.22 Bottom:	37.07			

#### **Development Details**

	Name and Address of the Owner, where the Owner, which is the Owne	
Feet of water in well	5.53	Time pumping started 1516
Gallons per foot	0.17	Flow rate (gal/min)
Gallons in well 0.540	7	Flow-rate measurement method:
Surge method Sugar	0 . 1	16 oz (UP
Pump used Water	~	Time pumping ended 2030
Tubing used (ft) ~ 421		Gallons Pumped ~53 gals
		Disposal: GAC

Depth to Water **After** Development (feet below top of casing): 37.53

Total Depth of Well **After** Development (feet below top of casing): 32.01

#### **Observations**

	Time	Water Clarity (Visual)
36	17.10	Dork Bown V. tralid
34	1130	SAA
34	1740	8AIA
35	1800	uss turbil
35	1810	SAA
34	1824	More torical than above
34	1938	SAR
34	1848	Uss trad
33	1901	SAA
33	1910	SAR

		3.4
	~	
	Time	Water Clarity (Visual)
2	1924	Slightly were turbed
32	1533	Slighty less trid
33	1751	Slightly more torbid
33	2010	51A-A
	,	

NOTES:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	11⁄4	X	2	- 4	3	4	6	8
Gallons per lineal foot	0.08		0.17		0.38	0.66	1.5	2.6

Well No. DLG- HW 10-36

SHANNON & WILSON, INC

Owner/Client Dor	PF					Project No.	102581-0	09
Location 3		Ath Classes	h		•	_	7/22/21	•
Sampling Personnel SAA	JTJ	19 0001				_	LG- MUIO	1-38
Weather Conditions Cools		Air	Temp. (°F)	55	- 100	Time started		
Weather Conditions	98	7 (11	Temp. (T)		Tir	ne completed		-
							460	•
Sample No. 7L6 - w	30° L	10	Time	1140				
Duplicate —	W10-30		- Time	1145	•			
	- HWII			2230	•			
Equipment Blank <u>そ</u>	Pluss	68.0	_ IIIIle	aa 20	· \			
A. 1								
Pump Hurric	J S							
		- d numn		Die	amotor and T	ype of Casing	2" 0.0//	
Purging Method portab	1 . 0		Approxim			Below MP (ft.)		- Ci vo
Pumping Start Purge Rate (gal./min.)	1:00	9 92 100	Approxim					37 67
Purge Rate (gai./min.)	- 1 min	0.03 gp	ivieasu	red Total D	eptii oi vveii i	Below MP (ft.) Selow MP (ft.)	365+1.71	1:37,50
Pumping End 11: 50	128.5	V 36.0		19.		- x - 1		1 ( )
Decree Cal Devill D. L. M.D.				Debtu to Id		Below MP (ft.)		· dari
Pump Set Depth Below MP (		-				Water in Well		-
KuriTec Tubing (						allons per foot_		-
TruPoly Tubing (	t.)	-				allons in Well		-loonest
						Volume (gal.)	1.3 + dev	Sen and
			Purge Wat	er Disposal	GAC			Solu
Monument Condition Null	Installer	-\					· .	-
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		^						-
Casing Condition New	1 Install	ed						-
								_
Wiring Condition U	O						r	-1
(dedicated pumps)		<i>f</i>						
Parker de la contraction de la								- 7
Measuring Point (MP) Top of	Casing (TOC)		Monun	nent type:	Stickup <	/Flushmount		
	and a real work, the discountries of the second contractions		leasuremen			/ Tape measui		
150								
Top-of-casing to monument (	H) -0.4	0		Dat	talogger type	n/a		
Monument to ground surface (			- /		gger serial #			-
Mondinent to ground surface (	L.) - Flash	•	-/ N/c		le length (ft.)			-
Look present and o	o o rotional	/-	IVIC	asureu cab	ie ierigiri (it.)	Ti/a		-
□ Lock present and o								
Well name legible of		/eli						
Evidence of frost-ja	cking							
Neter								
Notes								-
						9		-
								-
		\A/=: · · ·	A OINIO Y CO	THE C				
		T	ASING VOL	1				1
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8	1
Gallons per lineal foot	0.000253	30.0	0.17	0.38	0.66 🔪	1.5	2.6	]

Tay

Well No. 40 DL6-MW/0-38

		_		C			
Field		· Instrument <u>95</u>	Circle one:	Parameter:	s stabilized ør	>3 well volumes purged	
	Sample O	bservations			The second		
		Notes Thou	Later				_
			_ : (= _		/	J - 24 y 1	
	3.1	FIE	LD PARAMETERS [s	tabilization o	criteria]		
	Temp.	Dissolved			\$ 5		$\neg$
	(°C)	Oxygen (mg/L)	Conductivity (µS/cm)	рН	ORP (mV)	. v /2	
Time	[± 3%]	[±10%]	[± 3%]	[± 0.1]	[± 10 mV]	Water Clarity (visual)	1
1:10	3.0	3.54	244.0	6.40	134.9	Brown Murky	
11:16	7.7	3.04	241.2	10.30	131.2	FAA	7
120	8.0	2.89	2425	6.33	130.0	less Muller	7
125	8.3	2.74	240.3	6.31	129.4	less turbial	·
89.1	8.5	2.68	240.0	6.31	129.0	Less turbid	$\neg$
131	8.5	12.61	1240.)	6-31	1129.1	MAP	$\neg$
135	7.5	12-73	241-3 V	(0.3)	V128.7	SMA	
138	3.0	V 2.82	1240.9	10.32	V128.5	cess turbio	$\neg$
1.41	1.5	2.80	240.5	132	V129.D	Clear yellow how	
8 Pm	PLE 11	:45			V , V V	1	$\neg$
	,						
							$\neg$
							$\exists$
							$\dashv$
							$\dashv$
							$\dashv$
							$\dashv$

Laboratory SGS Enotinglest Am

	Analysis	Sample Containers Preservatives		Dup
	PFAS X18	2x 250 me		
□			-	□
				<u> </u>
П				□
	Part of the second seco			
旦				

EPD.

2.) 2.25 0.5 2.6 4.75 2.85

1.0

1.1

Well No. 40 0 16

Monitoring Well No.  Project Name  Project Number  102581-009	Date Installed  Logged By  Driller  Discovery Doubles
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	Pipe Type: PVC SS Other Diameter: 2" S 4" Other Slot Size: 0.01 2 0.02 Other Joint Pin End: Up Down Type
Number of Blank Sections	V. BACKFILL  Depth Below GS  Bottom  Top
Length of Section(s):  +  Sum of Lengths:	CEM (No Pipe)  CEM_PB  *SLUF_PB/FIL_PB
III. SCREENED SECTION(S)	*SLUF_PS/FIC_PS 55  *SLUF/FIL (No Pipe)  *SLUF_PB/FIL_PB  Filter Pack Type or
Screened 4 5 Length: Total Pipe Length: 5,39	Gradation preparis (20/20) and (0/20)  VI. MONUMENTS  Stuckup   Flushmount   Flushm
Joint Length: 0.14 BOS: BOS:	VII. MOISTURE CONTENT Depth to Water Below GS  Frozen Soil Below GS
End Cap Length: 151 - [ ] ] Pointed Flat  TOC to BOW: 55.2	Seasonal 2 Permafrost 1
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) 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) * Circle filter-pack type A Flushmount = Negative Number Stickup = Positive Number  Permafrost 2  VIII. CALCULATIONS BELOW GROUND SURFACE  TOC to BOW -TOC to BOW -TOC to GS BOW bgs  TOC to TOS -0.45 TOS bgs TOS bgs TOS bgs -TOC to BOS -0.45 TOC to BOS -TOC to GS -0.45 BOS bgs  SS-20 -TOC to GS -0.45 TOC to BOS -TOC to GS -0.45 BOS bgs	

		WELL	DEVELOPI	MENT LO	G			
,	Owner-Client Location Weather Development Personnel	55°F 574, SAH	1	Well No. Project No Date		1-003 21		
•	Diameter and Type of Casing: Total Depth of Well Before Develop Depth to Water Before Develop Depth to Screen Top and Botto  Feet of water in well Gallons per foot Gallons in well Surge method Pump used Tubing used (ft)	pment (feet below (from Const Dev 3.03	low top of ca ruction Log): velopment	f casing): sing):  Details Time pumpir Flow rate (ga	Top: 500  Hq.  ng started  al/min)  easurement in the company of t	8:30 0.125		250
	Depth to Water <b>After</b> Developr Total Depth of Well <b>After</b> Deve	elopment (feet l		casing):	55.06 32.32			. <i>U</i>
	Time Water Clari	ity (Visual)		Time	-	ter Clarity (Vis	ual)	
.5	841 v turbid,	promu	53.5	1240	87247			52.5 1530
5	853 saa	2 1 4	52.	1202	YAA			slaghtly ten
,5		ess tubro	<b>51.5</b> 50,5	1330	SAA	2	1.1	51.5 154
5	922 loss kirls	70		1345	509114	Cess full		509
5	934 saa	1-	51.5		Sciglitud	1	4	50,516
	945 purged o	lry	52.5	1400	SCIGLITY	Coss turbo	1	500
	reelorg		53,5	1415	Stall Cu	loss husbic		\$54.5
.5	1150 V terrbir	d brown	54.5 54.5	1430	slightly	logs tulb?	d	16
.5	1200 saa		34.5	(7 Y)	sag		p -	599
1.5	1220 uss tr/bid			1000	5001			
	NOTES:		53,5	1515	saa			- -
	*	\A/E	LL CASING	VOLUMES				
	Diameter of Well [ID-inches]	11/4	2	3	4	6	8	]
	Gallons per lineal foot	0.08	0.17	0.38	0.66	1.5	2.6	]

Well No. 4 W 10-55

Owner/Client ToT+	PF					Project No.	102581-009
Location Baptist		2 Christ			-	Date	
Sampling Personnel SAN V	TY	7 / 6	A. A.	- 10 V	75	Well	DIG - MW10-55
Weather Conditions	55	Ai	r Temp. (°F)	55	The same of the sa	Time started	
			-1-297		lam T	ime completed	
					Transfer to the		
Sample No. DLG-Y	1410-55		Time	1015			
Dunlicata	-	11011	Time	_	100		
Equipment Blank	-HW11	1 43	Time	2230	_		
Pump Hurrican				0.046	<u> </u>	4.8 1. 14.	211 vac 118
Purging Method portable	/ dedicate	ed pump				Type of Casing	
Pumping Start 4:35	UC28 -	N	Approxim			Below MP (ft.)	
Purge Rate (gal./min.) <u>9.1 - 0.3</u>	mL/mi	~=0.0	Measu				53.33 +1.23-55.06
Pumping End 1030	- 6888	3				Below MP (ft.)	
C1000	1.585			Depth to I		Below MP (ft.)	
Pump Set Depth Below MP (ft.)		One of the second				Water in Well	
KuriTec Tubing (ft.)	~ 61)					allons per foot	
TruPoly Tubing (ft.)						Gallons in Well	
						r Volume (gal.) <sub>.</sub>	3.8+ development
			Purge Wa	ter Disposa	GAC		( ~85 gar)
Monument Condition New No	1 Insta	lled					
	1						
Casing Condition Newly	Install	e l					
				-			
			,		2		
Wiring Condition WA							
(dedicated pumps)							
				dv -			,
Measuring Point (MP) Top of Ca	asing (TOC)		Monur	nent type:	Stickup	/ Flushmount	
g · · · · · · · / · · · · · · ·		I.	/leasuremer			/ Tape measu	re
	The state of the s		noucuron incr	it motriou.	7.00 0.70707	, rapo modea.	
Top-of-casing to monument (ft.)	flue	4		Da	talogger type	e n/a	
(Monument to ground surface (ft.)		=	_		ngger serial #		
(ii.)		13					
	the the transmission of th	4	IVIE	easured car	le length (ft.)	n/a	
□ Lock present and ope             □ Lock present and ope             □ Lock present and ope							
Well name legible on		ell					
<sup>′</sup> <u>□</u> Evidence of frost-jack	ing					_	
Notes	·						
		WELLO	A CINIC VOI	IIMEC			
Diameter of Well IID inch1	CMT		ASING VOL	T	1	6	8
Diameter of Well [ID-inches]  Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	6	2.6

NOW

Well No. DLG-4W10-35

		FIF	LD PARAMETERS [st	tahilization c	riterial		
	Temp.	Dissolved		Labilization C	, iteriaj		
e	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)	
	5.5	2.05	290.6	5.96	32.1	Brown Charly	╡
0	5.5	0.81	283 3	6.39	-125.3	Brown Clarch	
	6.3	2.44	271.5	6.5	-285.1	Cloudy)	
0	6.4	2.42	260,0	6.51	-291,8	Clarker	
	6.5	0.39	250.4	6.52	-317.3	(Less Clarky	
	6.4	0.35	248.1	6.52	-320.5	CLEON	
	7.0	2.13	229.9	4.52	-331.1	Chec	-  -
3	7.0 6.9	0.40	2297	6.52	-333.) - 237.)	Clea.	-
MP		-	DDG. G	6.5 7	63/.	Clear	$\dashv$
	C 1013	1				. 8 *	┨
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							╝
							_
							_
					- 1		
							_
							_
						14. V 7.	_

Analysis Sample Containers Preservatives Dup

PFAS × 13 2 × 250 M L NA 

□
□
□
□
□
□

EFIP

Well No.
016-4W10-55

# Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. Dug-MWU-34  Project Name Dug PRAS Size characterization  Project Number 102581-009	Date Installed 7/19/21  Logged By DIF  Discovery Politing
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	IV. WELL DATA  Pipe Type: PVC SS Other  Diameter: 2" 4" Other  Slot Size: 0.01 50 0.02 Other  Joint Pin End: Up Down Type
II. MID SECTION (CASING)  Number of Blank Sections  Length of Section(s):  +	V. BACKFILL  Depth Below GS  Bottom Top  CEM (No Pipe) 0.5  CEM_PB   0.5
Sum of Lengths: 30	*SLUF_PBFIL_PB 6  *SLUF_PBFIL_PB 8  *SLUF_PBFIL_PB 8  *SLUF_PBFIL_PB 24  *SLUF_PBFIL_PB 29  *SLUF_PBFIL_PB 34  *SLUF_PBFIL_PB 34
III. SCREENED SECTION(S)  Joint Length: 0103	*SLUF/FIL (No Pipe)  *SLUF_PB/FIL_PB  Filter Pack Type or  Gradation prepark 20/10 and 10/20
Screened 4.85 Length:  Total Pipe Length:  5.39	VI. MONUMENTS  Stuckup Flushmount TOM to GS  TOM to TOC - 0.32  ^TOC to GS  Lock type
Joint Length:  End Cap Length:  Pointed St Flat	VII. MOISTURE CONTENT Depth to Water Below GS Frozen Soil Below GS Bottom Top
TOC to BOW: 37.14	Seasonal 1 Seasonal 2 Permafrost 1 Permafrost 2
BOS = Bottom of Screen BOW = Bottom of Well	ELOW GROUND SURFACE
TOM = Top of Monument  TOS = Top of Screen  PB = Blank Pipe (gINT code)  PS = Slotted Pipe (gINT code)  * Circle filter-pack type  * Circle filter-pack type	to BOS 36.63 TOC to TOS 31.78 -TOC to GS -0.32



# WELL DEVELOPMENT LOG

Owner-Client Dar+PF	Well No. DLG - WWII - 34
Location Access from staging area	Project No 102591-009
Weather Cloudy (0) F	Date 1/22 2
Development Personnel SAH VTY	
Diameter and Type of Casing:	
Total Depth of Well Before Development (feet below to	p of casing): 31.72 + 1.37 = 31.09
Depth to Water Before Development (feet below top of	casing): <u>13.74</u>
Depth to Screen Top and Bottom (from Construction Lo	og): Top: 31.78 Bottom: 36.6
Developme	nt Details
Feet of water in well 9.34	Time pumping started <u>\}\0</u>
Gallons per foot	Flow rate (gal/min) 0.25
Gallons in well 1.5%15	Flow-rate measurement method:
Surge method Worker Surge Miled	lle or CND
Pump used Waterra	Time pumping ended 1030
Tubing used (ft) 31 R	Gallons Pumped ~55
	Disposal: CAC
Depth to Water After Development (feet below top of c	asing); Acr 7 33.08
Total Depth of Well After Development (feet below top	of casing): > 23.76

# **Observations**

N.					*	*
, (	Time	Water Clarity (Visual)		Time	Water Clarity	(Visual)
32	1320	Chous late Brown	30	1514	SAA	
33	1330	SAIA	· 31 <sup>a</sup>	1520	8460	A
31	1348	Brown shighty transve	ut 32	1540	More bushed	
30	1356	More turbed dark boon	on 32	1555	less durbul	154
30	14.08	Maxtides less turbid bro	wn 32	1615	yes turbed	
29	1420	Mone turbil	32	1622	Ciea	6
25	1430	less to rid most starting	t so fer	1430	Stop	
28	1442	More turkid	V 1			
28	11.1	least turbid to for	1,20			
75	1508	leas trid yellow h	N			
400			•		1 10 %	

NOTES:

WELL CASING VOLUMES

		LLE OAGING				
Diameter of Well [ID-inches]	11/4	(2)	3	4	6	8
Gallons per lineal foot	0.08	(/0.17)	0.38	0.66	- 1.5	2.6

Well No. DL8 - HW 11 - 36

Owner/Client Dor + F		. 2568 16.13		4	<u>.</u>	Project No.	DLG-MWU-3
Location	aun			A MIV	HAZ		7/22/21
Sampling Personnel	58K	مُعديد جين	D.Z.C.	4 1/3	-offee		102531-009
Weather Conditions SAH	VTY	Air	Temp. (°F)	50°F		Time started	
					31 II	me completed	1940
Sample No D1 G - M	1011 - 34		Time	1810			
Sample No. DLG - M Duplicate DLG - M	101111 - 30	+	Time		.0		
Equipment Blank	ALLICO S	7,070	_	2-2-3-00			
Equipment Statin	C WEN	08.3	6.7	97	OF A		
Pump Human	L			1 /2/ /	oil Niett	×9 1	211867
Purging Method portable	/ dedicate	ed pump				ype of Casing	- 66
Pumping Start Purge Rate (gal./min.) 0.2 LIP	. ~ .					Below MP (ft.)	
Purge Rate (gal./min.) 0.2 L	MIN = 0.0	12 about	Measu	red Total D	epth of vveil	Below MP (ft.)	33.08
Pumping End 1820	H.881			De partir de la	ptn to vvater	Below MP (ft.)	23.76 @170
Dump Set Donth Bolow MD (ft.)	~ 20			Depth to it		Below MP (ft.) Water in Well	
Pump Set Depth Below MP (ft.)	2 30	91.0				allons per foot	
KuriTec Tubing (ft.) TruPoly Tubing (ft.)	30	81.0				allons per loot Sallons in Well	
TruPoly Tubiling (it.)		·					~ 2-5 gat ~3 ga
			Purge Wat		GAC		+develo
Monument Condition	+ 4.11	0	r digo vvai	or Biopoodi	GILC		
Monanient Condition	1 NSTAIL	4					
Casing Condition Number	tod. I	el			,		
Casing Condition	- Visfall						
Wiring Condition							
(dedicated pumps)							
Measuring Point (MP) Top of Ca	sing (TOC)		Monun	nent type:	Stickup	/Flushmount	
3 \ \ \ \ \ <u> </u>	3 ( )	M			•	/ Tape measu	
Top-of-casing to monument (ft.)	0.33			Dat	talogger type	n/a	
Monument to ground surface (ft.)		4	-		gger serial #		36
54 750 (m)			- Me		le length (ft.)		
Lock present and ope     Lock present and ope     Lock present and ope     Lock present and ope	rational						
□ Well name legible on o		ell					
□ Evidence of frost-jacki		-					
					*	•	
Notes_ Slort times	1718	4 1735	5				
A .		( ' '					
·							
		WELLO	VEING VO	IIMEC			
Diameter of Well [ID-inches]	CMT	11/4	ASING VOL	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6
p							

HON

Well No. 35 DLG-MW/1-340

		EK)	
Field Parameter Instrument	451 C	Circle one: Parameters stabilized or >3 well volumes purged	
Sample Observations	SAH VTY		1
Notes	Battons dies to	P 1725 Begin overing (2 1735 (3WV=4.8gm	d(
	1 0	. 10.	

FIELD PARAMETERS [stabilization criteria]

	Temp.	Dissolved	A .		1475	
	(°C)	Oxygen (mg/L)	Conductivity (µS/cm)		ORP (mV)	1 6) (0)
Time	[± 3%]	[±10%]	[± 3%]	[± 0.1]	[± 10 mV]	Water Clarity (visual)
1720	8.7	9.37	158.0	5.59		turbid
1723	7.1	9.70	138.0	5.80	174.2	
V724					-	
1729		Battern di	d /2 1125		-	- 10 mm 2 mm 1
1732						
1737	sample		Dulgina 0 17	35		8171
1738	8.8	છે. હે	113.00	6.10	186.1	wibid prov
1743	9.5	8,33	115.4	10.14	138.4	less torbid
1748	9.10	8.33	115.7	4.15	183.6	SAA
1753	9.9	8.15	115.7	(0.11)	189.1	SAR
1753	9.8	8.14	114.0	6.18	189.2	SAM AM
SAV	MPLE					
The Rep (ten 3)			V (1)			
- 7-				$M_{\odot}$		
		•				31.7
						2 14 7
-						
	L	L				

Laboratory SGS + Test merica

	Analysis	Sample Containers	Preservatives	Dup
旦	PFAS X 18	2 x 250 in L pastic	NA	R
	DRO/RRO	2×200 ml Amber	Ha	<u>B</u>
旦	GRD	3 you Male	HCL	
旦	Vocs	3 voa vials	ACL	A
				□

# Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. SCG - MWII -79 Project Name DCG PCAS Size Clare Project Number 102581 - 209	actedization Logged	By DIFE  Ber Discovery Prilling
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length		4" ☐ Other ☐ /
II. MID SECTION (CASING)	V. BACKFILL	
Number of Blank Sections  Length of Section(s):		Depth Below GS  Bottom Top
Length of Section(s).	CEM (No P	pp
	*SLUF_PB/FIL_ BCH_	
	*SLUF_PB/FIL_ BGR	PB 66 67 bent-nite ci
Sum of Lengths:	*SLUF_PB/FIL	PB 74 69
	*SLUF_PS/FIL_ *SLUF/FIL (No P	
III. SCREENED SECTION(S)	*SLUF_PB/FIL_	РВ
Joint Length: 0.077	Filter Pack Typ Grada	e or tion prepark 20/40 \$ 10/20
	+	7.0
	VI. MONUMENTS	
	Stuckup L Flushr TOM to	nount S
Screened 4.85 Length:	TOM to T	
Length: Total Pipe Length:	• 5.39 ^TOC to	Desirable contracts and contracts are contracted and and contract and contracts are contracted and contract are contracted and contract are contracted and contract are contracted and contract are contracted and contracted and contract are contracted and contracte
Lengui.	Lock t	ype 🕠 🔼
	VII MOISTURE CONTE	NT
	VII. MOISTURE CONTE  = Depth to Water Below	
Joint Length: 1014 BOW to BOS: 0.51		
End Cap Length: 6.37		Frozen Soil Below GS
Pointed M Flat		Bottom Top
TOC to BOW:	Season	al 1
	Season	
	Permafro	
BCH = Bentonite Chips (gINT code)	Permafro	st 2
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface BOS = Bottom of Screen  VIII. CALCU	JLATIONS BELOW GROUND SURFA	.CE
BOW = Bottom of Well CEM = Cement (gINT code)		TOC to BOW 78.76
FIL = Sand Pack (gINT code) GS = Ground Surface	-8 71	- TOC to GS -0.59
SLUF = Natural Collapse/ Pea Gravel (gINT code)	TOC to BOW	BOW bgs 79, 35
SS = Stainless Steel TOC = Top of Casing	- BOW to BOS	72 /
TOM = Top of Monument	= 10C to BOS	TOC to TOS
TOS = Top of Screen PB = Blank Pipe (gINT code)	TOC to BOS	TOS bgs 73.99
PS = Slotted Pipe (gINT code)  * Circle filter-pack type	- Screened Length	tunaniko iku pratematako iku a
^ Flushmount = Negative Number	= TOC to TOS 73.4	TOC to BOS
Stickup = Positive Number		- TOC to GS - 0,59
		BOS bgs 78,84

Well No. (5) OLG-MW11-7980

DW



		VVELL	- DEVEL	OPWENT LO	JG	Car.	<b>a</b>
Owner-Client	DOT + PF			Well No. 🕦	16-MW	11-30	180
Location	Dillingher		_	Project No	10253	-009	
Weather	GOF Rain	N		Date	7/22/2	٨	
Development F		AH YTY		*			
Diameter and 1	Type of Cooling:		)	"pe			
Total Depth of		volonment (f			47 6	-112	7870
Depth to Water		• • • • • • • • • • • • • • • • • • • •		. 07	23.	1	18.7
Depth to Vvater			-	٠,	Top: 73	6	70.00
Doptil to dollar	ii Top and Bott			ent Details	100.	), 4 Dotton	18 102
Feet of water in	n well	<u>=</u> 14.93	ovolopiii	Time pump	ning started	1640	
Gallons per foo		0.17	_	Flow rate (g			),4-0.1
Gallons in well		• /	_		neasuremen		0,1
Surge method			_		L CUP		
Pump used	Waterra	,		Time pump		2140	
Tubing used (ft	^		×	Gallons Pu		~ 65 gals	<u> </u>
			_	Disposal:	Grac	J	(P 5)
Depth to Water	After Develop	ment (feet he	low top of	rasina).	78.99		
Total Depth of					23.81		
Tochoo!		Siopinoni (icc	t below top	or casing).	23.01		
100 100.	2.)		Observ	<u>rations</u>			
			7				
Time	Water Clar	ity (Visual)		Time	\\\\	ater Clarity (Vi	sual)
1645	100	ma .	7 7		Cler	ator Glarity (Vi	<i>sual)</i>
1656	Significantes 1	111			Char		
1704	6. 1 4. 1	ess turbid	7 1 2	4 2120	GU O I	a uhvi :	ha o
1714	V. torid by	20-110	33	18 2130	9	- more	MOVE
Purced do	P 1718	0000	<u>'</u> '	18 2140	Clear		
			1		<b>-</b>		
2025	0.17	ku)	1		-		
2035		Guin	1				
2045	SAA	,	-		y I		
2055	less trabil	•	-		8		
2000	less tulb	<u>u</u>			2		
NOTES:	DTW 45.51	Q 174D	41.10	D 1750	24.34 Ca	1209	
Recharges	0 @20:0	Surge	d Dufi	1 2015			
	A - '	W	ELL C⁄ASII	NG VOLUMES			
Diameter of Well [II	D-inches]	11⁄4	2	3	4	6	8
Gallons per lineal for	oot	0.08	0.17	0.38	0.66	1.5	2.6

Well No. DhG-HW11-750

SHANNON & WILSON, INC

Owner/Client Dort	PF	31 10 10 1 <b>0</b> 11 • 13				Project N	O. DEG-MWI	1-79° 90
Location Dillys	rain				_	Dat	te 7/22/21	1
Compling Derconnel	anxive	SAH	VTY				102531-0	220
Weather Conditions	Parada		ir Temp. (°I	=) (a) F	_	Time starte	ed 2145	<u>70</u> 9
	CENTRA	To do and		7 (0)	Totalia T	Time complete		
						mile complete	4 2230	_
Sample No. 34 0 M	11-111-70	a	Tim	2126				
Sample No. Dug-W	10011-12		- Tim	ne <u>дао5</u> ne <u>а а З</u> о				
Duplicate Ep - M Equipment Blank	WI				-			
Equipment blank	4		_ IIII	ie	_			
Pump ttomice		<del>.</del>					-01	
Purging Method portable	) / dedicai	ted pump		D	iameter and	Type of Casin	g_2	-
Pumping Start 147		4 -	Approxi	mate Total [	Depth of Well	l Below MP (ft	.) 18	
Purge Rate (gal./min.)	Imin =	0.05 98	Meas	sured Total [	Depth of Well	I Below MP (ft	77.26+	123=724
Pumping End 1215	_	0.		De	epth to Water	Below MP (ft	) 23.91 ;	721
						Below MP (ft		4.83
Pump Set Depth Below MP (ft.)	N 76.	5				f Water in We		
KuriTec Tubing (ft.)	~ 841					Gallons per foo		
TruPoly Tubing (ft.)	-					Gallons in We		-
							0.5 cat	- dought
			Purge Wa	ater Disnosa	GAC		1.642	water
Monument Condition Newly	Incal	1 - 1	i digo vvi	аст Бюроза	II CIPIC		1. w gat	fr65gall
Worldment Condition	Shitai	10					- 1	
Cooling Condition A)	43 - 11.	0						
Casing Condition Newhor	Installe	el			1			
				V	1			
Wiring ConditionA				9-				
(dedicated pumps)				,		and the same	1	<del>-</del>
				1.5		and the second s		_
Measuring Point (MP) Top of Ca	asing (TOC)		Monu	ment type:	Stickup	<b>Flushmoun</b>	₽	
		_		nt method:	and the same of th	/ Tape meas		
			nododromo	nt motriou.	riou a level	7 Tape meas	ure	
Top-of-casing to monument (ft.)	050		6	Da				
Monument to ground ourfees (ft.)	059		- 6 In 112		talogger type		<u> </u>	_
Monument to ground surface (ft.)	IVA	<u>U</u>			ogger serial #			_
			M	easured cab	ole length (ft.)	n/a	234.	_
□ Lock present and ope								
	outside of w	/ell						
<sup>′</sup> <u>□</u> Evidence of frost-jacki	ing							
Notes								
	_							_
								-
								_
-								_
		WELLO	CINIO VO:	LIMEC				
Diameter of Well IID in 1	21.5		ASING VOL			Γ		7
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8	1

MON WOO

Well No. 80 DLG-4W/1-75

Field Parameter Instrument	451 C	Circle one: Parameters stabilized or	>3 well volumes purged
Sample Observations			
Notes		Company of the Control of the Contro	
-			

FIELD PARAMETERS	[stabilization criteria]
------------------	--------------------------

			LD FARAIVIL I LIKO [SI			
Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
7150	( )	2.37	171.6	6,74	79,1	CHO
2153	6.4	1.23	1673	6.42	500	Clear
2156	7.5	0.21	149.3	9.55	13.0	Sightland ordin
2159	3.2	2,62	171.3	4.50	0.8	SAA
7302	18.7	0,60	73.7	4.65	-21.5	SAA
SAM	PUE	2205		1		
2 - 7	V 8				2000	
						***************************************
	· Sept					· · · · · · · · · · · · · · · · · · ·
		***				
- '-						
		, , , , , ,				
1.1						
			8		11	
			-			
	2.2				-	

Laboratory ses Eurofus Test Au

	Analysis	Sample Containers	Preservatives	Dup
<u>u</u>	PEAS x18	2×250ml	WA	
□				
□				
				□
П				旦

Well No.

# Publib:\Admin\Forms10/28/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG-MWIZ-40 Project Name DLG-PFAS SACTOR Project Number 102581-009	Date Installed 7-7 Logged By A Driller Disc	LF
I. TOP SECTION (CASING)  4.64 Initial Pipe Length Cuttoff Length Add-on Length Total Length	Diameter: 2" 🔼 4" 🔲	Other Other Type
II. MID SECTION (CASING)	V. BACKFILL	Depth Below GS
Number of Blank Sections	Botto	
Length of Section(s):	CEM (No Pipe)	6 0
10 43	+ CEM_PB / CEM_PB	D16
100	F (= *SLUF_PB/FIL_PB 2	- 15 BCH 1
	*SLUF_PB/FIL_PB	
	BLH BGR_PB 31	0.0
Sum of Lengths:	30.0 *SLUF_PB/FIL_PB 33	14 31.0
	*SLUF_PS/FIL_PS38	33.4
	*SLUF/FIL (No Pipe)	
III. SCREENED SECTION(S)	*SLUF_PB/FIL_PB	<del></del>
02/10 7	Filter Pack Type or Gradation	lica 10/20
Joint Length:	+	
	VI. MONUMENTS	
	Stuckup  Flushmount	11 1
2	TOM to GS	Elish
Screened 4, 63 Total Pipe	TOM to TOC	0,69
Length:	5, 38 ^TOC to GS	-0,69
	Lock type	
	W MOISTURE CONTENT	
	VII. MOISTURE CONTENT  ■ Depth to Water Below GS  ■ CONTENT	29,5
DOTE BOW to A AK	Depth to Water Below GS	~
Joint Length: BOS: BOS:	F	rozen Soil Below GS
End Cap Length:	AT G= Bott	tom Top
TOC to BOW:	31.13 Seasonal 1	/
100 to Bow.	Seasonal 2	
	Permafrost 1	
	Permafrost 2	
BCH = Bentonite Chips (gINT code)		
BGR = Bentonite Grout (aINT code)		4
bgs = Below Ground Surface BOS = Bottom of Screen  VIII. CALCUI	LATIONS BELOW GROUND SURFACE	
BOW = Bottom of Well	TOC to	BOW 37.93
CEM = Cement (gINT code) FIL = Sand Pack (gINT code)	77 97 -TOCh	A 111
GS = Ground Surface	TOC to BOW BOW	
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel	- BOW to BOS	20.37
TOC = Top of Casing	= TOC to BOS 37,44 TOC to	TOS 34, +6
TOM = Top of Monument TOS = Top of Screen	-7 7 1/1/ -TOC t	
PB = Blank Pipe (gINT code)	TOC to BOS TOS I	ogs 33.48
PS = Slotted Pipe (gINT code)	- Screened Length	27 LUI
<ul><li>Circle filter-pack type</li><li>Flushmount = Negative Number</li></ul>	= TOC to TOS TOC to	4 / /
Stickup = Positive Number	- TOC t	
	BOS	ugs 56100

# WELL DEVELOPMENT LOG

wner-Client	DOLFELOO		Well No.	DLG-M		
ocation	Windsock		Project No	102581	-009	
/eather	nercese, 50	priwind	Date	7/28/2	1	
	Personnel MOP		-			
ovolopilion.						
iameter and	Гуре of Casing:	2"	PVC			
otal Depth of	Well <b>Before</b> Deve	lopment (feet below t	top of casing):	37.73	initially,	37.47 after
epth to Wate	r Before Developm	nent (feet below top o	of casing):	28.4		+ Value
epth to Scree	en Top and Bottom	(from Construction L	_og):	Top: 32-4	6 Bottom:	37.47 081
			ent Details		13	_
eet of water i	n well	1.25	Time pumpir		1942	
Gallons per foo	101111	0.17	Flow rate (ga	al/min)	N/2 gpv	
Gallons in well			Flow-rate me	easurement i	method:	
Surge method	Surge block	on still though	5-90	al bucke	+	
Pump used	Watera	0	Time pumpir		1402	
Tubing used (1			Gallons Pur	nped ~	· 29 gall	
labilig daed (	-		Disposal:	Contain		C
		ent (feet below top of opment (feet below to	p of casing):	37.43		and @ 1630
		opment (feet below to			Measo	and @ 1630
		opment (feet below to	p of casing):	37.43	iter Clarity (Visi	(Same)
Total Depth of Time	Well <b>After</b> Develo	Obser	rvations	37.43		(Same)
Time	Well After Develo	Obser	rvations  Time	37.43 We	iter Clarity (Visu	(Same)
Total Depth of Time	Water Clarity Stock pump	Obser	rvations  Time	Wa twold sl.tn	iter Clarity (Visi	ual)
Time 1242 1248	Water Clarity Start pump too surge	Observices (Visual)  Wall Surges lack, 1  Shart fort	rvations  Time 1338	Waturbid Sl. to	iter Clarity (Vision bod)	ual)
Time 1242 1248	Water Clarity Start pump tood surge yalve came	Observices (Visual)  Washingto lack, you shock that	Time 1338 1340 1341	Waturbid Sl. to Move t	ter Clarity (Visually bud)	ual)
Time 1242 1248	Water Clarity Start pump too surge yalve come re-start, v.	Observices (Visual)  W Sugeblack, y black that  off  troid  und-screen,	Time (338 (340	We turbed sl. to move to si. tur	ter Clarity (Vision bod) bottom	of screen, +
Time 1242 1248	Water Clarity Stock pump tood surge Value came re-start, v. pullupto r surge 5 m	Observices (Visual)  W Sugeblack, y black t fort  off twood  mod-screen,  m ov-turibed	Time 1338 1340 1341 1342	Watubid Sl. to move to Si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	ual)
Time 1242 1248 1303 1304	Water Clarity Start pump too surge Value come re-start, v. pulluptor surge 5 m same @ t	Observices (Visual)  W Sugeblack, y black that  off theid  mid-screen,  m ov. turibid  sp of screen	Time 1338 1340 1342 1343 — 1402	We turbed sl. to move to si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248 1303 1309 13214 1320	Water Clarity Stock pump tood surge Value came re-start, v. pullupto r surge 5 m	Observices (Visual)  W Sugeblack, y black that  off theid  mid-screen,  m ov. turibid  sp of screen	Time 1338 1340 1342 1343 — 1402	Watubid Sl. to move to Si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248 1303 1309 13214 1320 1333	Water Clarity Start pump tood surge Value come re-start, v. pullupto r surge 5 m same @ t remove for	Observated  (Visual)  W Sugeblack, y  black that  off  troid  wd-screen,  M - ov. turibid  sp of screen	Time (338) (340) (1342) (1402)	Watubid Sl. to move to Si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248	Water Clarity Start pump tood surge Value come re-start, v. pullupto r surge 5 m same @ t remove for	Observated  (Visual)  W Sugeblack, y  black that  off  troid  wd-screen,  M - ov. turibid  sp of screen	Time (338) (340) (1342) (1402)	Watubid Sl. to move to Si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248 1303 1309 13214 1320 1333 1334	Water Clarity Start pump tood surge Value come re-start, v. pullupto r surge 5 m same @ t remove for	Observices (Visual)  W Sugeblack, y black that  off theid  mid-screen,  m ov. turibid  sp of screen	Time (338) (340) (1342) (1402)	Watubid Sl. to move to Si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248 1303 1304 13214 1320 1333 1334 NOTES:	Water Clarity Start pump tood surge Value come re-start, v. pullupto r surge 5 m same @ t vernore for turbid move to too	Observated  (Visual)  W Sugeblack, y  black that  off  troid  wd-screen,  M - ov. turibid  sp of screen	Time (338) (340) (1342) (1402)	Watubid Sl. to move to Si. tur	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248	Water Clarity Start pump tood surge Value come re-start, v. pullupto r surge 5 m same @ t remove for	Observices of Suren sot value, until	Time 1338 1340 1342 1343 1402	Waturbid SI. to move to Si. to work pun's punp	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +
Time 1242 1248 1303 1304 13214 1320 1333 1334 NOTES:	Water Clarity Start pump tood surge yalve come re-start, v. pullupto r surge 5 m same @ t vernore to turbid more to to casing of turb	Observices of Suren sot value, until	Time (338) (346) (347) (1342) (1343) (1402) (1402) (1504) (1504) (1505)	Waturbid SI. to move to Si. to work pun's punp	ter Clarity (Vision bod) a bottom bid up the seach, no	of screen, +

Owner/Client	20t					Project No.	102681-009
Location 1-200	a sock, nort	n of T	akiway B	dia.		Date	7/28/21
Sampling Personnel	13						MW12-40
Weather Conditions		Air	Temp. (°F)	505		Time started	
Weather Conditions	usi, www	7.11	Tomps ( )	, , ,	Tin	ne completed	1920
Sample No. DLG	- HOW 19-40		Time_	1852			
Duplicate DUG	- MWWE-140	)	Time	1855			
Equipment Blank			Time	_	-		
	hurricane	A					
Pump	7			Di	iameter and T	ype of Casing	2 " PUC
Purging Method porta		pump	Approximat		Depth of Well E		
Pumping Start 182	D Q WY	ze-6	Mogguro	d Total F	Septin of Well F	Below MP (ft.)	38.10 37.4
Purge Rate (gal./min.)	Zgp ~ /reg	pm	Weasure			Below MP (ft.)	
Pumping End 1965						Below MP (ft.)	- 1. []
			L	pepth to i		Water in Well	OH707.9
Pump Set Depth Below MP						A STATE OF THE PERSON OF THE P	
KuriTec Tubing						allons per foot	
TruPoly Tubing	(ft.)					Sallons in Well	
			Wind Miles	4.00			N2011+da
	41		Purge Water	Disposa	Contains	ME TH	S W/ GAC
Monument Condition	od new						
Casing Condition (50	od frew						
	4.3						
Wiring Condition	NA						
(dedicated pumps)							
(dedicated pamps)							
Manager Daint (MAD)	of Canina (TOC)		Monume	ent type:	Stickup	Flushmount	)
Measuring Point (MP) Top of	or Casing (100)	,	Aeasurement	20,000		/Tape measu	ire
		1,	Measurement	netriod.	riou a level	7 rapo modec	
	40 200			-		2/2	
Top-of-casing to monument			-		atalogger type		
Monument to ground surface	(ft.) Finsh		2 d.w.	Datal	logger serial #	n/a	
Lock present and Well name legible Evidence of frost-			Mea	sured ca	ble length (ft.)	n/a	
Lock present and	operational N/A	secu	edarta				
Well name legible	on outside of well	yes					
Evidence of frost-	iacking NoA	w w	ell new				
Evidence of most	The state of the s					-	
Notes							
Notes	/						
							-
		-		_			
		WELL C	ASING VQLU	MES			
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6
A STATE OF THE STA							

Well No.

DLG-HW12-40

Field Parameter Instrument		Circle one	: Parameters stabilized	or >3 well volumes purged
Sample Observations	1134 121100			
Notes	5			

FIELD PARAMETERS [stabilization criteria]

			ED I ARAMETERS [S	tabilization	ontenaj		
Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)	
1820	omo	on , twoid.	runa Ni qu	on to	too out a		il
1824	SI. twi	oid, turn da	/			9	1
1830	SHILS		MARCH YST D	- 2			1
1836	reer,						1
1839	5.5	45.8	288.9	603	113.6	class V. SI. tubil	1
1842	5.4	5.9	280.2	5.94	93.0		ł
1845	5.6	5.8	276.2	5.94	83.7	clear, 13 ht yellow	1
1848	5.4	5.8	271.0	5.95	79.3	16	1
1851	5.0	5.9	257.5	5.94	73.9	CLERCH IT P(NO	
	sumple		43117	V PSE P	751	Clest M (NIS	Covi
10-7-	1			A IST P			1
							1
							1

Laboratory Eurofins Test Am. + SGS

PFAS +18	* 2 HOPE ZSOML	None	Di
GRO	×3 VOAs	HCI	
Vocs	x3 VOAS	HCI	_
DEOIRRO	X2 250ML Aube	tici	

3588 c / 500 ML

500

Well No.

DLG-MW12-40

# Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No.  Project Name  Project Number  102581-009	Date Insta Logge D	
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	Slot Size: 0.01	ID         SS         Other           IM         4"         Other           ID         0.02         Other           ID         Down         Type
II. MID SECTION (CASING)	V. BACKFILL	
Number of Blank Sections		Depth Below GS
Length of Section(s):	CEM (No	Bottom Top
10.00 × 7		M_PB 1,5 0,4
10700	PG*SLUF_PB/F	
	BC BAR *SLUF_PB/F	H-PB 4 3
	RUHBG	RPB 68 63
Sum of Lengths:	+0,00 *SLUF_PB/F	IL_PB
	*SLUF_PS/F *SLUF/FIL (No	
III. SCREENED SECTION(S)	*SLUF_PB/F	
0.21	Filter Pack T	
Joint Length:	+	dation 10/20 Silia Surp
	VI. MONUMENTS	
	Stuckup  Flus	7 7 1
Screened 41 78	TOM to	to GS flush
Length: Total Pipe		to GS -0.37
Length:		sk type
	The Continue Call	
	VII. MOISTURE CON'  Depth to Water Bel	0 9 04
Joint Length: 0.73	Depth to Water Bei	ow GS
End Cap Length: 0.26		Frozen Soil Below GS
Pointed 🖾 Flat 🗆	79 37	Bottom Top
TOC to BOW:		sonal 1
	Seas Perma	errost 1
		afrost 2
BCH = Bentonite Chips (gINT code)		
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface	JLATIONS BELOW GROUND SUR	FACE
BOS = Bottom of Screen BOW = Bottom of Well	DEATIONS BELOW GROUND SON	, AGE
CEM = Cement (gINT code)		TOC to BOW
FIL = Sand Pack (gINT code) GS = Ground Surface	79.37	- TOC to GS
SLUF = Natural Collapse/ Pea Gravel (gINT code) SS = Stainless Steel	TOC to BOW O, 49	BOW bgs 77,74
TOC = Top of Casing	= TOC to BOS 78, 88	TOC to TOS
TOM = Top of Monument TOS = Top of Screen	70 00	- TOC to GS -0.37
PB = Blank Pipe (gINT code) PS = Slotted Pipe (gINT code)	TOC to BOS	TOS bgs
* Circle filter-pack type	- Screened Length 74.2	TOC to BOS 78,88
^ Flushmount = Negative Number Stickup = Positive Number	-100 10 100	- TOC to GS
		BOS bgs 179.25

### WELL DEVELOPMENT LOG

		L DEVELOP			
Owner-Client	DOTSPF		Well No.	DLG-HW	73.7
Location	wind sock	_	Project No	102581-	009
Weather	overcast, 50s		Date	7/28/21	
Development F	Personnel <u>wpw</u>	_			
Diameter and	Type of Casing:	2"90	le		
	Well Before Development			79.22	
	er Before Development (fee			29.61	
Depth to Scree	en Top and Bottom (from C			Top: 74-2	Bottom: 78-88
	4.00	Development		V	m@ 1514
Feet of water i			Time pumpi	ATTACABLE AND A STREET	135 1514
Gallons per fo		_	Flow rate (g	24-24-14-14-14-14-14-14-14-14-14-14-14-14-14	- Star gal /u
Gallons in well	412	<del>_</del>		easurement metho	od:
Surge method		trong	5-90		
Pump used	Materia pump		Time pumpi	17 17 17 17 10 V	055
Tubing used (f	ft) 90'		Gallons Pun	Control of the Contro	Spallons
			Disposal:	Container:	TE, GAC
Depth to Wate	er After Development (feet	below top of cas	ing):	79.23	
Total Depth of	Well After Development (f	eet below top of	!>	TOFO	
	vvon Aiter Bovolopinion (	cer pelett tep et	casing):	29.59	
	Voli Aiter Bevelopinent (	Observat		29.57	
	The state of the s			29.57	
		Observat	ions		ority (Migual)
Time	Water Clarity (Visual)	Observat	Time	Water Cl	arity (Visual)
Time 1435	Water Clarity (Visual)	Observat	Time	Water Cl	mid sween
Time 1435	Water Clarity (Visual) Start pump, fost yali	Observat	Time	Water Clap to St. twod	mid sween
1435 1452 151211	Water Clarity (Visual) Start pump, fost vali Same V. Jurbal, Surge (a)	Observat	Time 1628 1634	Water Clap to SI. twody	mid screen,
1435 1452 151214 1521	Water Clarity (Visual) Start pump, fost valu same V. purbol, Surge a Surge a middle of	Observat	Time 1628 1634 1637 1642	Water Cli pull up to Sl. twoid V. Sl. two back to b	mid screen,
1435 1452 151214 1521 1528	Water Clarity (Visual) Start pump, fost vali same v. turbol, surge a Surge a middle of	Observat	Time 1628 1634 1634 1642	Water Cli pull up to Sl. twoid V. Sl. two back to b Sl twoid	mid screen,
1435 1452 151214 1521 1528 1536	Water Clarity (Visual) Start pump, foot value same v. purbod, surge a Surge a middle of move to top of pump off	Observation wetter twist	Time 1628 1634 1637 1642 1643 1654	Water Clap to SI. two down to SI. two down!	mid screen,
1435 1452 151214 1521 1528	Water Clarity (Visual) Start pump, fost vali same v. turbol, surge a Surge a middle of	Observation wetter twist	Time 1628 1634 1634 1642	Water Cli pull up to Sl. twoid V. Sl. two back to b Sl twoid	mid screen,
1435 1452 151214 1521 1528 1536	Water Clarity (Visual) Start pump, foot value same v. purbod, surge a Surge a middle of move to top of pump off	Observati ve closed we closed by blastic bottom wetter tribul screen	Time 1628 1634 1637 1642 1643 1654	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,
1435 1452 151214 1521 1528 1536 1557	Water Clarity (Visual) Start pump, foot vali same v. purbol, surge a Surge a middle of move to top of pump off restart w/o surge v. twood a bas	Observati ve closed we closed by blastic bottom wetter tribul screen	Time 1628 1634 1637 1642 1643 1654	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,
1435 1452 151214 1521 1528 1536 1557	Water Clarity (Visual) Start pump, foot vali same v. purbol, surge a Surge a middle of pump off pump off restart w/o surge v. two a a bas sl. two do	Observati ve closed we closed by blastic bottom wetter tribul screen	Time 1628 1634 1637 1642 1643 1654	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,
1435 1452 151214 1521 1528 1536 1557	Water Clarity (Visual) Start pump, foot yali Same V. turbid, Surge @ Surge @ middle of pump off pump off restart w/o Surge V. turbid @ bas SI. turbid @ bas pump off	Observation de construction de	Time 1628 1634 1637 1642 1643 1654	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,
1435 1452 1521 1528 1528 1536 1557 — 1610 1615	Water Clarity (Visual) Start pump, foot vali same v. purbol, surge a Surge a middle of pump off pump off restart w/o surge v. two a a bas sl. two do	Observation de construction de	Time 1628 1634 1637 1642 1643 1654	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,
1435 1452 151214 1521 1528 1536 1557	Water Clarity (Visual) Start pump, foot yali Same V. turbid, Surge @ Surge @ middle of pump off pump off restart w/o Surge V. turbid @ bas SI. turbid @ bas pump off	Observation de construction de	Time 1628 1634 1637 1642 1643 1654	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,
1435 1452 15121 1521 1528 1536 1557 — 1610 1615	Water Clarity (Visual) Start pump, foot yali Same V. turbid, Surge @ Surge @ middle of pump off pump off restart w/o Surge V. turbid @ bas SI. turbid @ bas pump off	Observation de construction de	Time 1628 1634 1637 1642 1643 1654 1655	Water Cli pull up to SI. twoid V. SI. two back to to SI twoid clear! pump off	mid screen,
1435 1452 15121 1521 1528 1536 1557 — 1610 1615	Water Clarity (Visual) Start pump, foot value Same V. turbol, Surge a Surge a middle of a move to top of pump off restart w/o surge V. turbold a bas SI. tur	Observation well-screen black	Time 1628 1634 1637 1642 1643 1654 1655	Water Cli pull up to SI. twoid V. SI. two back to b SI twoid clear!	mid screen,

Well No. DLG-14W12-80

Owner/Client	DOTSPF					Project No.	102581-009
Location		Joseph of Tay	chony B			Date	7128121
Sampling Personnel						Well	HW12-80
Weather Conditions	<i>mercast</i>	Air	Temp. (°F)	mid 50		Time started	
					Tim	e completed	2030
Sample No.	DLG-HWIT	2-80		2016			
Duplicate			Time_	_			
Equipment Blank	_		_ Time_				
Pump	THE HWINCON	e_					4546
	portable / dedi			Dia	ameter and Ty	oe of Casing	2 "PVC
Pumping Start		outou pump	Approxima		epth of Well B		
Purge Rate (gal./min.)					epth of Well Be		79.23
	2018 2020		*********		oth to Water B		29.50
r diriping Lind	3				e (if frozen) B		_ 4
Pump Set Depth Bel	ow MP (ft.)	81		21,000		Vater in Well	49-64
	Tubing (ft.) 130					lons per foot	0.17
	Tubing (ft.)	_				llons in Well	8.4
1101 019	( abing ( i.i.)						~ agal+deve
	140		Purge Wate		containe		
Monument Condition	goodnew				-		
Casing Condition	good new						
	0						
Wiring Condition							
(dedicated pumps)							
Measuring Point (MP)	Top of Casing (TC		Monum deasurement	ent type: method:	Stickup Rod & level	Flush <mark>m</mark> ount Tape measu	re
+ - +	E	).36	*	Do	talogger type	n/a	-
Top-of-casing to mor	idilient (it.)		-		talogger type _	n/a	
Monument to ground	suпасе (π.)	1034			gger serial #_		
The Valence		12 WK S	Pare & or	sured cab	le length (ft.)_	n/a	
Lock prese	ent and operational	No local o	CCC, Co				
2000	legible on outside	The second secon					
Evidence of	f frost-jacking	No ne	20				
Notes							
							<del></del>
				45			
		WELL C	ASING VOLU	IMES			
Diameter of Well [ID-inches	1 СМТ		2	3	4	6	8
Gallons per lineal foot	0.0002		0.17	0.38	0.66	1.5	2.6

Well No.
DL6-Hw12-80

NON

YSI D	Circle one: Parameters stabilized or >3 well volumes purged
_	
	YST D

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)
1975	24000		word		-3-W17 Y	
1928	SI TW		A1 114			
1947	5 dund					
1950		rbil				
1955			4451			
1958	5.2	क.प	338.4	6.32	11.8	SI tropial
2001	5.4	7.3	343.9	6.37	-18.7	V. St. Arbid
2005	4,9	6.4	331.7	6.38	-24.3	( v
2008	5.0	6.1	3424	6.38	-26.8	9.1
2011	4.8	4.0	341.4	6.39	-32.2	clear
2014	4.7	4.0	340.8	6.39	-37.2	9
	-					4

Laboratory ses Ewofus TestAm

	Analysis	Sample Containers	Preservatives	Dup
×	PFAS 18	*2 ZSONL HOPE	None	<u></u>
□				므
旦				므
므				<u></u>
				므
				旦

358e /500ml

Well No.

# Publib:\Admin\Forms10/28/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DLG - MW/4 - 50 Project Name DLG PFAS SHE Char, Project Number 102581-009	Date Installed 7-23-21 Logged By ALF Driller Discovery
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	IV. WELL DATA  Pipe Type: PVC SS Other  Diameter: 2" S 4" Other  Slot Size: 0.01 0.02 Other  Joint Pin End: Up Down Type
II. MID SECTION (CASING) Number of Blank Sections Length of Section(s):  Sum of Lengths:  H  Screened  Screened  A  Screened   *SLUF_PS/F(L_PS 50 40  *SLUF/FIL (No Pipe)  *SLUF_PB/FIL_PB  Filter Pack Type or Gradation  VI. MONUMENTS  Stuckup Flushmount  TOM to GS	
Joint Length:  BOW to D.47  Book to Bos:  Total Pipe Length:  BOW to D.47  BOS:  TOC to BOW:  BCH = Bentonite Chips (gINT code)	VII. MOISTURE CONTENT Depth to Water Below GS  Frozen Soil Below GS
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  - Screen	to BOW OC to BOS OC to TOS OC TOC TOC TOC TOC TOC TOC TOC TOC TOC



VV	ELL DEVELO	PIVIENT LOC		0.4444	A STATE OF THE STA
Owner-Client DOTEPF-DLG AT	riport	Well No.	DLG-	mW14-	50
Location SW Fire Train	in thea	Project No	1025	81-009	
Weather Classes 6	05	Date	7-2	6-21	
Development Personnel	P				
Diameter and Type of Casing:	11.2.1.1.	21	PVC		
Total Depth of Well Before Developme	ent (feet below top	of casing):		48.43	
Depth to Water Before Development (f	eet below top of c	asing):		38,60	
Depth to Screen Top and Bottom (from	Construction Log	):	Top: 48	06 Bottom	: 38 37.84
0.0	Developmen	t Details		10.	202
Feet of water in well 9,8	3	Time pumpir	g started	15.	28
Gallons per foot	t	Flow rate (ga	ıl/min)	10	pm
Gallons in well		Flow-rate me	//	/ //	, ,
Surge method Surge block of	n tybing	5-9	al b	whet	
Pump used Waterna In	ential	Time pumpir		17	82
Tubing used (ft) 60		Gallons Pum		112	0
		Disposal: (	onture	red for	- GAR fillow
	Observa	<u>tions</u>			
			111		
Time Water Clarity (Visua	al)	Time	Wa	iter Clarity (Vi	sual)
1500 Surgging sta	1		*		
15:43 Very furbi	d				
15:54 Mod-V. Tox	ard.				
16:03 Mod. Tox	out I	-	The of		
11:12 Mod Tor	015			5	
16:21 Bl-Made Tox	6.50		-		
16:67 St-Mark Tox	100				
12:13 31 TILL	1	Sel Selection			
12:20 NOT. 9		-46			
17:26 M-11					
11.65 Mosky ale	15:0	10	20 6	2	1
NOTES: Surgel G	one this	78-15:	35,	unper	000
additions or skellow	with the	vican	12 mg	at en	d of clerc
Included in 100 galle	WELL CASING	VOLUMES	<u> </u>		
Diameter of Well [ID-inches] 11/4	-	3	4	6	8
Gallons per lineal foot 0.08	3 0.17	0.38	0.66	1.5	2.6

SHANNON & WILSON, INC

Well No. DLG-MW14-SO

Owner/Client	DOTA PF-DUG	Aireo	rt			Project No.	102581-009
Location	Sw Fire trams	neura			T	Date	7-26-21
Sampling Personnel	ALF.	0		T. Santa Co.	7.1	Well	DL6-MW14-50
Weather Conditions	Patty Clav	Air 7	Гетр. (°F)	605		Time started	
A A A CONTRACTOR OF THE A	- iwiy cus	7			Ti	me completed	
	DLG-MW14-	50		18:57			
Duplicate _	DLG-MW14-	150	Time	18:47			
Equipment Blank	EB-MW14-5	0	Time	19:40			
Pump	HurriconexL						1000
Purging Method		l pump		Di	ameter and T	ype of Casing	2"PVC
Pumping Start	15:39	pamp	Approxim			Below MP (ft.)	
Purge Rate (gal./min.)	Magan Magan					Below MP (ft.)	
Pumping End		857	11122			Below MP (ft.)	
, amping Lina	The state of the s	7.5				Below MP (ft.)	
Pump Set Depth Beld	ow MP (ft.) ~40			70 MAR	THE ROLL STATE OF UKY.	Water in Well	
	Tubing (ft.)					allons per foot	
	Tubing (ft.)					Sallons in Well	
77.02%	3 (/				Purge Water	Volume (gal.)	243 -devel
	0 1	F	ourge Wat	er Disposa	Container	red for	GAC Followhon
Monument Condition	Good.			11. 21.12.0.22.00	2000	170000	
	O voc.						
Casing Condition	1900cl.						
casing condition	Good.						
Wiring Condition	n/a						
(dedicated pumps)							
Measuring Point (MP)	Top of Casing (TOC)		Monum	nent type:	Stickup	/Flushmount	>
THE PROPERTY OF THE PARTY OF TH		Me	asurement	the second second second		/ Tape measu	
	A 1 1 1 1 1 2 1 4 1						7
Top-of-casing to mon	ument (ft.) 0,61			Da	talogger type	n/a /	
Monument to ground s		A.			ogger serial #		
CONTRACTOR STATE	(1.1)	0	Me		ole length (ft.)		
□ Lock preser	nt and operational		6705			-	
10/-11	egible on outside of wel	inside					
	frost-jacking	Maria				(	
□ Evidence of		10014					
							4
Notes Purged	~75 00llon	o pm	- to	K139	w/ thr	menie R	uns to
L. 121	alex sold and	FILL	DV	alex C	lement	June 1	1
Phila	an elemen	VI CVI	AIC W	The contract of	Services.	-/-	
1							
-		7.7.121	78100			700	
		WELL CAS	ING VOL	JMES			
Diameter of Well [ID-inches]	CMT	11/4	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

MOR

Well No. DLG-MW14-50

			LD PARAMETERS [sta		criteria]	<i>a</i> -30-c	1-72.)
Time 8:44 8:47 8:50 8:53 8:54	Temp. (°C) [±3%] 5.0 4.9 4.9 4.9 5.0	Dissolved Oxygen (mg/L) [±10%] 1.74 1.53 1.48 1.46 1.40	Conductivity (µS/cm) [± 3%]  291,2 239.8  739.7  738,9  236.6	pH [± 0.1] 6.2) 6.21 6.19 6.18	ORP (mV) [± 10 mV]  140.6 [42.2 [43.9 [44.6 [45.5]		arity (visual)
	Laboratory Analysis PAH GRO VOCS PPAS		Sample Containers		Preservatives	Dup III	ESSSI

# Publib:\Admin\Forms10/26/2015ocs\EnvForms\S.A.P.\Well Water Sampling Forms MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well No. DL & - MW/4 - 80 Project Name DL & PFIAS Size Character 102 581- 004	Date Installe Logged E Drille	By ALF
I. TOP SECTION (CASING) Initial Pipe Length Cuttoff Length Add-on Length Total Length	IV. WELL DATA  Pipe Type: PVC  Diameter: 2"  Slot Size: 0.01  Joint Pin End: Up	4"
II. MID SECTION (CASING)	V. BACKFILL	Death Below CD
Number of Blank Sections  Length of Section(s):		Depth Below GS Bottom Top
Length of Section(s).	CEM (No Pip	
10 × 7	+ CEM_F	
1	*SLUF_PB/FIL_F B/HZ_BEH_F	
	*SLUF_PB/FIL_F	
	A M BCH BOR	PB 68 67
Sum of Lengths:	*SLUF_PB/PIL_F	
	*SLUF_PS/RIL_F *SLUF/FIL (No Pip	
III. SCREENED SECTION(S)	*SLUF_PB/FIL_F	
A 20 = -	Filter Pack Type	
Joint Length:		ion preparale & 10/20
	+ VI. MONUMENTS	
	Stuckup Flushm	nount 🔼
Starting to Sale	TOM to 0	
Screened 4 88 Length: Total Pipe	~ 70 TOM to TO	00 -0.31
Length:	^TOC to 0	- 41.41
	Lock ty	pe <u>na</u>
	VII. MOISTURE CONTE	NT
BOWto	= Depth to Water Below 0	
Joint Length: 0.21 BOW to 8.47		TEAN MICH.
End Cap Length: 0.26	3	Frozen Soil Below GS
Pointed D Flat	8,93 Seasona	Bottom Top
TOC to BOW:	Seasona	
	Permafros	
	Permafros	t 2
BCH = Bentonite Chips (gINT code)		7
BGR = Bentonite Grout (gINT code) bgs = Below Ground Surface	TIONS BELOW GROUND SURFA	CE
BOS = Bottom of Screen BOW = Bottom of Well	HONS BLEON GROOMS COM A	
CEM = Cement (gINT code)		TOC to BOW 78,93
FIL = Sand Pack (gINT code) GS = Ground Surface	TOC to BOW 78-93	- TOC to GS -0.31
SLUF = Natural Collapse/ Pea Gravel (gINT code)	10010	BOW bgs 79,24
SS = Stainless Steel TOC = Top of Casing	- BOW to BOS 18.44	TOC to TOS 73.58
TOM = Top of Monument	= TOC to BOS	-TOC to GS -0,31
TOS = Top of Screen PB = Blank Pipe (gINT code)	TOC to BOS	TOS bgs 73.89
PS = Slotted Pipe (gINT code)  * Circle filter-pack type	- Screened Length	C. 31 - 12 - 17 -
	= TOC to TOS	TOC to BOS 78,46
^ Flushmount = Negative Number	100 10 100	
^ Flushmount = Negative Number Stickup = Positive Number	10010100	- TOC to GS - 0, 31  BOS bgs 79, 77

10/26/2015

0 - 0 - 1 / 1	MALINI DIC	Mus 14.	-00	
2 1	Well No.	1020	281-00°	
Location Doughwest Fire-Transferen	Project No	70	001	
Weather Cloudy 605	Date	+-	6-01	
Development Personnel 4CF, VTY				
Diameter and Type of Casing:	pvc			
Total Depth of Well Before Development (feet below top of	of casing):	78.54		
Depth to Water Before Development (feet below top of ca		28.4	3	
Depth to Screen Top and Bottom (from Construction Log)		Top:	3 Bottom	27805
Development		73.5		78.88
Feet of water in well 40.11	Time pumpin	1000000	14:7	8
	Flow rate (ga		2/0	m
Gallons per foot	Flow-rate me	1	nethod:	4777
Surge method Surge block on tubing	S-34	buch	of.	
	Time pumpin		14.45	_
Pump used Waterra Therital	Gallons Pum	The state of the s	1220	
Tubing used (ft) 40		_	-10	ONE ON
	Disposal:	ntanie	ried tier	GITCINE
Observat	<u>ions</u>	(Y-Y-C)	4smo	row,
Time Motor Clarity (Migual)	Time	\\/at	er Clarity (Vis	aual)
Time Water Clarity (Visual)  14 35 V -Lubta	Time	vval	er Clarity (Vis	sual)
1440 purged dry water @ 75,2				
lowered histing				
1445 priraced ary				
compag up a 10.34.				
permin				
San I Day and	2 1/1	2 2		
NOTES: Surged from 14:00	9-14:	4		
WELL_CASING	VOLUMES			
Diameter of Well [ID-inches] 11/4 2	3	4	6	8
Gallons per lineal foot 0.08 / 0.17	0.38	0.66	1.5	2.6

Well No. DLG-HW14-80

### WELL DEVELOPMENT LOG

Owner-Client	LL DLVLLO	Well No.	DLG-HW14-8	ro
Location Southwest traw	um area	Project No	102581-009	
ATTENDED TO THE PARTY OF THE PA	505	Date	7127121	
Development Personnel	)	CA	LF started 7/20	o, puzzed dry)
And Arrana Libera		Ų,		110
Diameter and Type of Casing:	Z" P	NC	LL III	
Total Depth of Well <b>Before</b> Developmer	nt (feet below to	p of casing):	78.54	
Depth to Water <b>Before</b> Development (fe		N. C. S.	38.53	
Depth to Screen Top and Bottom (from				om: ~78-5
de la constitución de la constit	Developme		73.50	78.88
Feet of water in well 40.1		Time pumpi		
Gallons per foot		Flow rate (g		2 gpm
Gallons in well 6,8		m 160	easurement method:	
Surge method Surge black	-	20.00	in volume	640
Pump used where inertial	1	Time pumpi		esterday wzogal="30
Tubing used (ft) Nove, reuse f	on previous	Gallons Pun	No. of the second	
altal.		Disposal:	CONTIATION EN	ac fitherton
Depth to Water After Development (fee	t below top of ca	asing):	5TW 69.761	@ 1359
Total Depth of Well After Development			78.18	
		O,	-10330	
	Observa	ations		
		Time	Motor Clarity	\ (iaal)
Time Water Clarity (Visual	)	Time	Water Clarity (	
1330 Burges stige of	W bid	1356		ton, purge dry
1332 more to botton, 's	2110	-	dy the	014
1334 more up 1+4		1605		value only @ both
1336 14 41 19		1606	v. tubil	
1338 11 11 11		1610	turbil	
1340 " " "		1622	11, flown	g continuously but
1342 11 11 11		1634	Still turbed.	even slower massive
1344 pung off		1639	two up to pow	ge de DINO
13950 restant@ both	(P) Da	1640		TW 74.69
	act	10	wi total audi 781	
Struct Suize Bi			M John addit to	
NOTES: purged dy 21	26, Susas	2 > 10 mm's	monly up so	rean 2 mons
each interval . Allow	to seeked	2-	<u> </u>	
	WELL CASIN	IG VOLUMES		
Diameter of Well [ID-inches] 11/4	(2	3	4 6	8
Gallons per lineal foot 0.08		0.38	0.66 1.5	2.6
	9001416			10 10 10
ANNON & WILSON, INC	5.8 @14°	44	Well No. 🗍	DLG-4014-80
who who	17 A 15	18		
116			nd -001 -00	N388 place to 110
45	18 @ 160	D -> NB	ols reging	The second second

EFO

Owner/Client DOT	APF.					Project No.	102581-009
Location South		inne a	en		-	Date	7/29/2 7/30/21
Sampling Personnel NON					- 1		2129/20 DIG- 40014
Weather Conditions		an Air	Temp. (°F)	rud50	Ti	Time started me completed	1000
Sample No.  Duplicate  Equipment Blank	- MOST -	80	Time Time Time	0937			
Pump Purging Method Pumping Start Purge Rate (gal./min.) Pumping End Pump Set Depth Below MP (ff KuriTec Tubing (ff TruPoly Tubing (ff  Monument Condition Casing Condition Wiring Condition	76', 85'	17.77	Measu	ate Total I red Total I De Depth to I	Depth of Well Depth of Well opth to Water ce (if frozen) Feet of G Purge Water	Below MP (ft.) Below MP (ft.) Water in Well allons per fool	38.50 39.68 0.17 6.75 ~ 4 galyons+ clought
(dedicated pumps)  Measuring Point (MP)	Casing (TOC)	N	Monum leasurement	ent type: method:	Stickup Rod & level	Flushmount	
Top-of-casing to monument (ff Monument to ground surface (ff Lock present and op Well name legible or Evidence of frost-jac	erational Notes of w	o lock, s	- Me Runed a	Datale asured cal	atalogger type ogger serial # ole length (ft.)	n/a	
Notes use flow	restrict	electrolic B	ASING VOL	IMEC			
B11	- Color		ASING VOLU	Transaction of the same of the			
Diameter of Well [ID-inches] Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6
Ganoria per inical toot	0,000200	0.00	0.17	0.00	0.00	1.0	2.0

المام

Well No.

Field Parameter Instrument	VST D Circle one: Parameters stabilized or >3 well volumes purged)
Sample Observations	well passed dy thirty development on 7/26 and 7/27/2
Notes	water sample si turbod

# 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)
	, noghu	tripid				
	product					
09 25	Sl. twi	oldio				
	proceed	YSI	PR 1440 / 1			
6930	6.2	11.5	3484	6.95	120.2	si-tubil
0933	6.1	9.2	331.8	6.75	65 67.3	44
0936	6.5	8.7	323.7	6.71	\$24.2	16
0937	Sample					
					-	

lt.	austing #6	
Laboratory		

Analysis	Sample Containers	Preservatives	Du
PFAS ×18	×2 25 OML HOPE	Nove	0
		2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	
			ㅁ
			ㅁ

Owner/Client	DOT-SP	=					Project No.	102581-009
			ce lots.	west of	Tarke	A		7/26-7/27/21
Sampling Personnel		31 01 0	Se (013)	CACST OF	Touris	-1	100000000000000000000000000000000000000	2006-MW08
Weather Conditions		11001	Air	Temp. (°F)	and Eng	-	Time started	
Weather Conditions	Salat	Lucy	7311	Temp. (T)	mar 50.		ime completed	
	,						ino completed	1120 +1124
Cample No	70000	-MU1208-	-20	Timo	1103			
Sample No. Duplicate	2000	10000	-	- Time		5		
		=		-		-		
Equipment Blank				_ Time		-		
	Peristal				128	alled a rough		1/2 "PVC
Purging Method							Type of Casing	1/2 100
Pumping Start	1531	7/26. 110	2 +/27.				Below MP (ft.)	
Purge Rate (gal./min.)	40,200	P ~0.059	pm.	Measu		THE RESERVE WHEN THE PARTY OF T	Below MP (ft.)	
Pumping End	1850 7	12600 110	87/27.		The second section of the second		Below MP (ft.)	6.28 before
		)			Depth to le	ce (if frozen)	Below MP (ft.)	- 4.4.3
Pump Set Depth Bel	ow MP (ft.)	16.5				Feet of	f Water in Well	12.18
KuriTec	Tubing (ft.)	25				G	Sallons per foot	\$0.08
	Tubing (ft.)						Gallons in Well	Dog XI gollon
	10000					Purge Water	r Volume (gal.)	~1.5 gal
				Purge Wat	er Disposal	Filteru	6AC	
Monument Condition	motal	rim o	f mon				Off. Man	ment
	burred	under	M2	0 2-31	velus o	of card	Igravel / ye	estation
Casing Condition		or los	0 11			91	0 / 0	
Casing Condition	good							
	V							
Wiring Condition	NP							
(dedicated pumps)								
						201 4		
Measuring Point (MP)	Top of Ca	sing (TOC)			nent type:	Stickup	/Flushmount	2
			N	leasuremen	t method:	Rod & level	Tape measu	re
Top-of-casing to mor	ument (ft.)	-0.3	2		Da	talogger type	e n/a	
Monument to ground s		-0.2		(ب	Datalo	ogger serial #	# n/a	
						ole length (ft.)		
I ock prese	nt and oner	ational No	lock.	secured				
Well name	logible on a	uteido of w	Alo n	and with	ten			
Evidence of	f front inclin	utside of w	None	37/100				
Evidence o	i irost-jackii	ig	Por				-	
Notes 7120	-100	1 .12 0	allons,	× 1.	will ust.			
Notes 120	purge	NZU	- Allows	210	vell volu	2000		
71-	0	0.00	1170	n	-11 >-	0 70 06	-design in	A. xell
+127	Drw		11.78	CA IN CO	411	1790 04	original vo	1
	@ 111	8, pm 17	2(					
			WELL	ASING VOL	LIMES			
Diameter of Well [ID-inches]		CMT	11/	2	3	4	6	8
			0.08	0.17	0.38	0.66	1.5	2.6
Gallons per lineal foot		0.000253	0.08	211	0.36	0.00	1.0	2.0

NE

Well No.

		4000		tani di di	aluria -	
			LD PARAMETERS [st	abilization c	riteria]	
Time	Temp. (°C) [± 3%]	Dissolved Oxygen (mg/L) [±10%]	Conductivity (µS/cm)	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
(831	Stat pu		te bottom of	well w		twoid
1832	clear	w/ Small o	gavic particles			124
1836	clear,		I pull up 18	from b		
1839	GH	27.0%	57.6	6.45	3:13:5	desc
1842	5.9	21.5%	57.5	5.99	220.5	14
18484		recharge,	well turn fla	s watt a	s low as	ossible
1850	still to	mbbles of	+ tubur - DRY			
1102	ctart o					
1103	Samole	rigins, cla				
	1					
		ALCOHOL: ALCOHOL:				

Laboratory	Theres		
Analysis	Sample Containers	Preservatives	
X18 PFAS	*2 HOPE SOUNL		

Well No. 2006-14008-20

Dup □

800

Owner/Client_			lana da la				102581-009
Location South		ests/Ma	ka pride b	ldg, neo	r-fence		7/29/21
Sampling Personnel wow		/	- 1	0			EVERTS-MWI
Weather Conditions 13ght	an wacest	Air	Temp. (°F)	mid-505		Time started ime completed	
Sample No. <u>Evert</u>	5-HW1-	25	Time_ Time	1412	-		
Equipment Blank			Time	_			
Pump	-		ic purp	Di	ameter and 1	Гуре of Casing	Z"PVC
Pumping Start 1309			Approxima			Below MP (ft.)	
Purge Rate (gal./min.)	gal/wh					Below MP (ft.)	27.32 - 1.37 - 28.69
Pumping End 1416	<del>3</del> /			De	pth to Water	Below MP (ft.)	
4. 6				Depth to I	ce (if frozen)	Below MP (ft.)	
Pump Set Depth Below MP (f						Water in Well	
KuriTec Tubing (f						allons per foot	
TruPoly Tubing (f	t.) <u>10'</u>					Gallons in Well	
			-			Volume (gal.)	
11			Purge Wate	The second second second			Fitter w/ BAC
Monument Condition of an	. operation			_	bent. F	for rust	@ bage
appea	15 to have		0.2-0.			L 46 0	110/
Casing Condition 600 st			Munant,			nt off a	40' to access.
	bottom, exp	ed ac	mulate	a sed T.	well as	2 unknown	. Water inside
Wiring Condition (dedicated pumps)	aran gra						
					0		
Measuring Point (MP)	Casing (TOC)		Monum	ent type: (	Stickup	/ Flushmount	
		N	leasurement	method:	Rod & level	/Tape measu	ing
				and	1		
Top-of-casing to monument (f	t.) 2.166	0.0 (	same as a	Da	talogger type	n/a	
Monument to ground surface (f	t.) 2.16 w	( lid od	en	Datalo	gger serial #	n/a	
			Mea	asured cab	le length (ft.)	n/a	
Lock present and op	erational 👫	lock					
Well name legible of	n outside of wel	No no	while				
Evidence of frost-jac	king yes	see ub	sove.				
1	1			Y			
				0-01	1-1		
Notes Obstruction	vyff da	on, u	usble to	doplay	Murica	to bimb	
				, ,			
		WELL OF	A CINIO VOCI I	IMEG			
Z			ASING VOLU				
Diameter of Well [ID-inches]	CMT	11/4	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

- Dell depth: 2.16

Everts-MWI-300

Field		Instrument				>3 well volumes purged	
	Sample Of	oservations Notes	17 slow purge	rect		has low recherge.	
		110.00	UNA 17. V. S. I. V. S. I.	Monte At A.	DOVE IS	To Techniq.	
		FIE	LD PARAMETERS [st	abilization c	riteria]		
	Temp.	Dissolved	Linding and Bullion		LINE ALLO		
T:	(°C) ~	Oxygen (mg/L)	Conductivity (µS/cm)		ORP (mV)		
Time	[± 3%]	[±10%]	[±3%]	[± 0.1]	[± 10 mV]	Water Clarity (visual)	
1309	annect .	/SI Sec Fe	water from d	ear. up-6	on bottom.		
1309	5.9	37.0	61.2	5.67	216.4	elar	
1312	6.0	32.9	63.1	5.64	201.9	4	
1315	6.0	25-9	64.8	5.62	174.3	n	
1318	6.0	21.9	65.3	5.61	159. 2	0	
1321	6-1	19017.8	65.1	5.60	142.0	TV	
1324	6.1	14.5	64.9	5.60	133.1	21	
1327	6.1	11.1	66.8	5.60	122.7		
13302	9-80	flow rate st		Ime. +	un down,	so for 3 gall proges	
13353	1 7.4	67.1	67.2	5.72	100.2	Close	
13.37	5-2	29.0	75.1	5.73	97-6	4	
13 40	8.3	13.4	73.8	5.69	96.4	14	
13 47	7.2	7-7	70.2	5.68	92.2	i.	
1350	7.1	5.8	72.2	5.67	88.1		
1353	7.2	5.3	72.4	5.67	87.2	,,	
1350	7.2	64.7	7 2.9	5.67	84.0	b	
1359	7.2	4.3	7 2.2	5.67	81.1	3)	
1402	7.2	3.7	71.9	5.68	78.1	er .	
1405	7.3	3.6	75.2	5.71	76.4		
1408	7.3	3.4	75574.9	5.71	76.4	16	
(411	7.3	3.5	74.6	5.70	76.1	14	
100	Laboratory	-ses Eurotin				many be bloosed? Very 1	ow.
				1 4.	3	10 2001.	
	Analysis		Sample Containers		Preservatives	Dup	
DK.	PFAU XI	8	42 250ML HDF	E		<u></u>	
<u></u>						<u></u>	
<u></u>						<u></u>	
므						<u>_</u>	
. 😐						므	
旦						므	

800

4 th god post

Owner/Client	POTSPI	7					Project No	102581-0	909
		ron and f	2w ( "+	he island	(1) end	east of Ak		7179/21-	
Sampling Personnel	MON			7	,	prolines	We	2006-ta	11(-35
Weather Conditions	Nercas	+ Light +	Ail	Temp. (°F)	unid 501		Time started		29
				4		Tir	ne completed	14257	135
Sample No Duplicate	200	56- Hw.	1-30		1416	-			
Equipment Blank				-	-	_			
Equipment Blank_				-		-			
	per pu							11/10/10	
Purging Method_	(portable	/ dedicate	d pump	Arch Ac				11/2"PVC	
Pumping Start	1513an =	7/29. 1413	00 4120	Approxim		Depth of Well B			
Purge Rate (gal./min.)	yourable	20.199	M 7/20-	Measu		Depth of Well E			altra
Pumping End_	1547 on	4/24.1421	W 4133					b 28.59+1.	
Dunen Cat Doubh Bala	MD (ft.)	27.5			Depth to	ce (if frozen) E	ਲeiow iviP (π. Water in Wel		29.96
Pump Set Depth Belo	ubing (ft.)						allons per foo		
	ubing (ft.)						allons in Wel		
TruFoly	ubing (it.)	0						~3 gallon	
	1			Purge Wat	er Disposa			title wi GI	
Monument Condition	good,	6.11	ass code	cirde				Had been	
Worldment Condition_		wan w			eur c	7 9000	Sairence.	The govern	
Casing Condition					, will c	op cracke	100,000	o For	
Casing Condition_			ears ja					ic basy no	200
-	Sano	ever app	cas ja	000	D.11 F	efuce con	as pessi	ic basy no	spuce.
Wiring Condition	MA								
(dedicated pumps)	MI								
(dodioatod pampo)_		-							,
Measuring Point (MP)	Top of Ca	sing (TOC)		Monur	nent type:	Stickup (	/ Flushmoun	<del>D</del>	
wedstring rount (wir)_	rop or oa	sing (100)	N.	leasuremen		Rod & level			
				icadarcinci	i metriod.	riod diovor	Tapo mode		
Top-of-casing to mon	ument (ft.)	0.11			Da	atalogger type	n/a		
Monument to ground s						ogger serial #	n/a		1
		1		- Me		ble length (ft.)			7
Lock preser	t and oper	ational Nº 1	oct	17.17	9974199199		10,20		
				me					
Well name I Evidence of	frost-jacki	na	Yes						
<i>F</i> = 11100110001	moot jaoki								
Notes cut do	WIN COS	sinc to	eplace	well Do	- on new	st visit.			
A PART OF THE STREET		0	,						
1									
			WELL CA	ASING VOL	UMES				
Diameter of Well [ID-inches]		СМТ	11/4	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.

2006-MW11-30

>1 well voleme

Field Parameter Instrument_	YSTD Circle one: Parameters stabilized or >3 well volumes purged >>								
Sample Observations	very slow	recharge,	red	ourge	24	then	sampled	after	
Notes	rectionszed.	,	7-1-	1 0	1				

# 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	Dump de	1, water clear	(21/2 lt fram	bottom)		1
151500	wheel ys					
1517	5.2	8.4%	209.8	6014	16.4	cleer
152022	5.2	5.3	193.8	6.23	-11.7	ų.
15230	5.5	5.5	185.1	6.29	12.7	48
1528	5.5	7.0	176.4	6.31	-9.6	- 11
1531	5.6	7.7	174.2	6.32	-4.4	r,
1534	5.6	7.2	186.5	0.30	-9.5	
1537	5.8	6.1	195.8	6.29	-15-13.1	- 11
1540	flow ra	re dropped u	of, bubbles. 2	3/4 9 211	puged.	
1843	slave	TAXABLE PARTY OF THE PARTY OF T	lowest possi	be o	10	
15443	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	H
1549 C	unal	ole to s-stair	flow - vacad	e casmy	and allow	e to recharge
P	1730	DTW 25.				0
7130	@ 141		1960 11.36 ->	81%	covered	
let			or w/ loght yel			
1416	sample	7 60	1			
1110	son-box					

Laboratory Empting Test Am

À	Analysis	Sample Containers	Preservatives	Dup	
	PEAS 18	X2 250 MENT HOPE			
				旦	

# MWO1 Swang tres

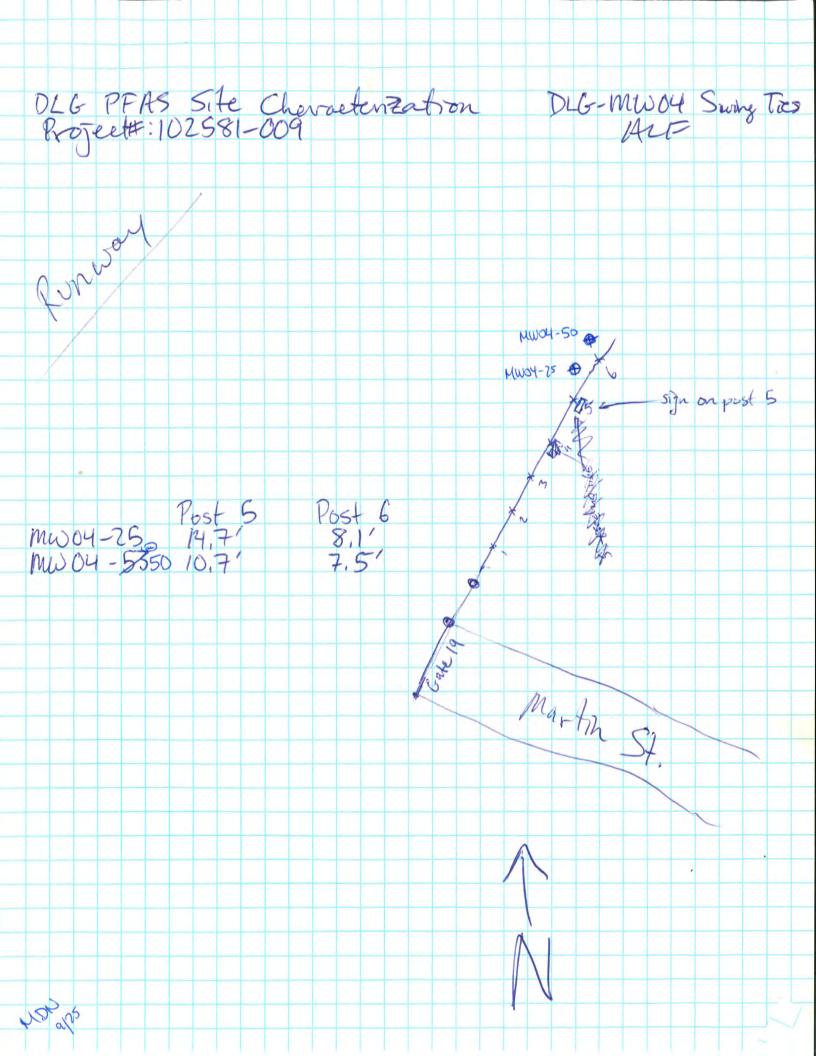
Kanakanak Rd 15.51 NWO1- 45 culvat g MWO1-50 tree with coiled rope tree Culvert 331 23' 15'

MW01- 50 25.5' 15.5' 18' MW01-45

DLG PFAS Site Characterization Project #: 102581-009 DLG-MWOZ Swing Tres Eigot Road Auto Rentalia Sizn @ mw02-50 Utility Box
Post 1
Utility Box
27.8 B.B.AR, Sign Post 1 20,41 18,41 MW02-40 29,5 mw02-50

MWO3 Cluster, SE of lease Lots, Swoot Taxiway A Shed Corner Post MW03-30 110, 201 MW03-50 1231 16 120 MW03-75 9' wite 163 FEACO Source Control blus posts 12. plus posts 18 generalicular

the condition of the condition MW03-50 is nevest fence corner MDN 01/25



To Church 25 MPH Power Pole 26.3' 23.1' Sign 46.7 50.8 MW 05-45 MW 05-270 • 25 MPH Sign MW05-78-45 · Power Pole Airport Read

HONEY

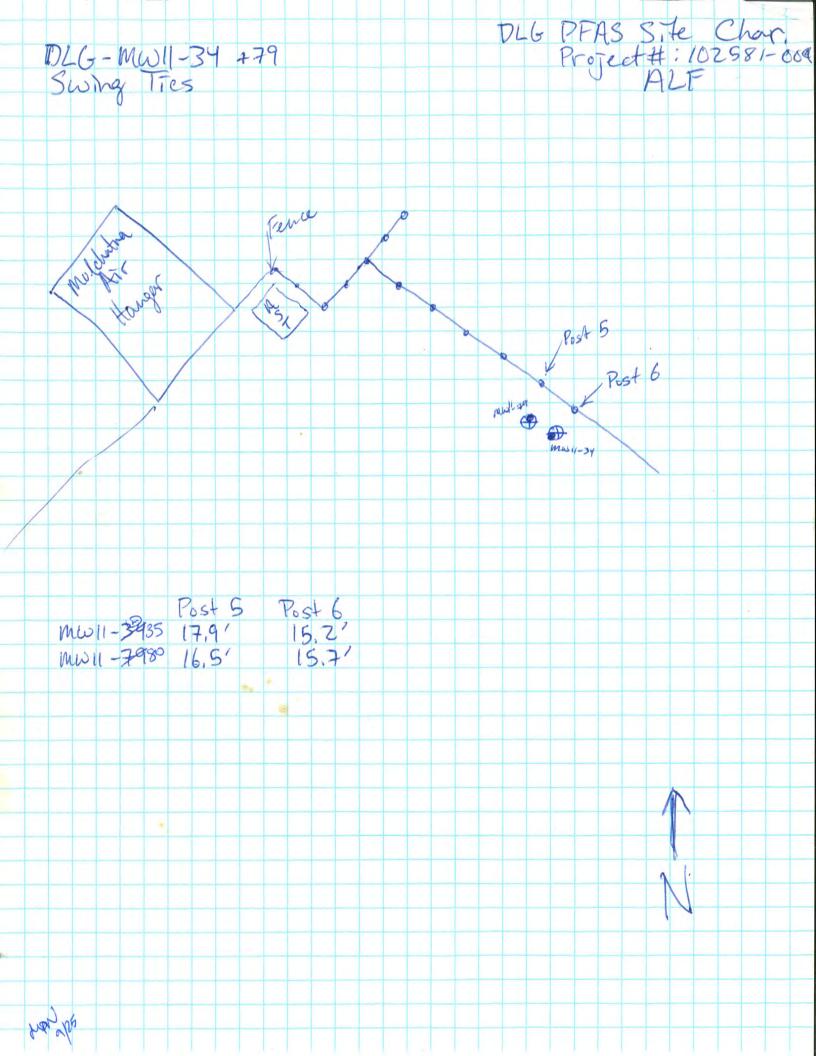
PARKING

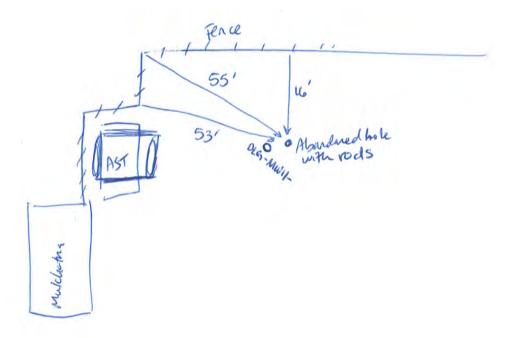
PARKI

Fartiest N: MW09-10 Middle: MW09-65 Fartiest S: MW09-50

MONPS

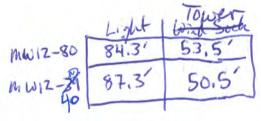
DLG PFAS Site Characterization Project#: 102581-009 DLG-MUIO Swing Toes No Water Volumber Size Kanakowah Road Power a muin-55 MW10-3840 SS.2' 33.1' MW10-55 S8.8' 36.3' 36.3 Comm. wells set in paved parking area Baptist Church





\* Abardoned have backfilled with gravel. Surrounding native Soil is sitt.

# ALF 7-21-21 Project 102581-009



Lights (yellow struk, blue loop) Tariway

Samony

N

DLG-MW12 Well Nest

4000 al25

DLG PFAS Sife Cherraetenzation Project # 102581-009 MW14 Swing Tres, Southwest training area mmy-50 6.9 Rependicular 10 9 8 2 6 5 4 Measure from post 11. MW 14-50 MW14-80

Existing 2006- MW08-20 R NOT TO SCALE NU08-20 TAXIWAY A 600 DITCH 2006- MW11-30 -1 HORON

200



NOII - NEGOLIADIE DIII OI LAUING PRO No. FREIGHT BILL PRO NUMBER

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Mailing A			Toll Free Customer S							
PO Box 2. Seattle, W			Seattle (Central/SE Alaska) Seattle (Western AK/Hawaii							
Seattle, Vi	M 90124		Ketchikan	1-800-809						
			Juneau	1-800-585	-6102					of
Date Rece	eived:	Voyage No	: Bkng #/Conf Code:	Origin:		Destination:	Container No:	Seal#:	Byd	Carrier:
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In the event according to	t of hazardous the applicab	s goods the sole regulation	Shipper's signature on this bill cer s of the Department of Transport	rtifies that the ab- ation (49 C.F.R.	ove named ma 172.204).	terials are properly clas	ssified, described, packa	ged, marked, labeled and	d are in proper condition	for transportation
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(Form designed for use a) elite (12 pitch) typewriter

09/2405000283

**NON-HAZARDOUS WASTE MANIFEST** 

	NON-HAZARDOUS WASTE MANIFEST  1. Generator's US EPA ID No. CESQG  Manifest Document No. 02831							Page 1	4
	3. Generator's Name and Mailing Address Alaska DOT - Diffusional Paris								
	4. Generator's Phone ( 90 x )) 79 06(00)								
	5. Transporter 1 Company Name		6. US EPA ID Number		A. State Trans	sporter's ID			
	Alaska Marine Lines		WAD991281	809	B. Transporte	r 1 Phone (206)	765-4	1244	
	7. Transporter 2 Company Name		8. US EPA ID Number		C. State Trans	sporter's ID			
	Lynden Transportation		WAD002799	260	D. Transporte	r 2 Phone (800	525-	702	
	9. Designated Facility Name and Site Address		10. US EPA ID Number		E. State Facil	ity's ID			
	Clean Harbors Environmental Services, Inc. 2247 South Highway 71 Kimball, NE 99145  F. Facility's Phone (308) 235-4012								
	11. WASTE DESCRIPTION			No. 10	ontainers	13. Total Quantity		1 U	4. Init /Vol.
	a. MATERIAL NOT REGULATED	EY DOT (PEAS 5	Off	No.	Type	Quantity		Wt.,	/Vol.
			,	023	DW	5,75	0	1	P
GE	b.								
N E R	c.								
A T O									
R	d.								
	G. Additional Descriptions for Materials Listed Above 1.1.1. CH2239347	23X55			H. Handling (	Codes for Wastes Listed	Above		
	15. Special Handling Instructions and Additional Information  GENERATOR: Alaska DOT - Dillingham								
	16. GENERATOR'S CERTIFICATION: I hereby ce	ertify that the contents of th	is shipment are fully and accurately o	described and are in	all respects		AV		7 4
	<ol> <li>GENERATOR'S CERTIFICATION: I hereby ce in proper condition for transport. The materials</li> </ol>	described on this manifest	are not subject to federal hazardous	waste regulations.	· all roop out	1		Date	
	201 10710C			-				Date	1200
	Printed/Typed Name		Signature				Month	Day	Yea I
	Jon 104/11	. unquamph	7.7		-		10	01	3.5
F.	17. Transporter 1 Acknowledgement of Receipt of	Materials	1 200				7000000	Date	
A	Printed/Typed Name	V	Signature	1			Month	Day	Yea
S P	Domico Kabirson	1	Magreen-	- July July			11)	-UL	30
AZWPORH	18. Transporter 2 Acknowledgement of Receipt of	Materials	W1.561 5. 7	W				Date	
ER	Printed/Typed Name		Signature				Month	Day	Yea
FA	19. Discrepancy Indication Space								
0-1	20. Facility Owner or Operator: Certification of rece	eipt of the waste materials	covered by this manifest, except as r	oted in item 19.	1 h			V (1) (1) (1)	
	20. Facility Owner or Operator: Certification of receiptions of Printed/Typed Name	eipt of the waste materials	covered by this manifest, except as r	oted in item 19.	11/2			Date	

# 2105000203

	NON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)	19. Generator ID Number CESQG	20. Page	21. Waste	Tracking Num		
2	22. Generator's Name Ataska DOT-Di					7.0 1	
	23 Transporter Company Name	1			U.S. EPA ID	Number	
-	Cles	an Harbors Environmental Service	rs .		U.S. EPA ID	03932 Number	22250
2	24. Transporter Company Name				1	rivamber	
	25. Waste Shipping Name and Description		26. Contai		27. Total Quantity	28. Unit Wt./Vol.	
	A read valuation of cook additional and the read additional additional and the read additional ad		No.	Туре	Quantity	VVI./VOI.	
							Parent ser
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							ALL BULLSAN
7	29. Special Handling Instructions and Additional Info	rmation					
L							
	30. Transporter Acknowledgment of Receipt Printed/Typed Name		gnature	. //			Month Day Year
	Domico Robieso	Λ	Done	1			10 1 200
	31. Transporter Acknowledgment of Receipt Printed/Typed Name		gnature				Month Day Year
	, inited types traine	J	grature				Day rear
38	32. Discrepancy						
_							
No.			1				





# **Booking Conf # RG19**

Page 1 of 3

Date:

September 29, 2021

Prepared For:

Prepared By:

**BRENDA SHEETS** 

Phone:

907 206-0834

Fax: Email:

Victoria Iritsky Hardin

sheets.brenda@cleanharbors.com

viritsky@lynden.com

Phone: Fax:

206 892-2591 206 508-7615 Voyage #: Sailing Date: W1009S October 6, 2021

Origin City: Origin Port:

Dock Dillingham

Dock to Door

**Destination Port: Destination City:** 

Seattle Kent, Wa, 98032-7327

Route: PO Number:

BL #:

Project Name: Quote #: Temperature:

Shipment Type: Equip. Type:

Unit #:

D20.STD

Shipper:

**CLEAN HARBORS** C/O DOCK

Consignee:

CLEAN HARBORS ENVIRO

26328 79TH AVE S

Bill To:

**CLEAN HARBORS** 1010 COMMERCIAL ST

DILLINGHAM, AK 99576

907-863-5107

1

KENT,WA 98032-7327

253-639-4240

SAN JOSE.CA 95112

253-638-3550 Weight

**UOM Freight Description** Qty

Dimensions

(LxWxH)

15,000

D20 NON-HAZARDOUS CONTAMINATED

SOIL IN DRUMS

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



**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...
       National Geodetic Survey, Retrieval Date = SEPTEMBER 27, 2021
- This is a Secondary Airport Control Station.
DN1952 SACS
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
                                                                GEOID12B
                              13.286 (meters)
DN1952 NAD 83(2011) X - -3,060,627.727 (meters)
                                                                COMP
DN1952 NAD 83(2011) Y - -1,204,857.134 (meters)
                                                                COMP
       NAD 83(2011) Z - 5,446,288.269 (meters)
DN1952
                                                                COMP
       LAPLACE CORR
                                2.18 (seconds)
DN1952
                                                                DEFLEC12B
DN1952
       Network accuracy estimates per FGDC Geospatial Positioning Accuracy
DN1952
DN1952 Standards:
DN1952
              FGDC (95% conf, cm) Standard deviation (cm)
                                                             CorrNE
DN1952
               Horiz Ellip
                                   SD N SD E SD h
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. The horizontal coordinates were established by GPS observations
DN1952.and adjusted by the National Geodetic Survey in June 2012.
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. The horizontal coordinates are valid at the epoch date displayed above
DN1952.which is a decimal equivalence of Year/Month/Day.
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.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
<u>DN1952.Click photographs</u> - Photos may exist for this station.
DN1952
DN1952. The X, Y, and Z were computed from the position and the ellipsoidal ht.
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
                                                                     +0 25 05.7
DN1952;UTM 04
                    - 6,544,662.635
                                      527,988.978
                                                    MT 0.99960960
DN1952
DN1952!
                    - Elev Factor x Scale Factor =
                                                        Combined Factor
                        0.99999444 x
                                        0.99991059 =
DN1952!SPC AK 6
                                                        0.99990503
                        0.99999444 x
DN1952!UTM 04
                                        0.99960960 =
                                                        0.99960404
DN1952 U.S. NATIONAL GRID SPATIAL ADDRESS: 4VEL2798844662(NAD 83)
DN1952
                                SUPERSEDED SURVEY CONTROL
DN1952
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 <u>dsdata.pdf</u> 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'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	<b>Elevation of TOC</b>	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**

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)

# 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

Starten C. Ede 2021.08.04

08:06:47 -08'00'

Jennifer Dawkins

Date

Project Manager Jennifer.Dawkins@sgs.com

SGS North America Inc.



#### **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.

Print Date: 08/03/2021 5:00:07PM



#### **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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a>. 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)

LUQC/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.

Print Date: 08/03/2021 5:00:10PM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518



Samp	le Summary
------	------------

Client Sample ID	Lab Sample ID	<u>Collected</u>	Received	<u>Matrix</u>
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)

MethodMethod Description8270D SIM LV (PAH)8270 PAH SIM GC/MS LVAK102DRO/RRO Low Volume WaterAK103DRO/RRO Low Volume WaterAK101Gasoline Range Organics (W)SW8260DVolatile Organic Compounds (W) FULL

Print Date: 08/03/2021 5:00:11PM



# **Detectable Results Summary**

Client Sample ID: SW-02			
Lab Sample ID: 1214332001	<u>Parameter</u>	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.455J	mg/L
	Residual Range Organics	0.717	mg/L
Client Sample ID: SW-03			
Lab Sample ID: 1214332002	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Phenanthrene	0.0193J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.371J	mg/L
<b>3</b>	Residual Range Organics	0.342J	mg/L
Client Sample ID: SW-04			
Lab Sample ID: 1214332003	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Phenanthrene	0.0173J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.652	mg/L
Comvolatile Organie i dele	Residual Range Organics	0.722	mg/L
Client Semple ID: SW 404	0 0		J
Client Sample ID: <b>SW-104</b> Lab Sample ID: 1214332004	Dawamatan	Danult	l lucita
' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	<u>Parameter</u> Diesel Range Organics	<u>Result</u> 0.830	<u>Units</u> mg/L
Semivolatile Organic Fuels	Residual Range Organics	0.862	mg/L
	Residual Railige Organics	0.002	mg/L
Client Sample ID: SW-05			
Lab Sample ID: 1214332005	<u>Parameter</u>	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.180J	mg/L
Client Sample ID: SW-06			
Lab Sample ID: 1214332006	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.341J	mg/L
	Residual Range Organics	0.165J	mg/L
Client Sample ID: SW-07			
Lab Sample ID: 1214332007	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.335J	mg/L
_	Residual Range Organics	0.251J	mg/L
Client Sample ID: SW-08			
Lab Sample ID: 1214332008	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.382J	mg/L
	Residual Range Organics	0.324J	mg/L
Client Sample ID: SW-09			-
Lab Sample ID: 1214332009	Darameter	Dogult	Lleite
Semivolatile Organic Fuels	<u>Parameter</u> Diesel Range Organics	<u>Result</u> 0.275J	<u>Units</u> mg/L
_	Diosoi Range Organios	0.2100	g/∟
Client Sample ID: SW-102	_		
Lab Sample ID: 1214332010	Parameter	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.595	mg/L
Waladila 00/840	Residual Range Organics	0.943	mg/L
Volatile GC/MS	Benzene	0.121J	ug/L

Print Date: 08/03/2021 5:00:12PM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Diesel Range Organics	0.455 J	0.577	0.173	mg/L	1	Limits	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/03/2021 5:00:14PM J flagging is activated



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

J flagging is activated



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		te 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
urrogates							
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



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

Print Date: 08/03/2021 5:00:14PM J flagging is activated



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

_						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	<u>Date Analyzed</u>
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

Print Date: 08/03/2021 5:00:14PM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/03/2021 5:00:14PM



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	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



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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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



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

2	D# O !	1.00/01	DI	11-24-	DE	<u>Allowable</u>	Data Amali
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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
1-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:03
1-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	0.130	ug/L ug/L	1		07/22/21 20:03

Print Date: 08/03/2021 5:00:14PM



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	<u>Units</u>	<u>DF</u>	Allowable Limits	Date Analyzed
Chloroform	0.500 U	1.00	0.310	ug/L	1	Limito	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



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



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

_						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	<u>Date Analyzed</u>
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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Residual Range Organics	0.862	0.490	0.147	mg/L	1		07/27/21 18:18
Summa matan							
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

Print Date: 08/03/2021 5:00:14PM



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		07/21/21 03:09
Surrogates		<b>50.450</b>		0.4			07/04/04/00
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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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



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

Danamatan	Deault Ovel	1.00/01	DI	Llaita	DE	<u>Allowable</u>	Data Analysis d
<u>Parameter</u> Chloroform	<u>Result Qual</u> 0.500 U	<u>LOQ/CL</u> 1.00	<u>DL</u> 0.310	<u>Units</u> ug/L	<u>DF</u> 1	<u>Limits</u>	Date Analyzed 07/22/21 20:18
Chloromethane	0.500 U	1.00	0.310	•	1		07/22/21 20:18
				ug/L			
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
urrogates							
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



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



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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

F F

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



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

<u>Parameter</u>	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Diesel Range Organics	0.180 J	0.577	0.173	mg/L	1	Limits	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/03/2021 5:00:14PM



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         LOO/CL         DL         Units         DF         Limits         Date Analyzed           Chloroform         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           Dibromomethane         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           Ethylbenzene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Ethylbenzene (Cumene)         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Methylene chloride				-			Allowable	
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         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Dibromochloromethane         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         1.00         0.310         ug/L         1         07/22/21 20:33           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Hebylheric Pick         5.00 U	<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		Date Analyzed
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           Ethylbenzene         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         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           Methyl-t-butyl ether         5.00 U         1.00         3.10         ug/L         1         07/22/21 20:33           Methyl-t-butyl ether         5.00 U         1.00         0.310         ug/L         1         07/22/21 20:33           Methyl-t-butyl ether         5.00 U <td>Chloroform</td> <td>0.500 U</td> <td>1.00</td> <td>0.310</td> <td>ug/L</td> <td>1</td> <td></td> <td>07/22/21 20:33</td>	Chloroform	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           Ethylbenzene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Freon-113         5.00 U         1.00         0.310         ug/L         1         07/22/21 20:33           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Methylene chloride         5.00 U         1.00         0.310         ug/L         1         07/22/21 20:33           Methylene chloride         5.00 U         1.00         0.310         ug/L         1         07/22/21 20:33           Methylene chloride         5.00 U         1.00         0.310         ug/L         1         07/22/21 20:33           Methylene chloride         5.00 U         1.00         0.310         ug/L         1         07/22/21 20:33           Negter         5.00 U         1.00	Chloromethane	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:33
Dibromochloromethane         0.250 U         0.500 U         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           Dichlorodiflucromethane         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         1.00         0.310 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           Methylene chloride         5.00 U         10.0         3.10 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           Methylene chloride         5.00 U         1.00 Ug/L         0.310 Ug/L         1         07/22/21 20:33           Naphthalene         0.500	cis-1,2-Dichloroethene	0.500 U	1.00	0.310	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         1.00         0.310 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           Methylene chloride         5.00 U         10.0         3.10 ug/L         1         07/22/21 20:33           Methylene chloride         5.00 U         1.00 ug/L         1         07/22/21 20:33           Methylene chloride         5.00 U         1.00 ug/L         1         07/22/21 20:33           methyllene chloride         5.00 U         1.00 ug/L         1         07/22/21 20:33           n-Potyllene chloride         0.500 U         1.00 ug/L         1         07/2	cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		07/22/21 20:33
Dichlorodifluoromethane   0.500 U   1.00   0.310   ug/L   1   07/22/21 20:33	Dibromochloromethane	0.250 U	0.500	0.150	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           Methylene chloride         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           Methylene chloride         5.00 U         10.0         3.10         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           Methylene chloride         5.00 U         1.00         0.310         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           Styrene         0.500 U         1.00         0.310	Dibromomethane	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:33
Freon-113	Dichlorodifluoromethane	0.500 U	1.00	0.310	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-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           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           n-Propylbenzene         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           Tetra-Butylbenzene         0.500 U         1.00	Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:33
Sopropylbenzene (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   Methylene chloride   5.00 U   10.0   3.10   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   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   n-Propylbenzene   0.500 U   1.00   0.310   ug/L   1   07/22/21 20:33   P & M -Xylene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   ug/L   1   07/22/21 20:33   set-Butylbenzene   0.500 U   1.00   0.310   ug/L   1   07/22/21 20:33   set-Butylbenzene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   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   sec-Butylbenzene   0.500 U   1.00   0.310   ug/L   1   07/22/21 20:33   sec-Butylbenzene   0.500 U   1.00   0.310   ug/L   1   0.7/22/21 20:33   sec-Butylbenzene   0.500 U   1.00   0.310   ug/L   1   0.7/22/21 20:33   sec-Butylbenzene   0.500 U   1.00   0.310   ug/L   1   0.7/22/21 20:33   sec-Butylbenzene   0.500 U	Freon-113	5.00 U	10.0	3.10	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           Stylene         1.00 U         2.00         0.620         ug/L         1         07/22/21 20:33           Styrene         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           Tetrachloroethene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Trichloroethene         0.500 U         1.00         0.310         u	Hexachlorobutadiene	0.500 U	1.00	0.310	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           Styrene         1.00 U         2.00         0.620         ug/L         1         07/22/21 20:33           Styrene         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           Tetrachloroethene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:33           Tolloerethene         0.500 U         1.00         0.310         ug/L <td>Isopropylbenzene (Cumene)</td> <td>0.500 U</td> <td>1.00</td> <td>0.310</td> <td>ug/L</td> <td>1</td> <td></td> <td>07/22/21 20:33</td>	Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:33
Naphthalene	Methylene chloride	5.00 U	10.0	3.10	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         Tetrachloroethene       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         Trichlorofluoromethane	Methyl-t-butyl ether	5.00 U	10.0	3.10	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 o-Xylene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 sec-Butylbenzene 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 sec-Butylbenzene 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 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 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 0.7/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 0.7/22/21 20:33 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug	Naphthalene	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-Dichloroptopene         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         0.100	n-Butylbenzene	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 Tetrachloroethene 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-1,2-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 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 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 1.00 0.310 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 Xylenes (total) 1.50 U 3.00 1.00 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 Xylenes (total) 1.50 U 3.00 1.00 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 Xylenes (total) 1.50 U 3.00 1.00 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 Xylenes (total) 1.50 U 3.00 1.00 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 Xylenes (total) 1.50 U 3.00 1.00 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	n-Propylbenzene	0.500 U	1.00	0.310	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 0.0500	o-Xylene	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         1.00         0.310 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	P & M -Xylene	1.00 U	2.00	0.620	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         81-118         % 1         07/22/21 20:33           4-Bromofluorobenzene (surr)         101         85-114         % 1 <td>sec-Butylbenzene</td> <td>0.500 U</td> <td>1.00</td> <td>0.310</td> <td>ug/L</td> <td>1</td> <td></td> <td>07/22/21 20:33</td>	sec-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) <td< td=""><td>Styrene</td><td>0.500 U</td><td>1.00</td><td>0.310</td><td>ug/L</td><td>1</td><td></td><td>07/22/21 20:33</td></td<>	Styrene	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 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	tert-Butylbenzene	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 Trichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:33 Vinyl acetate 5.00 U 1.00 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	Tetrachloroethene	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	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	trans-1,2-Dichloroethene	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	trans-1,3-Dichloropropene	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	Trichloroethene	0.500 U	1.00	0.310	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	Trichlorofluoromethane	0.500 U	1.00	0.310	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	Vinyl acetate	5.00 U	10.0	3.10	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	Vinyl chloride	0.0750 U	0.150	0.0500		1		07/22/21 20:33
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	Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		07/22/21 20:33
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	Surrogates							
4-Bromofluorobenzene (surr) 101 85-114 % 1 07/22/21 20:33	<del>-</del>	102	81-118		%	1		07/22/21 20:33
		101	85-114		%	1		07/22/21 20:33
		99.8	89-112		%	1		07/22/21 20:33

Print Date: 08/03/2021 5:00:14PM



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



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/03/2021 5:00:14PM



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 Gasoline Range Organics	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
	0.0500 U	0.100	0.0310	mg/L	1	Limits	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

Print Date: 08/03/2021 5:00:14PM



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/03/2021 5:00:14PM



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         Limits         Date Analyzed           Chloroform         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           Chloromethane         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           cis-1,2-Dichloropropene         0.250 U         0.500         0.150         ug/L         1         07722/21 20:44           Dibromochloromethane         0.250 U         0.500         0.150         ug/L         1         07722/21 20:44           Dibromochloromethane         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           Elthylbenzene         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           Ethylbenzene         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07722/21 20:44           Hexachlorobutadiene <t< th=""><th></th><th></th><th></th><th>-</th><th></th><th></th><th>Allowable</th><th></th></t<>				-			Allowable	
Chloromethane	<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		Date Analyzed
cis-1,2-Dichloroethene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20-44           cis-1,3-Dichloropropene         0.250 U         0.500         0.150         ug/L         1         07/22/21 20-44           Dibromochloromethane         0.250 U         0.500         0.150         ug/L         1         07/22/21 20-44           Dibromomethane         0.500 U         1.00         0.310         ug/L         1         07/22/21 20-44           Ethylbenzene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20-44           Ethylbenzene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20-44           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20-44           Isopropylbenzene (Cumene)         0.500 U         1.00         0.310         ug/L         1         07/22/21 20-44           Methyl-butyl ether         5.00 U         1.00         3.10         ug/L         1         07/22/21 20-44           Methyl-butyl ether         5.00 U         1.00         3.10         ug/L         1         07/22/21 20-44           n-Butylbenzene in-butylbenzene	Chloroform	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           Dibromochloromethane         0.500 U         1.00         0.310 ug/L         1         07/22/21 20.48           Dibromochloromethane         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         1.00         0.310 ug/L         1         07/22/21 20.48           Iespropylbenzene (Cumene)         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           Methyl-L-butyl ether         5.00 U         10.0         3.10 ug/L         1         07/22/21 20.48           Methyl-L-butyl ether         5.00 U         1.00         0.310 ug/L         1         07/22/21 20.48           Naphthalene         0.500 U         1.00         0.310 ug/L         1         07/22/21 20.48           Naphthalene <t< td=""><td>Chloromethane</td><td>0.500 U</td><td>1.00</td><td>0.310</td><td>ug/L</td><td>1</td><td></td><td>07/22/21 20:48</td></t<>	Chloromethane	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:48
Dibromochloromethane	cis-1,2-Dichloroethene	0.500 U	1.00	0.310	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           Hespropylbenzene (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           Methylehe chloride         5.00 U         10.0         3.10         ug/L         1         07/22/21 20.48           Methylehe chloride         5.00 U         10.0         3.10         ug/L         1         07/22/21 20.48           Methylehe chloride         5.00 U         1.00         3.310         ug/L         1         07/22/21 20.48           De Butting chloride         5.00 U         <	cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		07/22/21 20:48
Dichlorodiffluoromethane         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-Butylbenzene         0.500 U         1.00 0.310 ug/L         1         07/22/21 20.48           e-Sylene         0.500 U         1.00 0.310 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	Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		07/22/21 20:48
Ethylbenzene	Dibromomethane	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:48
Freon-113	Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:48
Hexachlorobutadiene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 lsopropylbenzene (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 Methylene chloride 5.00 U 10.0 3.10 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 Methylene chloride 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 o-Xylene 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 esc-Butylbenzene 0.500 U 1.00 0.310 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 sec-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 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 trans-1,2-Dichloroethene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,2-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,2-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,2-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,2-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,2-Dichloroptopene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 tran	Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:48
Sopropylbenzene (Curmene)	Freon-113	5.00 U	10.0	3.10	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           Styrene         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           Tetrachloroethene         0.500 U         1.00         0.310         ug/L         1         07/22/21 20:48           Tolulene         0.500 U         1.00         0.310         ug	Hexachlorobutadiene	0.500 U	1.00	0.310	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           o-Xylene         1.00 U         2.00         0.620         ug/L         1         07/22/21 20:48           o-Xylene         1.00 U         2.00         0.620         ug/L         1         07/22/21 20:48           ec-Butylbenzene         1.00 U         2.00         0.620         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	Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:48
Naphthalene	Methylene chloride	5.00 U	10.0	3.10	ug/L	1		07/22/21 20:48
n-Butylbenzene	Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		07/22/21 20:48
n-Propylbenzene	Naphthalene	0.500 U	1.00	0.310	ug/L	1		07/22/21 20:48
o-Xylene	n-Butylbenzene	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 sec-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 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 tert-Butylbenzene 0.500 U 1.00 0.500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylbenzene 0.500 U 0.150 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylbenzene 0.500 U 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylbenzene 0.500 U 0.0500 ug/L 1 0.07/22/21 20:48 tert-Butylb	n-Propylbenzene	0.500 U	1.00	0.310	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           Vinyl acetate         5.00 U         1.00         0.310         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	o-Xylene	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         Vinyl acetate       5.00 U       1.00       0.310       ug/L       1       07/22/21 20:48         Vinyl chloride       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         Vylenes (total)       1.50 U       3.00       1.00       ug/L       1       07/22/21 20:48         4-Bromofluorobenzene (s	P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		07/22/21 20:48
Tetra-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 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 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 Tylenes (total) 1.50 U 3.00 1.00 ug/L 1 07/22/21 20:48 Trichloroethane-D4 (surr) 102 81-118 % 1 07/22/21 20:48 Trichloroethane-D4 (surr) 101 85-114 % 1 07/22/21 20:48	sec-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           urrogates         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	Styrene	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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 1.00 0.500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.150 U 0.150 U 0.500 Ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.500 Ug/L 1 07/22/21 20:48 trans-1,3-Dichloropropene 0.500 U 0.5	tert-Butylbenzene	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 trans-1,3-Dichloropropene 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 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 07/22/21 20:48 trans-1,3-Dichlorofluoromethane 0.0750 U 0.150 0.0500 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroethane-D4 (surr) 1.50 U 3.00 1.00 ug/L 1 07/22/21 20:48 trans-1,3-Dichloroethane-D4 (surr) 102 81-118 % 1 07/22/21 20:48 trans-1,3-Dichloroethane-D4 (surr) 101 85-114	Tetrachloroethene	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  urrogates 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	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           urrogates         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	trans-1,2-Dichloroethene	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           urrogates         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	trans-1,3-Dichloropropene	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         urrogates         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	Trichloroethene	0.500 U	1.00	0.310	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         urrogates       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	Trichlorofluoromethane	0.500 U	1.00	0.310	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         urrogates       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	Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		07/22/21 20:48
urrogates       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	Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		07/22/21 20:48
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	Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		07/22/21 20:48
4-Bromofluorobenzene (surr) 101 85-114 % 1 07/22/21 20:48	urrogates							
	1,2-Dichloroethane-D4 (surr)	102	81-118		%	1		07/22/21 20:48
Toluene-d8 (surr) 98.8 89-112 % 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



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



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

<b>D</b>	D #0 1	1.00/01			D.F.	Allowable	5.4.1.1
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	<u>Date Analyzed</u>
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



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

<u>Parameter</u>	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Diesel Range Organics	0.335 J	0.588	0.176	mg/L	1	Limits	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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 Gasoline Range Organics	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
	0.0500 U	0.100	0.0310	mg/L	1	Limits	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

Print Date: 08/03/2021 5:00:14PM

200 West Potter Drive Anchorage, AK 95518 t 907.562.2343 f 907.561.5301 www.us.sgs.com



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

Print Date: 08/03/2021 5:00:14PM



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	<u>DF</u>	<u>Allowable</u> Limits D	ate Analyze
<u>-arameter</u> Chloroform	0.500 U	1.00	<u>DL</u> 0.310	ug/L	1	·	7/22/21 21:0
Chloromethane	0.500 U	1.00	0.310	ug/L	1		7/22/21 21:0 7/22/21 21:0
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L ug/L	1		7/22/21 21:0 7/22/21 21:0
cis-1,3-Dichloropropene	0.250 U	0.500	0.310	ug/L ug/L	1		7/22/21 21:0 7/22/21 21:0
Dibromochloromethane	0.250 U	0.500	0.150	ug/L ug/L	1		7/22/21 21:0 7/22/21 21:0
Dibromocnioromethane	0.500 U	1.00	0.130	J	1		7/22/21 21:0 7/22/21 21:0
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L ug/L	1		7/22/21 21:0 7/22/21 21:0
				•			
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		7/22/21 21:(
Freon-113	5.00 U	10.0	3.10	ug/L	1		7/22/21 21:(
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		7/22/21 21:0
sopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		7/22/21 21:0
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		7/22/21 21:0
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		7/22/21 21:
Naphthalene	0.500 U	1.00	0.310	ug/L	1		7/22/21 21:
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:
o-Xylene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1	0.	7/22/21 21:
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:
Styrene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:
ert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:0
Гoluene	0.500 U	1.00	0.310	ug/L	1	0	7/22/21 21:
rans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	0	7/22/21 21:0
rans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:0
Trichloroethene	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:0
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1	0.	7/22/21 21:0
√inyl acetate	5.00 U	10.0	3.10	ug/L	1	0.	7/22/21 21:0
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1	0.	7/22/21 21:
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1	0	7/22/21 21:0
urrogates							
1,2-Dichloroethane-D4 (surr)	102	81-118		%	1	0.	7/22/21 21:0
4-Bromofluorobenzene (surr)	101	85-114		%	1	0.	7/22/21 21:0
Toluene-d8 (surr)	99.8	89-112		%	1	0.	7/22/21 21:0

Print Date: 08/03/2021 5:00:14PM



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



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	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



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	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1	2111110	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



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

Darameter	Popult Ovel	1.00/01	DI	Llaita	DE	Allowable	Data Analyza
Parameter Chloroform	<u>Result Qual</u> 0.500 U	<u>LOQ/CL</u> 1.00	<u>DL</u> 0.310	<u>Units</u> ug/L	<u>DF</u> 1	<u>Limits</u>	Date Analyzed 07/22/21 21:17
Chloromethane	0.500 U	1.00	0.310	ug/L ug/L	1		07/22/21 21:17
		1.00		ŭ			
cis-1,2-Dichloroethene	0.500 U		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
urrogates							
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



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



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

						Allowable
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u> <u>Date Analyzed</u>
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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Residual Range Organics	0.250 U	0.500	0.150	mg/L	1	Limits	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

Print Date: 08/03/2021 5:00:14PM



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

<u>Parameter</u> Gasoline Range Organics	Result Qual 0.0500 U	LOQ/CL 0.100	<u>DL</u> 0.0310	<u>Units</u> mg/L	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

Print Date: 08/03/2021 5:00:14PM



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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
urrogates							
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



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



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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



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 Diesel Range Organics	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
	0.595	0.588	0.176	mg/L	1	Limits	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/03/2021 5:00:14PM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/03/2021 5:00:14PM

200 West Potter Drive Anchorage, AK 95518 t 907.562.2343 f 907.561.5301 www.us.sgs.com



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/03/2021 5:00:14PM



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

Chloroform							<u>Allowable</u>	
Chloromethane	Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
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 U         1.00         0.310         ug/L         1         07/22/21 21:47           Dibromomethane         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           Ethylbenzene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           Freon-113         5.00 U         1.00         0.310         ug/L         1         07/22/21 21:47           Hexachlorobutadiene         0.500 U         1.00         0.310         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           Methyl-butyl ether					_			
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         1.00         0.310         ug/L         1         07/22/21 21:47           Hexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           Idexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           Idexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           Idexachlorobutadiene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           Wethylene chloride         5.00 U					-			
Dibromochloromethane         0.250 U         0.500 O         0.150 Ug/L         1         07/22/21 21:47           Dibromochlane         0.500 U         1.00         0.310 Ug/L         1         07/22/21 21:47           Dibromochloromethane         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         1.00         0.310 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           Methyl-Lebul ether         5.00 U         10.0         3.10 Ug/L         1         07/22/21 21:47           Methyl-Lebul ether         5.00 U         1.00 Ug/L         3.10 Ug/L         1         07/22/21 21:47           Naphthalene         0.500 U         1.00 Ug/L         3.10 Ug/L         1         07/22/21 21:47           N-Bulylbenzene         0.500 U         1.00 Ug/L         0.310 Ug/L         1         07/22/21 21:47           N-Sylene         0.500 U	,				•			
Dibromomethane         0.500 U         1.00         0.310 ug/L         1         07/22/21 21:47           Dibrotodiffuoromethane         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         1.00         0.310 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           Methyl-butyl ether         5.00 U         10.0         3.10 ug/L         1         07/22/21 21:47           Methyl-butyl ether         5.00 U         1.00         3.10 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-Popylbenzene         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           n-Propylbenzene         0.500 U         <	cis-1,3-Dichloropropene				_			
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           Hexachlorobutadiene         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           Methyl-t-butyl ether         5.00 U         1.00         0.310         ug/L         1         07/22/21 21:47           Methyl-t-butyl ether         5.00 U         1.00         0.310         ug/L         1         07/22/21 21:47           Nephthalene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           n-Butylbenzene         0.500 U         1.0	Dibromochloromethane	0.250 U	0.500	0.150	-	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 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 Methyle-bulyl 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 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 n-Propylbenzene 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 esc-Butylbenzene 0.500 U 1.00 0.310 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 Styrene 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 Tetrachloroethene 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 Tetrachloroethene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 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 trans-1,3-Dichloropropene 0.500 U 1.00 0.310 ug/L 1 07/	Dibromomethane	0.500 U	1.00	0.310	ug/L	1		07/22/21 21:47
Freon-113	Dichlorodifluoromethane	0.500 U		0.310	ug/L	1		07/22/21 21:47
Hexachlorobutadiene	Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		07/22/21 21:47
Sopropylbenzene (Cumene)   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
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           e-Xylene         0.500 U         1.00         0.310         ug/L         1         07/22/21 21:47           e-B M -Xylene         1.00 U         2.00         0.620         ug/L         1         07/22/21 21:47           Styrene         1.00 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           Itera-Butylbenzene         0.500 U         1.00         0.310         ug	Hexachlorobutadiene	0.500 U	1.00	0.310	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           o-Xylene         1.00 U         2.00         0.620         ug/L         1         07/22/21 21:47           o-Xylene         1.00 U         2.00         0.620         ug/L         1         07/22/21 21:47           sec-Butylbenzene         1.00 U         2.00         0.620         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 <th< td=""><td>Isopropylbenzene (Cumene)</td><td>0.500 U</td><td>1.00</td><td>0.310</td><td>ug/L</td><td>1</td><td></td><td>07/22/21 21:47</td></th<>	Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	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 U         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           Totaras-1,2-Dichloroethene         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           Trichloroethene         0.5	Methylene chloride	5.00 U	10.0	3.10	ug/L	1		07/22/21 21:47
n-Butylbenzene	Methyl-t-butyl ether	5.00 U	10.0	3.10	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 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 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 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 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 Trichlorofluoromethane 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 Trichlorofluoromethane 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 Xylenes (total) 1.50 U 0.0750 U 0.150 0.0500 ug/L 1 07/22/21 21:47 Xylenes (total) 1.50 U 0.0750 U 0.150 0.0500 ug/L 1 07/22/21 21:47 Xylenes (total) 1.50 U 0.0750 U 0.150 0.0500 ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.310 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes (total) 1.00 0.300 1.00 Ug/L 1 0.07/22/21 21:47 Xylenes	Naphthalene	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           Toluene         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           Toluene         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	n-Butylbenzene	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 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 Trichloroethene 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 1.00 0.310 ug/L 1 07/22/21 21:47 Vinyl acetate 5.00 U 1.00 0.310 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 trans-1,3-Dichloroethane-D4 (surr) 1.50 U 3.00 1.00 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 A-Bromofluorobenzene (surr) 102 85-114 % 1 07/22/21 21:47	n-Propylbenzene	0.500 U	1.00	0.310	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 0.500 u	o-Xylene	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       1.00       0.310       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         4-Bromofluoro	P & M -Xylene	1.00 U	2.00	0.620	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 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 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  urrogates 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	sec-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           4-Bromofluorobenzene (surr)         102         85-114         %         1         07/22/21 21:47	Styrene	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 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 Unrogates  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	tert-Butylbenzene	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 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 urrogates  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	Tetrachloroethene	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           urrogates           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	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           urrogates           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	trans-1,2-Dichloroethene	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           urrogates           1,2-Dichloroethane-D4 (surr)         103 81-118 % 1         % 1         07/22/21 21:47           4-Bromofluorobenzene (surr)         102 85-114 % 1         % 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
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           urrogates           1,2-Dichloroethane-D4 (surr)         103 81-118 % 1         % 1         07/22/21 21:47           4-Bromofluorobenzene (surr)         102 85-114 % 1         % 1         07/22/21 21:47	Trichloroethene	0.500 U	1.00	0.310	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           urrogates           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	Trichlorofluoromethane	0.500 U	1.00	0.310	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         urrogates       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	Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		07/22/21 21:47
urrogates       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	Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		07/22/21 21:47
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	Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		07/22/21 21:47
4-Bromofluorobenzene (surr) 102 85-114 % 1 07/22/21 21:47	Surrogates							
	1,2-Dichloroethane-D4 (surr)	103	81-118		%	1		07/22/21 21:47
Toluene-d8 (surr) 100 89-112 % 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



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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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



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	<u>DL</u>	Units	<u>DF</u>	<u>Allowable</u> Limits Da	ate Analyze
<u>Chloroform</u>	0.500 U	1.00	<u>DL</u> 0.310	ug/L	1		7/22/21 17:3
Chloromethane	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:3 7/22/21 17:3
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L ug/L	1		7/22/21 17:3 7/22/21 17:3
cis-1,3-Dichloropropene	0.250 U	0.500	0.310	ug/L ug/L	1		7/22/21 17:3 7/22/21 17:3
Dibromochloromethane	0.250 U	0.500	0.150	ug/L ug/L	1		7/22/21 17:3 7/22/21 17:3
Dibromocnioromethane	0.500 U	1.00	0.130	J	1		7/22/21 17:3 7/22/21 17:3
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		7/22/21 17.: 7/22/21 17::
				ug/L			
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:
reon-113	5.00 U	10.0	3.10	ug/L	1		7/22/21 17:
lexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:
sopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		7/22/21 17:
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		7/22/21 17:
laphthalene	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:
-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		7/22/21 17:
-Xylene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1	07	7/22/21 17:
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
Styrene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
ert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
Toluene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
rans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
rans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
richloroethene richloroethene	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
richlorofluoromethane	0.500 U	1.00	0.310	ug/L	1	07	7/22/21 17:
/inyl acetate	5.00 U	10.0	3.10	ug/L	1	07	7/22/21 17:
/inyl chloride	0.0750 U	0.150	0.0500	ug/L	1	07	7/22/21 17:
(ylenes (total)	1.50 U	3.00	1.00	ug/L	1	07	7/22/21 17:
urrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1	07	7/22/21 17:
1-Bromofluorobenzene (surr)	103	85-114		%	1	07	7/22/21 17:
Foluene-d8 (surr)	100	89-112		%	1	07	7/22/21 17:

Print Date: 08/03/2021 5:00:14PM



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



Blank ID: MB for HBN 1822670 [VXX/37460]

Blank Lab ID: 1624539

QC for Samples:

1214332001, 1214332002, 1214332003, 1214332004, 1214332005, 1214332006, 1214332007, 1214332008, 1214332009,

1214332010, 1214332011

Results by AK101

ParameterResultsLOQ/CLDLUnitsGasoline Range Organics0.0500U0.1000.0310mg/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

Matrix: Water (Surface, Eff., Ground)

Prep Initial Wt./Vol.: 5 mL Prep Extract Vol: 5 mL

Print Date: 08/03/2021 5:00:18PM



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

	ı	Blank Spike	(mg/L)	5	Spike Duplic	cate (mg/L)			
<u>Parameter</u>	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  $\,$ 

Print Date: 08/03/2021 5:00:21PM



Blank ID: MB for HBN 1822880 [VXX/37480]

Blank Lab ID: 1625250

QC for Samples:

Matrix: Water (Surface, Eff., Ground)

1214332010, 1214332011

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/03/2021 5:00:24PM



Blank ID: MB for HBN 1822880 [VXX/37480]

Blank Lab ID: 1625250

QC for Samples:

Matrix: Water (Surface, Eff., Ground)

1214332010, 1214332011

# Results by SW8260D

Parameter	Results	LOQ/CL	<u>DL</u>	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		%

Print Date: 08/03/2021 5:00:24PM



Blank ID: MB for HBN 1822880 [VXX/37480]

Blank Lab ID: 1625250

QC for Samples:

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

Matrix: Water (Surface, Eff., Ground)

Prep Initial Wt./Vol.: 5 mL Prep Extract Vol: 5 mL

Print Date: 08/03/2021 5:00:24PM



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

Parameter		Blank Spike (ug/L)						Spike Duplicate (ug/L)					
1,1,1-Trichloroethane	<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	Spike	Result	Rec (%)	<u>CL</u>	RPD (%)	RPD CL			
1,1,2,2-Tichloroethane	1,1,1,2-Tetrachloroethane	30	29.4	98	30	29.7	99	(78-124)	0.94	(< 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-Dichloroethane   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-Trichloropropane   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-Trichlorobenzene   30   27.8   93   30   28.7   96   (79-124)   3.20   (<20)     1,2,4-Trimethylbenzene   30   29.8   99   30   29.8   99   (62-128)   6.65   (<20)     1,2-Dibromo-3-chloropropane   30   29.3   98   30   29.6   99   (77-121)   1.10   (<20)     1,2-Dichloroethane   30   29.3   98   30   29.6   99   (77-121)   1.10   (<20)     1,2-Dichlorobenzene   30   29.3   98   30   29.8   99   (69-130)   30.2   (<20)     1,2-Dichloroethane   30   29.3   98   30   29.6   99   30   (80-119)   2.20   (<20)     1,2-Dichloroethane   30   29.3   98   30   30.0   100   (80-119)   2.20   (<20)     1,2-Dichloropane   30   29.1   97   30   29.3   98   (73-128)   0.73   (<20)     1,3-Dichlorobenzene   30   29.6   99   30   30.2   101   (75-124)   1.70   (<20)     1,3-Dichlorobenzene   30   29.7   99   30   30.1   100   (80-119)   1.30   (<20)     1,3-Dichlorobenzene   30   29.6   99   30   30.1   100   (80-119)   1.30   (<20)     1,4-Dichlorobenzene   30   29.6   99   30   30.1   100   (80-119)   1.30   (<20)     1,4-Dichlorobenzene   30   29.6   99   30   30.0   100   (79-118)   1.20   (<20)     2,2-Dichloropane   30   29.6   95   30   86.4   96   (57-139)   0.91   (<20)     2,2-Dichloropane   30   30.4   101   30   30.4   101   (79-122)   0.18   (<20)     2,2-Dichlorobenzene   30   30.4   101   30   30.4   101   (79-122)   0.18   (<20)     2,2-Dichlorobenzene   30   30.4   30.0   30.4   30.4   30.4   30.4   (<20)   (	1,1,1-Trichloroethane	30	29.5	98	30	29.4	98	(74-131)	0.20	(< 20 )			
1,1-Dichloroethane	1,1,2,2-Tetrachloroethane	30	30.4	101	30	30.6	102	(71-121)	0.63	(< 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-Trichlorobenzene   30   28.7   96   30   29.7   99   (69-130)   3.40   (<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   29.6   99   (77-121)   1.10   (<20)     1,2-Dichlorobenzene   30   29.1   97   30   29.3   98   (78-122)   0.89   (<20)     1,2-Dichloropropane   30   29.1   97   30   29.3   98   (78-122)   0.89   (<20)     1,3-Dichlorobenzene   30   29.8   99   30   30.1   100   (80-119)   1.30   (<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   30.1   100   (80-119)   1.30   (<20)     1,3-Dichloropropane   30   29.7   99   30   30.1   100   (80-119)   1.30   (<20)     1,3-Dichloropropane   30   29.7   99   30   30.1   100   (80-119)   1.30   (<20)     1,4-Dichloropropane   30   29.7   99   30   30.0   100   (79-118)   1.20   (<20)     2,2-Dichloropropane   30   29.7   99   30   30.0   100   (79-118)   1.20   (<20)     2,2-Dichloropropane   30   29.6   98   99   30   30.0   100   (79-118)   1.20   (<20)     2,2-Dichloropropane   30   29.6   99   30   30.0   100   (79-118)   1.20   (<20)     2,2-Dichloropropane   30   29.6   99   30   30.0   100   (79-118)   1.20   (<20)     2,2-Dichloropropane   30   29.6   99   30   30.0	1,1,2-Trichloroethane	30	30.2	101	30	30.1	100	(80-119)	0.23	(< 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   30.1   101   (73-122)   0.40   (< 20)     1,2,4-Trindhorobenzene   30   28.7   96   30   29.7   99   (69-130)   3.40   (< 20)     1,2,4-Trindhoropropane   30   27.8   93   30   28.7   96   (69-130)   3.40   (< 20)     1,2,4-Trindhoropropane   30   29.6   99   30   28.7   96   (79-124)   3.20   (< 20)     1,2-Dibromo-3-chloropropane   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-Dichloroptopane   30   29.3   98   30   30.0   100   (80-119)   2.20   (< 20)     1,2-Dichloroptopane   30   29.1   97   30   29.3   98   (73-128)   0.73   (< 20)     1,2-Dichloroptopane   30   29.6   99   30   30.2   101   (75-124)   1.70   (< 20)     1,3-Dichloroptopane   30   29.8   99   30   30.1   100   (80-119)   1.30   (< 20)     1,3-Dichloroptopane   30   29.7   99   30   30.1   100   (80-119)   1.30   (< 20)     1,4-Dichloroptopane   30   29.7   99   30   30.8   100   (80-119)   1.30   (< 20)     1,4-Dichloroptopane   30   29.7   99   30   30.8   100   (80-119)   1.20   (< 20)     2-Eutanone (MEK)   90   88.0   98   90   89.0   99   (56-143)   1.10   (< 20)     2-Eutanone (MEK)   90   88.0   98   90   88.0   99   (56-143)   0.10   (< 20)     4-Chlorotoluene   30   30.1   100   30   30.4   101   (78-122)   0.18   (< 20)     4-Methyl-2-pentanone (MIBK)   90   83.4   93   90   84.7   94   (67-130)   1.60   (< 20)     Benzene   30   29.9   100   30   30.3   101   (80-120)   1.20   (< 20)     Bromochloromethane   30   29.0   97   30   29.1   97   (79-120)   1.30   (< 20)     Bromochloromethane   30   29.0   97   30   29.1   97   (79-120)   1.20   (< 20)     Bromochloromethane   30   30.0   100   30   29.6   99   (66-130)   1.20   (< 20	1,1-Dichloroethane	30	28.9	96	30	28.9	96	(77-125)	0.08	(< 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-Trichloropenzene   30   28.7   96   30   29.7   99   (69-130   3.40   (<20   1,2,4-Trichlorobenzene   30   27.8   93   30   28.7   96   (79-124   3.20   (<20   1,2,4-Trichloropenzene   30   29.6   99   30   29.8   99   (62-128   0.65   (<20   1,2-Dibromo-3-chloropropane   30   29.3   98   30   29.6   99   (77-121   1.10   (<20   1,2-Dichlorobenzene   30   29.3   98   30   29.6   99   (77-121   1.10   (<20   1,2-Dichloropenzene   30   29.3   98   30   27.9   93   (73-128   0.73   (<20   1,2-Dichloropenzene   30   29.1   97   30   29.3   98   (78-122   0.89   (<20   1,3-Dichloropenzene   30   29.6   99   30   30.2   101   (75-124   1.70   (<20   1,3-Dichloropenzene   30   29.6   99   30   30.2   101   (75-124   1.70   (<20   1,3-Dichloropenzene   30   29.8   99   30   30.2   101   (75-124   1.70   (<20   1,3-Dichloropenzene   30   29.7   99   30   30.3   100   (80-1119   1.30   (<20   1,3-Dichloropenzene   30   29.7   99   30   29.9   100   (80-1119   0.80   (<20   1,4-Dichloropenzene   30   29.7   99   30   28.5   95   (60-139   0.23   (<20   2,2-Dichloropenzene   30   29.7   99   30   30.0   100   (79-118   1.20   (<20   2,2-Dichloropenzene   30   30.4   101   30   30.4   101   (79-122   0.18   (<20   2,2-Dichloropenzene   30   30.4   101   30   30.4   101   (79-122   0.18   (<20   2,2-Dichlorobuene   30   30.4   101   30   30.4   101   (79-122   0.18   (<20   2,2-Dichlorobuene   30   30.4   101   30   30.4   101   (79-122   1.30   (<20   2,2-Dichlorobuene   30   30.1   100   30   30.4   101   (79-122   1.30   (<20   2,2-Dichlorobuene   30   30.1   100   30   30.3   101   (80-120   1.20   (<20   2,2-Dichlorobuene   30   30.4   30.4   30   30.4   30.4   30   (<20   30-120   30.4   30   30.4   30   30.4   30   30.4   30   (<20   30-120   30   30.4   30   30.4   30   30.4   30   30   30   30   30   30   30   3	1,1-Dichloroethene	30	30.1	100	30	29.9	100	(71-131)	0.80	(< 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   29.8   99   (62-128)   0.65   (<20)     1,2-Dibromothane   30   29.3   98   30   29.6   99   (77-121)   1.10   (<20)     1,2-Dichlorobenzene   30   29.1   97   30   29.3   98   (79-124)   2.20   (<20)     1,2-Dichloropropane   30   29.1   97   30   29.3   98   (78-122)   0.89   (<20)     1,3-Dichloropropane   30   29.6   99   30   30.2   101   (75-124)   1.70   (<20)     1,3-Dichloropropane   30   29.8   99   30   30.1   100   (80-119)   1.30   (<20)     1,3-Dichloropropane   30   29.7   99   30   30.1   100   (80-119)   1.30   (<20)     1,3-Dichloropropane   30   29.7   99   30   30.0   100   (79-118)   1.20   (<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)     2,2-Dichloropropane   30   28.6   95   30   28.5   95   (60-139)   0.23   (<20)     2,2-Dichloropropane   30   30.4   101   30   30.4   101   (79-122)   0.18   (<20)     2,2-Dichloropropane   30   30.4   101   30   30.4   101   (79-122)   0.18   (<20)     2,2-Dichloropropane   30   30.1   100   30   30.4   101   (79-122)   0.18   (<20)     2,2-Dichloropropane   30   30.1   100   30   30.4   101   (79-122)   1.30   (<20)     2,2-Dichloropropane   30   30.1   100   30   30.4   101   (79-122)   1.30   (<20)     3,4-Dichloropropane   30   30.1   100   30   30.4   101   (79-122)   0.18   (<20)     3,4-Dichloropropane   30   30.1   100   30   30.4   101   (79-122)   1.30   (<20)     3,4-Dichloropropane   30   30.1   100   30   30.8   103   (77-127)   2.40   (<20)     3,4-Dichloropropane   30   30.1   100   30   30.8   103   (77-127)   2.40   (<20)     3,5-Dichloropropane   30   30.4   30.4   30.4   30.4   30.4   30.4   30.4   30.4   30.4	1,1-Dichloropropene	30	30.1	100	30	30.2	101	(79-125)	0.12	(< 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-Dichlorobenzene   30   29.7   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   30.1   100   (80-119)   1.30   (<20)     1,4-Dichlorobenzene   30   29.7   99   30   30.0   100   (79-118)   1.20   (<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)     2,2-Dichloropropane   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)     2-Hexanone   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   28.5   95   (78-123)   0.02   (<20)     Bromochloromethane   30   29.0   97   30   28.5   95   (78-123)   0.02   (<20)     Bromochloromethane   30   29.0   97   30   29.1   97   (79-125)   0.20   (<20)     Bromochloromethane   30   28.5   95   30   28.5   95   (66-130)   1.20   (<20)     Bromochloromethane   30   28.9   96   30   30.8   103   (53-141)   6.50   (<20)	1,2,3-Trichlorobenzene	30	27.7	92	30	29.3	98	(69-129)	5.40	(< 20 )			
1,2,4-Trimethylbenzene	1,2,3-Trichloropropane	30	30.4	101	30	30.3	101	(73-122)	0.40	(< 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-Dichloropenae   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   30.1   100   (80-119   1.30   (< 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   30.0   100   (79-118   1.20   (< 20     2,2-Dichloropropane   30   28.6   95   30   30.4   101   (79-122   0.18   (< 20     2-Butanone (MEK)   90   88.0   98   90   89.0   99   (56-143   1.10   (< 20     2-Hexanone   90   85.6   95   90   86.4   96   (57-139   0.91   (< 20     2-Hexanone   30   30.1   100   30   30.4   101   (78-122   1.30   (< 20     2-Hexanone   30   30.1   100   30   30.4   101   (78-122   1.30   (< 20     2-Hexanone (MIBK)   90   83.4   93   90   84.7   94   (67-130   1.60   (< 20     2-Hexanone   30   29.4   98   30   29.0   97   (79-120   1.30   (< 20     3-Hexanone   30   29.9   100   30   30.3   101   (80-120   1.20   (< 20     3-Hexanone   30   29.9   100   30   30.3   101   (80-120   1.20   (< 20     3-Hexanone   30   29.9   100   30   30.3   101   (80-120   1.20   (< 20     3-Hexanone   30   29.9   100   30   30.3   101   (80-120   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1.20   1.20   (< 20   1	1,2,4-Trichlorobenzene	30	28.7	96	30	29.7	99	(69-130)	3.40	(< 20 )			
1,2-Dibromoethane	1,2,4-Trimethylbenzene	30	27.8	93	30	28.7	96	(79-124)	3.20	(< 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   30.0   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)     2,2-Dichloropropane   30   30.4   101   30   30.4   101   (79-122)   0.18   (<20)     2-Letanone (MEK)   90   88.0   98   90   89.0   99   (56-143)   1.10   (<20)     2-Letanone   30   30.4   101   30   30.4   101   (79-122)   0.18   (<20)     2-Letanone   30   30.0   100   30   30.4   101   (78-122)   1.30   (<20)     4-Chlorotoluene   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   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)	1,2-Dibromo-3-chloropropane	30	29.6	99	30	29.8	99	(62-128)	0.65	(< 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-Dichloroptopane         30         29.8         99         30         30.1         100         (80-119)         1.30         (< 20)           1,3-Dichloroptopane         30         29.7         99         30         29.9         100         (80-119)         0.80         (< 20)           1,4-Dichloroptopane         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)           2,2-Dichloropropane         30         30.4         101         30         89.0         99         (56-143)         1.10         (< 20)	1,2-Dibromoethane	30	29.3	98	30	29.6	99	(77-121)	1.10	(< 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)           2,2-Dichloropropane         30         28.6         95         30         28.5         95         (60-139)         0.23         (< 20)           2,2-Dichloropropane         30         28.6         95         30         28.5         95         (60-139)         0.23         (< 20)	1,2-Dichlorobenzene	30	29.3	98	30	30.0	100	(80-119)	2.20	(< 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-Dichloropropane         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)           2,2-Dichloropropane         30         28.6         95         30         28.5         95         (60-139)         0.23         (< 20)           2,2-Dichloropropane         30         28.6         95         30         28.5         95         (60-139)         0.23         (< 20)           2,2-Dichloropropane         30         30.4         101         (79-122)         0.18         (< 20)           2-Butanone         30         30.4	1,2-Dichloroethane	30	27.7	92	30	27.9	93	(73-128)	0.73	(< 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-Dichloropropane       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)	1,2-Dichloropropane	30	29.1	97	30	29.3	98	(78-122)	0.89	(< 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)	1,3,5-Trimethylbenzene	30	29.6	99	30	30.2	101	(75-124)	1.70	(< 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	1,3-Dichlorobenzene	30	29.8	99	30	30.1	100	(80-119)	1.30	(< 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)         Bromobenzene       30       29.4       98       30       29.0       97       (79-120)       1.30       (< 20)         Bromochloromethane       30       28.5       95       30       28.5       95       (78-123)       0.0	1,3-Dichloropropane	30	29.7	99	30	29.9	100	(80-119)	0.80	(< 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)         Bromobenzene       30       29.4       98       30       29.0       97       (79-120)       1.30       (<20)         Bromochloromethane       30       28.5       95       30       28.5       95       (78-123)       0.02       (<20)         Bromoform       30       30.0       100       30       29.6       99       (66-130)       1.20	1,4-Dichlorobenzene	30	29.7	99	30	30.0	100	(79-118)	1.20	(< 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)         Bromoform       30       30.0       100       30       29.6       99       (66-130)       1.20 <td< th=""><th>2,2-Dichloropropane</th><th>30</th><th>28.6</th><th>95</th><th>30</th><th>28.5</th><th>95</th><th>(60-139)</th><th>0.23</th><th>(&lt; 20 )</th></td<>	2,2-Dichloropropane	30	28.6	95	30	28.5	95	(60-139)	0.23	(< 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)         Bromoform       30       30.0       100       30       29.1       97       (79-125)       0.20       (< 20)         Bromomethane       30       28.9       96       30       30.8       103       (53-141)       6.50       (<	2-Butanone (MEK)	90	88.0	98	90	89.0	99	(56-143)	1.10	(< 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)         Bromoform       30       30.0       100       30       29.1       97       (79-125)       0.20       (< 20)         Bromomethane       30       28.9       96       30       30.8       103       (53-141)       6.50       (< 20)	2-Chlorotoluene	30	30.4	101	30	30.4	101	(79-122)	0.18	(< 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)         Bromoform       30       29.0       97       30       29.1       97       (79-125)       0.20       (< 20)         Bromomethane       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)	2-Hexanone	90	85.6	95	90	86.4	96	(57-139)	0.91	(< 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)         Bromoform       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)	4-Chlorotoluene	30	30.0	100	30	30.4	101	(78-122)	1.30	(< 20 )			
Benzene         30         29.4         98         30         29.0         97         (79-120)         1.30         (< 20)	4-Isopropyltoluene	30	30.1	100	30	30.8	103	(77-127)	2.40	(< 20 )			
Bromobenzene         30         29.9         100         30         30.3         101         (80-120)         1.20         (< 20)	4-Methyl-2-pentanone (MIBK)	90	83.4	93	90	84.7	94	(67-130)	1.60	(< 20 )			
Bromochloromethane         30         28.5         95         30         28.5         95         (78-123)         0.02         (< 20)	Benzene	30	29.4	98	30	29.0	97	(79-120)	1.30	(< 20 )			
Bromodichloromethane         30         29.0         97         30         29.1         97         (79-125)         0.20         (< 20)	Bromobenzene	30	29.9	100	30	30.3	101	(80-120)	1.20	(< 20 )			
Bromoform         30         30.0         100         30         29.6         99         ( 66-130 )         1.20         ( < 20 )	Bromochloromethane	30	28.5	95	30	28.5	95	(78-123)	0.02				
Bromomethane 30 28.9 <b>96</b> 30 30.8 <b>103</b> (53-141) <b>6.50</b> (< 20)	Bromodichloromethane	30	29.0	97	30	29.1	97	(79-125)	0.20				
	Bromoform	30	30.0	100	30	29.6	99	(66-130)	1.20				
Carbon disulfide 45 45.0 100 45 44.5 99 ( 64-133 ) 1.10 (< 20 )	Bromomethane	30	28.9	96	30	30.8	103	(53-141)	6.50				
	Carbon disulfide	45	45.0	100	45	44.5	99	(64-133)	1.10	(< 20 )			

Print Date: 08/03/2021 5:00:25PM



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 Dupli				
<u>Parameter</u>	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 )

Print Date: 08/03/2021 5:00:25PM



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 Dup	licate (%)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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)	80.0	
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

Print Date: 08/03/2021 5:00:25PM



Blank ID: MB for HBN 1822543 [XXX/45184]

Blank Lab ID: 1623952

QC for Samples:

1214332010

## Results by 8270D SIM LV (PAH)

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Matrix: Water (Surface, Eff., Ground)

Prep Initial Wt./Vol.: 250 mL Prep Extract Vol: 1 mL

Print Date: 08/03/2021 5:00:28PM



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 Dupli	cate (ug/L)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	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)	80.0	(< 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

Print Date: 08/03/2021 5:00:30PM



Blank ID: MB for HBN 1822946 [XXX/45233]

Blank Lab ID: 1625512

QC for Samples:

 $1214332001,\,1214332002,\,1214332003,\,1214332004,\,1214332005$ 

Matrix: Water (Surface, Eff., Ground)

## 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 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)

1214332001, 1214332002, 1214332003, 1214332004, 1214332005 QC for Samples:

## Results by AK102

	Blank Spike (mg/L)			9	Spike Dupli	cate (mg/L)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1822946 [XXX/45233]

Blank Lab ID: 1625512

QC for Samples:

 $1214332001,\,1214332002,\,1214332003,\,1214332004,\,1214332005$ 

Matrix: Water (Surface, Eff., Ground)

## 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

Print Date: 08/03/2021 5:00:38PM



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)

1214332001, 1214332002, 1214332003, 1214332004, 1214332005 QC for Samples:

## Results by AK103

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	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

QC for Samples:

1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Matrix: Water (Surface, Eff., Ground)

# 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

Print Date: 08/03/2021 5:00:42PM



## **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)

1214332006, 1214332007, 1214332008, 1214332009, 1214332010 QC for Samples:

# Results by AK102

		Blank Spike	(mg/L)	5	Spike Duplic	cate (mg/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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

Print Date: 08/03/2021 5:00:44PM



## **Method Blank**

Blank ID: MB for HBN 1823014 [XXX/45241]

Blank Lab ID: 1625777

QC for Samples:

1214332006, 1214332007, 1214332008, 1214332009, 1214332010

Matrix: Water (Surface, Eff., Ground)

# 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

Print Date: 08/03/2021 5:00:47PM



## **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	e (mg/L)		Spike Dupli	cate (mg/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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

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Trop blank was prese	nt on	Signature:	Time:	Signatu		Time:	Signature:	Time:
cooler with samples at	all	Printed Name:	Date:	Printed	Name:	Date:	Printed Name:	Date:
Ames.								
Distribution: White - w/shipment - returned to Shannon & Wilson Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file	w/ laboratory report	Company:		Compa	ny:		Company:	

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s Name and Address					ļ			58900 SEATTLE, WA 981	168
	Tel: 907-							2752 ALASKACARGO.CC	
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lorth America Potter Drive	1	21400	210011						
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Total Off Ch	race Due Carrier		by air a	ccording to t	the applicable D	angerous	Goods Regu	lations. I consent to the in	spection of this cargo.
lotal Other Char	rges Due Carrier		<b>!</b>	Shanno	n and Wils	son		Signature of Shipper or	r his Agent
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# Alert Expeditors Inc. #413277 8421 Flamingo Drive • Ancherage, Alaska 99502 Collect 🗆 Prepay 🗇 Advance Charges Job# Shipped Signature Page 91 of 94



e-Sample Receipt Form

SGS Workorder #:

1214332



D 1 2 1 1						<u> </u>	<del>-,                                    </del>	
Review Criteria	Condition (Yes	No, N/A	-		•	s Noted b		
Chain of Custody / Temperature Requi			N/A	Exemption	permitted it	f sampler ha	and carries/deli	vers.
Were Custody Seals intact? Note # &	location Yes	1F						
COC accompanied sa								
DOD: Were samples received in COC corresponding of								
			l		le e code	1. 100 1		
N/A **Exemption permitted if						_		
Temperature blank compliant* (i.e., 0-6 °C after	er CF)? Yes	Cooler	· ID:	1	@	2.7	°C Therm. ID	
		Cooler	· ID:		@		°C Therm. ID	:
If samples received without a temperature blank, the "cooler temperature" wil		Cooler	· ID:		@		°C Therm. ID	:
documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "ch be noted if neither is available.	hilled" will	Cooler	· ID:		@	0	°C Therm. ID	
be noted if neither is available.		Cooler			@		°C Therm. ID	
*If > 6°C ware complex collected +0 hours	0.0002	COOICI	ID.		•		9 memi. ib	•
*If >6°C, were samples collected <8 hours	s ago? N/A	ļ						
If <0°C, were sample containers ice	e free? N/A							
	<u> </u>							
Note: Identify containers received at non-compliant tempe	erature .							
Use form FS-0029 if more space is n	needed.							
Holding Time / Documentation / Sample Condition R	aquiramants	Noto: Pa	ofor to	form E 093 "S	ample Guide"	for epocific bo	olding times	
Were samples received within holding		Note. No	elel lo	1011111 -003 36	ample Guide	ioi specific fic	ding times.	
were samples received within holding	g time : Tes							
Do samples match COC** (i.e.,sample IDs,dates/times colle	ected)? Yes							
**Note: If times differ <1hr, record details & login per C	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 an	nalyses Yes							
with multiple option for analysis (Ex: BTEX,		-						
	,							
			N/A	***Evompt	ion pormitto	d for motals	(e.g,200.8/602	20B)
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	*\		IN/F	Lxempt	ion permitte	u ioi illetais	(e.g,200.6/002	<u>206).</u>
Were proper containers (type/mass/volume/preservative***	Jused?							
M 1 20 11 11 11 11								
Volatile / LL-Hg Rec								
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with sa	1							
Were all water VOA vials free of headspace (i.e., bubbles ≤	6mm)? Yes							
Were all soil VOAs field extracted with MeOH	I+BFB? N/A							
Note to Client: Any "No", answer above indicates no	on-compliance	with sta	ndard	procedures	and may im	pact data qu	uality.	
	-1 (	!"						
Additiona	al notes (if a	pplica	ole):					



# **Sample Containers and Preservatives**

Container IdPreservativeContainerContainer IdPreservativeCondition	<u>Container</u> <u>Condition</u>
1214332001-A HCL to pH < 2 OK 1214332005-J No Preservative Rec	juired 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 Rec	
1214332001-F HCL to pH < 2 OK 1214332006-E No Preservative Rec	
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 Rec	
1214332002-A HCL to pH < 2 OK 1214332006-J No Preservative Rec	
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 Rec	
1214332003-A HCL to pH < 2 OK 1214332007-J No Preservative Rec	
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 Rec	
1214332004-A HCL to pH < 2 OK 1214332008-J No Preservative Rec	
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 Rec	
1214332005-A HCL to pH < 2 OK 1214332009-J No Preservative Rec	
1214332005-В 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
	OIL

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Container Id	<u>Preservative</u>	<u>Container</u> <u>Condition</u>	Container Id	<u>Preservative</u>	<u>Container</u> <u>Condition</u>
1214332010-I 1214332010-J	No Preservative Required No Preservative Required	OK OK			
1214332010 3	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.

- $\ensuremath{\mathsf{OK}}$  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	

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Labo	oratory Report Date:
A	August 4, 2021
CS S	Site Name:
I	Dillingham DOT&PF
ľ	Note: Any N/A or No box checked must have an explanation in the comments box.
	<u>Laboratory</u>
	a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	The samples were not transferred to a network laboratory.
2. <u>c</u>	Chain of Custody (CoC)
	a. CoC information completed, signed, and dated (including released/received by)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	Tesa ivia ivia comments.
	b. Correct analyses requested?
	Yes⊠ No□ N/A□ Comments:
	TOSE NOL NAL COMMENS.
3. I	Laboratory Sample Receipt Documentation
). <u>1</u>	Substitutive Sumple Receipt Bocumentation
	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.)?
	$Yes \boxtimes No \square N/A \square$ Comments:

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Labor	ratory Report Date:
A	ugust 4, 2021
CS Si	ite Name:
D	villingham 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.?
ı	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.	. <u>Case Narrative</u>
	a. Present and understandable?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b. Discrepancies, errors, or QC failures identified by the lab?
	Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:
	No discrepancies, errors, or QC failures were identified by the laboratory.
	c. Were all corrective actions documented?
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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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Laboratory Report Date:	
August 4, 2021	
CS Site Name:	
Dillingham DOT&PF	
5. <u>Samples Results</u>	
a. Correct analyses performed/reported as requested on COC?	
$Yes \boxtimes No \square N/A \square$ Comments:	
b. All applicable holding times met?	
$Yes \boxtimes No \square N/A \square$ Comments:	
c. All soils reported on a dry weight basis?	
$Yes \square No \square N/A \boxtimes Comments:$	
Soils were not submitted with this work order.	
d. Are the reported LOQs less than the Cleanup Level or the minimum required detection the project?	tion level for
$Yes \square No \boxtimes N/A \square$ 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 DI limit but below the limit of detection (LOD).	EC regulatory
6. QC Samples	
a. Method Blank	
i. One method blank reported per matrix, analysis and 20 samples?	
$Yes \boxtimes No \square N/A \square$ Comments:	

1214332
Laboratory Report Date:
August 4, 2021
CS Site Name:
Dillingham DOT&PF
ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
Yes $\square$ No $\boxtimes$ N/A $\square$ 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 <i>Trip Blank</i> are associated. Phenanthrene was reported above the DL and less than the LOQ in samples <i>SW-03</i> and <i>SW-04</i> ; 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 <i>SW-06</i> , <i>SW-07</i> , <i>SW-08</i> , <i>SW-09</i> , and <i>SW-102</i> 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 <i>SW-102</i> . 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 <i>SW-102</i> 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 $\boxtimes$ No $\square$ N/A $\square$ 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)
<ul> <li>Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
Yes⊠ No□ N/A□ Comments:
LCS/LCSD pairs were reported for methods AK101, AK102, AK103, SW8260D, and 8270D SIM (PAH).

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Laboratory	Report Date:
August	4, 2021
CS Site Na	me:
Dilling	ham DOT&PF
	ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
	Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:
Me	tals/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)
	$Yes \boxtimes No \square N/A \square$ 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)
	$Yes \boxtimes No \square N/A \square$ Comments:
	v. If %R or RPD is outside of acceptable limits, what samples are affected?  Comments:
	samples are affected. Method accuracy and precision were demonstrated to be within acceptable its; see 6.b.iii.
	vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
	Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:
Qua	alification 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	e data quality/usability is not affected.

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Labora	atory Report Date:
Au	igust 4, 2021
CS Sit	e Name:
Di	llingham 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?
i	$Yes \square No \square N/A \boxtimes Comments:$
	MS/MSD samples were not reported in this work order.
	<ul> <li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⋈ Comments:</li> </ul>
	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 $\square$ No $\square$ N/A $\boxtimes$ 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.
İ	$Yes \square No \square N/A \boxtimes Comments:$
	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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Laboratory Report Date:  August 4, 2021  CS Site Name:  Dillingham DOT&PF  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:  iii. 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.  c. 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:	12	14332
CS Site Name:    Dillingham DOT&PF	Labor	atory Report Date:
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		$Yes \boxtimes No \square N/A \square$ Comments:

August 4, 2021  S Site Name:  Dillingham DOT&PF  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?	1214332
Solite Name:    Dillingham DOT&PF	aboratory Report Date:
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Yes⊠ No□ N/A□ Comments:	$Yes \boxtimes No \square N/A \square$ Comments:

1214332
aboratory Report Date:
August 4, 2021
S Site Name:
Dillingham DOT&PF
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 \text{-}R_2)}{((R_1 \text{+}R_2)/2)} \times 100 $ Where $R_1 = \text{Sample Concentration} $ $R_2 = \text{Field Duplicate Concentration} $
$Yes \boxtimes No \square N/A \square$ 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.
<ul> <li>g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?</li> <li>Yes□ No⋈ N/A□ Comments:</li> </ul>
Reusable equipment was not used in this sampling event; therefore, an equipment blank was not necessary.
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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.

	_	
1214332		
Laboratory Report Date:		
August 4, 2021		
CS Site Name:		
Dillingham DOT&PF		
7. Other Data Flags/Qualifiers (ACC	DE, AFCEE, Lab Specific, etc.)	
a. Defined and appropriate?		
Yes□ No□ N/A⊠	Comments:	

Yes□	No□	$N/A \boxtimes$	Comments:		
No additional	data flaș	gs/qualifie	rs are required.		

Page 11 May 2020



## **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

Staphen C. Ede 2021.08.09

08:16:59 -08'00'

Jennifer Dawkins

Date

Project Manager Jennifer.Dawkins@sgs.com

SGS North America Inc.



#### **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.

Print Date: 08/06/2021 4:51:47PM



## **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.

Print Date: 08/06/2021 4:51:47PM



## **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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a>. 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.

Print Date: 08/06/2021 4:51:50PM

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	<u>Matrix</u>
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 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

VOC 8260 (S) Field Extracted

SW8260D



# **Detectable Results Summary**

Client Sample ID: SS-Grid-A3			
Lab Sample ID: 1214339001	Parameter	Result	<u>Units</u>
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	<u>Parameter</u>	Result	<u>Units</u>
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			
Client Sample ID: <b>SED-02</b> Lab Sample ID: 1214339004	Danamatan	Decell	1.1
•	Parameter	<u>Result</u> 79.3	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics Residual Range Organics	79.3 367	mg/kg
Valatila Fuela	Gasoline Range Organics	367 1.88J	mg/kg
Volatile Fuels	Gasoline Range Organics	1.00J	mg/kg
Client Sample ID: SED-102			
Lab Sample ID: 1214339005	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
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
<b>U</b>	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	Darameter	Popult	Linita
Semivolatile Organic Fuels	<u>Parameter</u> Diesel Range Organics	<u>Result</u> 35.0	<u>Units</u> mg/kg
Semivolatile Organic Fuels	Residual Range Organics	150	mg/kg
Volatile Fuels	Gasoline Range Organics	1.35J	mg/kg
	Sassinis Range Organios	1.000	mg/kg
Client Sample ID: SED-05			
Lab Sample ID: 1214339008	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
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 Semivolatile Organic Fuels Volatile Fuels	Parameter Diesel Range Organics Residual Range Organics Gasoline Range Organics	Result 30.3 66.8J 1.58J	Units mg/kg mg/kg mg/kg
Client Sample ID: SED-06 Lab Sample ID: 1214339010 Semivolatile Organic Fuels Volatile Fuels	Parameter Diesel Range Organics Residual Range Organics Gasoline Range Organics Acetone	Result 299 925 4.67J 0.456J	Units mg/kg mg/kg mg/kg mg/kg
Volatile GC/MS	Acetone	0.456J	mg/kg
Client Sample ID: SED-07 Lab Sample ID: 1214339011 Semivolatile Organic Fuels Volatile Fuels	Parameter Diesel Range Organics Residual Range Organics Gasoline Range Organics	Result 509 2520 3.87J	<u>Units</u> mg/kg mg/kg mg/kg
Client Sample ID: SED-08			
Lab Sample ID: 1214339012 Semivolatile Organic Fuels	<u>Parameter</u> Diesel Range Organics Residual Range Organics	<u>Result</u> 307 1760	<u>Units</u> mg/kg mg/kg
Volatile Fuels Volatile GC/MS	Gasoline Range Organics Toluene	20.4J 0.197J	mg/kg mg/kg
Client Sample ID: SED-09			3 3
Lab Sample ID: 1214339013	<u>Parameter</u>	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics Residual Range Organics	22.9J 87.4J	mg/kg mg/kg
Volatile Fuels	Gasoline Range Organics	1.63J	mg/kg
Client Sample ID: <b>Trip Blank</b> Lab Sample ID: 1214339014 <b>Volatile Fuels</b>	<u>Parameter</u> Gasoline Range Organics	<u>Result</u> 1.09J	<u>Units</u> mg/kg

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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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		Analyze
,1,1,2-Tetrachloroethane	0.00800 U	0.0160	0.00495	mg/kg	1	07/1	9/21 19:1
,1,1-Trichloroethane	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,1,2,2-Tetrachloroethane	0.000800 U	0.00160	0.000495	mg/kg	1	07/1	9/21 19:1
,1,2-Trichloroethane	0.000320 U	0.000639	0.000200	mg/kg	1	07/1	9/21 19:1
,1-Dichloroethane	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,1-Dichloroethene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,1-Dichloropropene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,2,3-Trichlorobenzene	0.0199 U	0.0399	0.0120	mg/kg	1	07/1	9/21 19:1
,2,3-Trichloropropane	0.000800 U	0.00160	0.000495	mg/kg	1	07/1	9/21 19:1
,2,4-Trichlorobenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,2,4-Trimethylbenzene	0.0199 U	0.0399	0.0120	mg/kg	1	07/1	9/21 19:1
,2-Dibromo-3-chloropropane	0.0399 U	0.0798	0.0247	mg/kg	1	07/1	9/21 19:1
,2-Dibromoethane	0.000399 U	0.000798	0.000319	mg/kg	1	07/1	9/21 19:1
,2-Dichlorobenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,2-Dichloroethane	0.000800 U	0.00160	0.000559	mg/kg	1	07/1	9/21 19:1
,2-Dichloropropane	0.00399 U	0.00798	0.00247	mg/kg	1	07/1	9/21 19:1
,3,5-Trimethylbenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:
,3-Dichlorobenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,3-Dichloropropane	0.00399 U	0.00798	0.00247	mg/kg	1	07/1	9/21 19:
,4-Dichlorobenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
,2-Dichloropropane	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:
-Butanone (MEK)	0.100 U	0.200	0.0623	mg/kg	1	07/1	9/21 19:
-Chlorotoluene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:
-Hexanone	0.0399 U	0.0798	0.0247	mg/kg	1	07/1	9/21 19:1
-Chlorotoluene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
-Isopropyltoluene	0.0399 U	0.0798	0.0200	mg/kg	1	07/1	9/21 19:
-Methyl-2-pentanone (MIBK)	0.100 U	0.200	0.0623	mg/kg	1	07/1	9/21 19:1
cetone	0.100 U	0.200	0.0623	mg/kg	1	07/1	9/21 19:
Senzene	0.00499 U	0.00998	0.00311	mg/kg	1		9/21 19:
romobenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:
romochloromethane	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:
romodichloromethane	0.000800 U	0.00160	0.000495	mg/kg	1		9/21 19:1
Bromoform	0.0100 U	0.0200	0.00623	mg/kg	1		9/21 19:1
Bromomethane	0.00800 U	0.0160	0.00495	mg/kg	1		9/21 19:1
Carbon disulfide	0.0399 U	0.0798	0.0247	mg/kg	1		9/21 19:1
Carbon tetrachloride	0.00499 U	0.00998	0.00311	mg/kg	1	07/1	

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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

_						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		Analyzed
Chlorobenzene	0.0100 U	0.0200	0.00623	mg/kg	1		9/21 19:12
Chloroethane	0.0800 U	0.160	0.0495	mg/kg	1		9/21 19:12
Chloroform	0.000798 J	0.00319	0.000798	mg/kg	1	07/1	9/21 19:12
Chloromethane	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:12
cis-1,2-Dichloroethene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:12
cis-1,3-Dichloropropene	0.00499 U	0.00998	0.00311	mg/kg	1	07/1	9/21 19:12
Dibromochloromethane	0.00200 U	0.00399	0.00120	mg/kg	1	07/1	9/21 19:12
Dibromomethane	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:12
Dichlorodifluoromethane	0.0199 U	0.0399	0.0120	mg/kg	1	07/1	9/21 19:12
Ethylbenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:12
Freon-113	0.0399 U	0.0798	0.0247	mg/kg	1	07/1	9/21 19:12
Hexachlorobutadiene	0.00800 U	0.0160	0.00495	mg/kg	1	07/1	9/21 19:1:
Isopropylbenzene (Cumene)	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1:
Methylene chloride	0.0399 U	0.0798	0.0247	mg/kg	1	07/1	9/21 19:1:
Methyl-t-butyl ether	0.0399 U	0.0798	0.0247	mg/kg	1	07/1	9/21 19:1:
Naphthalene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
n-Butylbenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
n-Propylbenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
o-Xylene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
P & M -Xylene	0.0199 U	0.0399	0.0120	mg/kg	1	07/1	9/21 19:1
sec-Butylbenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
Styrene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
tert-Butylbenzene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
Tetrachloroethene	0.00499 U	0.00998	0.00311	mg/kg	1	07/1	9/21 19:1
Toluene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
trans-1,2-Dichloroethene	0.0100 U	0.0200	0.00623	mg/kg	1	07/1	9/21 19:1
trans-1,3-Dichloropropene	0.00499 U	0.00998	0.00311	mg/kg	1	07/1	9/21 19:1
Trichloroethene	0.00200 U	0.00399	0.00120	mg/kg	1	07/1	9/21 19:1
Trichlorofluoromethane	0.0199 U	0.0399	0.0120	mg/kg	1	07/1	9/21 19:1
Vinyl acetate	0.0399 U	0.0798	0.0247	mg/kg	1	07/1	9/21 19:1
Vinyl chloride	0.000320 U	0.000639	0.000200	mg/kg	1	07/1	9/21 19:1
Xylenes (total)	0.0300 U	0.0599	0.0182	mg/kg	1	07/1	9/21 19:1
urrogates							
1,2-Dichloroethane-D4 (surr)	102	71-136		%	1	07/1	9/21 19:1
4-Bromofluorobenzene (surr)	104	55-151		%	1	07/1	9/21 19:1:
Toluene-d8 (surr)	94.9	85-116		%	1	07/1	9/21 19:1:

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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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

## **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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable Limits [	Date Analyzed
1,1,1,2-Tetrachloroethane	0.00820 U	0.0164	0.00509	mg/kg	1	(	07/20/21 19:0
1,1,1-Trichloroethane	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1,1,2,2-Tetrachloroethane	0.000820 U	0.00164	0.000509	mg/kg	1	(	07/20/21 19:0
1,1,2-Trichloroethane	0.000328 U	0.000656	0.000205	mg/kg	1	(	07/20/21 19:0
1,1-Dichloroethane	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1,1-Dichloroethene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1,1-Dichloropropene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1,2,3-Trichlorobenzene	0.0205 U	0.0410	0.0123	mg/kg	1	(	07/20/21 19:0
1,2,3-Trichloropropane	0.000820 U	0.00164	0.000509	mg/kg	1	(	07/20/21 19:0
1,2,4-Trichlorobenzene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1,2,4-Trimethylbenzene	0.0205 U	0.0410	0.0123	mg/kg	1	C	07/20/21 19:0
1,2-Dibromo-3-chloropropane	0.0410 U	0.0820	0.0254	mg/kg	1	(	07/20/21 19:0
1,2-Dibromoethane	0.000410 U	0.000820	0.000328	mg/kg	1	C	07/20/21 19:0
1,2-Dichlorobenzene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1,2-Dichloroethane	0.000820 U	0.00164	0.000574	mg/kg	1	(	07/20/21 19:0
I,2-Dichloropropane	0.00410 U	0.00820	0.00254	mg/kg	1	C	07/20/21 19:0
1,3,5-Trimethylbenzene	0.0103 U	0.0205	0.00640	mg/kg	1	C	07/20/21 19:0
1,3-Dichlorobenzene	0.0103 U	0.0205	0.00640	mg/kg	1	C	07/20/21 19:0
1,3-Dichloropropane	0.00410 U	0.00820	0.00254	mg/kg	1	C	07/20/21 19:0
1,4-Dichlorobenzene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
2,2-Dichloropropane	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
2-Butanone (MEK)	0.103 U	0.205	0.0640	mg/kg	1	(	07/20/21 19:0
2-Chlorotoluene	0.0103 U	0.0205	0.00640	mg/kg	1	C	07/20/21 19:0
2-Hexanone	0.0410 U	0.0820	0.0254	mg/kg	1	(	07/20/21 19:0
4-Chlorotoluene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
1-Isopropyltoluene	0.0410 U	0.0820	0.0205	mg/kg	1	(	07/20/21 19:0
4-Methyl-2-pentanone (MIBK)	0.103 U	0.205	0.0640	mg/kg	1	C	07/20/21 19:0
Acetone	0.103 U	0.205	0.0640	mg/kg	1	C	07/20/21 19:0
Benzene	0.00515 U	0.0103	0.00320	mg/kg	1	(	07/20/21 19:0
Bromobenzene	0.0103 U	0.0205	0.00640	mg/kg	1	(	07/20/21 19:0
Bromochloromethane	0.0103 U	0.0205	0.00640	mg/kg	1	C	07/20/21 19:0
Bromodichloromethane	0.000820 U	0.00164	0.000509	mg/kg	1	C	07/20/21 19:0
Bromoform	0.0103 U	0.0205	0.00640	mg/kg	1	C	07/20/21 19:0
Bromomethane	0.00820 U	0.0164	0.00509	mg/kg	1	C	07/20/21 19:0
Carbon disulfide	0.0410 U	0.0820	0.0254	mg/kg	1	(	07/20/21 19:0
Carbon tetrachloride	0.00515 U	0.0103	0.00320	mg/kg	1	(	07/20/21 19:0

Print Date: 08/06/2021 4:51:57PM J flagging is activated



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	<u>DL</u>	Units	<u>DF</u>	Allowable Limits	Date Analyzed
Chlorobenzene	0.0103 U	0.0205	<u></u> 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

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

			4				
Parameter	Result Qual	LOQ/CL	<u>DL</u>	Units	<u>DF</u>	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

Print Date: 08/06/2021 4:51:57PM J flagging is activated



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

						<u>Allowable</u>
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u> <u>Date Analyze</u>
Chlorobenzene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
Chloroethane	0.113 U	0.225	0.0697	mg/kg	1	07/21/21 21:0
Chloroform	0.00225 U	0.00449	0.00112	mg/kg	1	07/21/21 21:0
Chloromethane	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
cis-1,2-Dichloroethene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
cis-1,3-Dichloropropene	0.00700 U	0.0140	0.00438	mg/kg	1	07/21/21 21:0
Dibromochloromethane	0.00281 U	0.00562	0.00169	mg/kg	1	07/21/21 21:0
Dibromomethane	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
Dichlorodifluoromethane	0.0281 U	0.0562	0.0169	mg/kg	1	07/21/21 21:0
Ethylbenzene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
Freon-113	0.0560 U	0.112	0.0348	mg/kg	1	07/21/21 21:0
Hexachlorobutadiene	0.0113 U	0.0225	0.00697	mg/kg	1	07/21/21 21:0
Isopropylbenzene (Cumene)	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
Methylene chloride	0.0560 U	0.112	0.0348	mg/kg	1	07/21/21 21:0
Methyl-t-butyl ether	0.0560 U	0.112	0.0348	mg/kg	1	07/21/21 21:0
Naphthalene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
n-Butylbenzene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
n-Propylbenzene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
o-Xylene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
P & M -Xylene	0.0281 U	0.0562	0.0169	mg/kg	1	07/21/21 21:0
sec-Butylbenzene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
Styrene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
tert-Butylbenzene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
Tetrachloroethene	0.00700 U	0.0140	0.00438	mg/kg	1	07/21/21 21:0
Toluene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
trans-1,2-Dichloroethene	0.0141 U	0.0281	0.00876	mg/kg	1	07/21/21 21:0
trans-1,3-Dichloropropene	0.00700 U	0.0140	0.00438	mg/kg	1	07/21/21 21:0
Trichloroethene	0.00281 U	0.00562	0.00169	mg/kg	1	07/21/21 21:0
Trichlorofluoromethane	0.0281 U	0.0562	0.0169	mg/kg	1	07/21/21 21:0
Vinyl acetate	0.0560 U	0.112	0.0348	mg/kg	1	07/21/21 21:0
Vinyl chloride	0.000450 U	0.000899	0.000281	mg/kg	1	07/21/21 21:0
Xylenes (total)	0.0422 U	0.0843	0.0256	mg/kg	1	07/21/21 21:0
Surrogates						
1,2-Dichloroethane-D4 (surr)	107	71-136		%	1	07/21/21 21:0
4-Bromofluorobenzene (surr)	91.8	55-151		%	1	07/21/21 21:0
Toluene-d8 (surr)	98.6	85-116		%	1	07/21/21 21:0

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

_						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Gasoline Range Organics	1.88 J	4.82	1.45	mg/kg	1	Limits	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



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	<u>DF</u>	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



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	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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 21:2
Naphthalene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
n-Butylbenzene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
n-Propylbenzene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
o-Xylene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
P & M -Xylene	0.0483 U	0.0965	0.0289	mg/kg	1		07/21/21 21:2
sec-Butylbenzene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
Styrene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
tert-Butylbenzene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
Tetrachloroethene	0.0121 U	0.0241	0.00752	mg/kg	1		07/21/21 21:2
Toluene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
rans-1,2-Dichloroethene	0.0241 U	0.0482	0.0150	mg/kg	1		07/21/21 21:2
trans-1,3-Dichloropropene	0.0121 U	0.0241	0.00752	mg/kg	1		07/21/21 21:2
Trichloroethene	0.00483 U	0.00965	0.00289	mg/kg	1		07/21/21 21:2
Trichlorofluoromethane	0.0483 U	0.0965	0.0289	mg/kg	1		07/21/21 21:2
Vinyl acetate	0.0965 U	0.193	0.0598	mg/kg	1		07/21/21 21:2
Vinyl chloride	0.000770 U	0.00154	0.000482	mg/kg	1		07/21/21 21:2
Xylenes (total)	0.0725 U	0.145	0.0440	mg/kg	1		07/21/21 21:2
urrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		07/21/21 21:2
4-Bromofluorobenzene (surr)	98.8	55-151		%	1		07/21/21 21:2
Toluene-d8 (surr)	99.1	85-116		%	1		07/21/21 21:2

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

#### **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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	DF	<u>Limits</u>	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



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	<u>Units</u>	<u>DF</u>	<u>Allowable</u> 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

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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	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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 15:2
Methyl-t-butyl ether	0.0820 U	0.164	0.0508	mg/kg	1		07/23/21 15:2
Naphthalene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
n-Butylbenzene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
n-Propylbenzene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
o-Xylene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
P & M -Xylene	0.0410 U	0.0819	0.0246	mg/kg	1		07/23/21 15:2
sec-Butylbenzene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
Styrene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
tert-Butylbenzene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
Tetrachloroethene	0.0103 U	0.0205	0.00638	mg/kg	1		07/23/21 15:2
Toluene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
trans-1,2-Dichloroethene	0.0204 U	0.0409	0.0128	mg/kg	1		07/23/21 15:2
trans-1,3-Dichloropropene	0.0103 U	0.0205	0.00638	mg/kg	1		07/23/21 15:2
Trichloroethene	0.00409 U	0.00819	0.00246	mg/kg	1		07/23/21 15:2
Trichlorofluoromethane	0.0410 U	0.0819	0.0246	mg/kg	1		07/23/21 15:2
Vinyl acetate	0.0820 U	0.164	0.0508	mg/kg	1		07/23/21 15:2
Vinyl chloride	0.000655 U	0.00131	0.000409	mg/kg	1		07/23/21 15:2
Xylenes (total)	0.0615 U	0.123	0.0373	mg/kg	1		07/23/21 15:2
urrogates							
1,2-Dichloroethane-D4 (surr)	112	71-136		%	1		07/23/21 15:2
4-Bromofluorobenzene (surr)	113	55-151		%	1		07/23/21 15:2
Toluene-d8 (surr)	100	85-116		%	1		07/23/21 15:2

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J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

		/ - /				<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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 Residual Range Organics	Result Qual 712	<u>LOQ/CL</u> 115	<u>DL</u> 49.5	<u>Units</u> mg/kg	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 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



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

<u>Parameter</u> Gasoline Range Organics	Result Qual 1.55 J	LOQ/CL 3.73	<u>DL</u> 1.12	<u>Units</u> mg/kg	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 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



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

<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

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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	<u>DF</u>	<u>Allowable</u> Limits	Date Analyzed
Chlorobenzene	0.0187 U	0.0373	0.0116	mg/kg	<u> </u>	LIIIIIIS	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



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

<u>Parameter</u>	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Residual Range Organics	150	121	52.1	mg/kg	1	Limits	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Gasoline Range Organics		3.85	1.15	mg/kg	1	Limits	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



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	<u>DF</u>	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

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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	<u>DF</u>	Allowable Limits	Date Analyzed
Chlorobenzene	0.0193 U	0.0385	0.0120	mg/kg	1	Limito	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

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

#### **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



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	<u>DL</u>	Units	<u>DF</u>	Allowable Limits	Date Analyzed
					<u>DI</u>	LIIIIII	
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 Residual Range Organics	Result Qual 60.3 J	<u>LOQ/CL</u> 119	<u>DL</u> 51.0	<u>Units</u> mg/kg	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

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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	<u>DF</u>	<u>Allowable</u> Limits	Date Analyzed
Chlorobenzene	0.0194 U	0.0388	0.0121	mg/kg	1	Limito	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

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Residual Range Organics	66.8 J	119	51.2	mg/kg	1		07/20/21 18:07
3							
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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0168 U	0.0335	0.0104	mg/kg	1		07/24/21 19:1
1,1,1-Trichloroethane	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,1,2,2-Tetrachloroethane	0.00168 U	0.00335	0.00104	mg/kg	1		07/24/21 19:1
1,1,2-Trichloroethane	0.000670 U	0.00134	0.000419	mg/kg	1		07/24/21 19:1
1,1-Dichloroethane	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,1-Dichloroethene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,1-Dichloropropene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,2,3-Trichlorobenzene	0.0419 U	0.0837	0.0251	mg/kg	1		07/24/21 19:1
1,2,3-Trichloropropane	0.00168 U	0.00335	0.00104	mg/kg	1		07/24/21 19:1
1,2,4-Trichlorobenzene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,2,4-Trimethylbenzene	0.0419 U	0.0837	0.0251	mg/kg	1		07/24/21 19:1
1,2-Dibromo-3-chloropropane	0.0835 U	0.167	0.0519	mg/kg	1		07/24/21 19:1
1,2-Dibromoethane	0.000835 U	0.00167	0.000670	mg/kg	1		07/24/21 19:1
1,2-Dichlorobenzene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,2-Dichloroethane	0.00168 U	0.00335	0.00117	mg/kg	1		07/24/21 19:1
1,2-Dichloropropane	0.00835 U	0.0167	0.00519	mg/kg	1		07/24/21 19:1
1,3,5-Trimethylbenzene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,3-Dichlorobenzene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
1,3-Dichloropropane	0.00835 U	0.0167	0.00519	mg/kg	1		07/24/21 19:1
1,4-Dichlorobenzene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
2,2-Dichloropropane	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
2-Butanone (MEK)	0.209 U	0.419	0.131	mg/kg	1		07/24/21 19:1
2-Chlorotoluene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
2-Hexanone	0.0835 U	0.167	0.0519	mg/kg	1		07/24/21 19:1
4-Chlorotoluene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
4-Isopropyltoluene	0.0835 U	0.167	0.0419	mg/kg	1		07/24/21 19:1
4-Methyl-2-pentanone (MIBK)	0.209 U	0.419	0.131	mg/kg	1		07/24/21 19:1
Acetone	0.209 U	0.419	0.131	mg/kg	1		07/24/21 19:1
Benzene	0.0104 U	0.0209	0.00653	mg/kg	1		07/24/21 19:1
Bromobenzene	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
Bromochloromethane	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
Bromodichloromethane	0.00168 U	0.00335	0.00104	mg/kg	1		07/24/21 19:1
Bromoform	0.0210 U	0.0419	0.0131	mg/kg	1		07/24/21 19:1
Bromomethane	0.0168 U	0.0335	0.0104	mg/kg	1		07/24/21 19:1
Carbon disulfide	0.0835 U	0.167	0.0519	mg/kg	1		07/24/21 19:1
Carbon tetrachloride	0.0104 U	0.0209	0.00653	mg/kg	1		07/24/21 19:1

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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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	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
urrogates							
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

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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 Diesel Range Organics	Result Qual	LOQ/CL 87.7	<u>DL</u> 27.2	<u>Units</u> mg/kg	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 07/20/21 18:27
Surrogates			21.2		,		
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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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 Gasoline Range Organics	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
	4.67 J	13.7	4.12	mg/kg	1	Limits	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



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	<u>DL</u>	Units	<u>DF</u>	<u>Allowable</u> 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

Print Date: 08/06/2021 4:51:57PM J flagging is activated



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

						Allowable
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u> <u>Date Analyzed</u>
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

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

<u>Parameter</u> Residual Range Organics	Result Qual 2520	<u>LOQ/CL</u> 716	<u>DL</u> 308	<u>Units</u> mg/kg	<u>DF</u> 4	Allowable Limits	<u>Date Analyzed</u> 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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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	<u>Units</u>	<u>DF</u>	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

Print Date: 08/06/2021 4:51:57PM J flagging is activated



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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 19:5
n-Butylbenzene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
n-Propylbenzene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
o-Xylene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
P & M -Xylene	0.112 U	0.224	0.0673	mg/kg	1		07/24/21 19:5
sec-Butylbenzene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
Styrene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
tert-Butylbenzene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
Tetrachloroethene	0.0281 U	0.0561	0.0175	mg/kg	1		07/24/21 19:5
Toluene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
trans-1,2-Dichloroethene	0.0560 U	0.112	0.0350	mg/kg	1		07/24/21 19:5
trans-1,3-Dichloropropene	0.0281 U	0.0561	0.0175	mg/kg	1		07/24/21 19:5
Trichloroethene	0.0112 U	0.0224	0.00673	mg/kg	1		07/24/21 19:5
Trichlorofluoromethane	0.112 U	0.224	0.0673	mg/kg	1		07/24/21 19:5
Vinyl acetate	0.225 U	0.449	0.139	mg/kg	1		07/24/21 19:5
Vinyl chloride	0.00179 U	0.00359	0.00112	mg/kg	1		07/24/21 19:5
Xylenes (total)	0.168 U	0.336	0.102	mg/kg	1		07/24/21 19:5
urrogates							
1,2-Dichloroethane-D4 (surr)	111	71-136		%	1		07/24/21 19:5
4-Bromofluorobenzene (surr)	85.4	55-151		%	1		07/24/21 19:5
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



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	Date Analyzed
1,1,1,2-Tetrachloroethane	0.225 U	0.450	0.140	mg/kg	1		07/24/21 20:0
1,1,1-Trichloroethane	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,1,2,2-Tetrachloroethane	0.0225 U	0.0450	0.0140	mg/kg	1		07/24/21 20:0
1,1,2-Trichloroethane	0.00900 U	0.0180	0.00563	mg/kg	1		07/24/21 20:0
1,1-Dichloroethane	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,1-Dichloroethene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,1-Dichloropropene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,2,3-Trichlorobenzene	0.565 U	1.13	0.338	mg/kg	1		07/24/21 20:0
1,2,3-Trichloropropane	0.0225 U	0.0450	0.0140	mg/kg	1		07/24/21 20:0
1,2,4-Trichlorobenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,2,4-Trimethylbenzene	0.565 U	1.13	0.338	mg/kg	1		07/24/21 20:0
1,2-Dibromo-3-chloropropane	1.13 U	2.25	0.698	mg/kg	1		07/24/21 20:0
1,2-Dibromoethane	0.0113 U	0.0225	0.00901	mg/kg	1		07/24/21 20:0
1,2-Dichlorobenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,2-Dichloroethane	0.0225 U	0.0450	0.0158	mg/kg	1		07/24/21 20:0
1,2-Dichloropropane	0.113 U	0.225	0.0698	mg/kg	1		07/24/21 20:0
1,3,5-Trimethylbenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,3-Dichlorobenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
1,3-Dichloropropane	0.113 U	0.225	0.0698	mg/kg	1		07/24/21 20:0
1,4-Dichlorobenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
2,2-Dichloropropane	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
2-Butanone (MEK)	2.81 U	5.63	1.76	mg/kg	1		07/24/21 20:0
2-Chlorotoluene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
2-Hexanone	1.13 U	2.25	0.698	mg/kg	1		07/24/21 20:0
4-Chlorotoluene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
4-Isopropyltoluene	1.13 U	2.25	0.563	mg/kg	1		07/24/21 20:0
4-Methyl-2-pentanone (MIBK)	2.81 U	5.63	1.76	mg/kg	1		07/24/21 20:0
Acetone	2.81 U	5.63	1.76	mg/kg	1		07/24/21 20:0
Benzene	0.141 U	0.282	0.0878	mg/kg	1		07/24/21 20:0
Bromobenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
Bromochloromethane	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
Bromodichloromethane	0.0225 U	0.0450	0.0140	mg/kg	1		07/24/21 20:0
Bromoform	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
Bromomethane	0.225 U	0.450	0.140	mg/kg	1		07/24/21 20:0
Carbon disulfide	1.13 U	2.25	0.698	mg/kg	1		07/24/21 20:0
Carbon tetrachloride	0.141 U	0.282	0.0878	mg/kg	1		07/24/21 20:0

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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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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 20:0
n-Butylbenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
n-Propylbenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
o-Xylene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
P & M -Xylene	0.565 U	1.13	0.338	mg/kg	1		07/24/21 20:0
sec-Butylbenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
Styrene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
tert-Butylbenzene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
Tetrachloroethene	0.141 U	0.282	0.0878	mg/kg	1		07/24/21 20:0
Toluene	0.197 J	0.563	0.176	mg/kg	1		07/24/21 20:0
trans-1,2-Dichloroethene	0.282 U	0.563	0.176	mg/kg	1		07/24/21 20:0
trans-1,3-Dichloropropene	0.141 U	0.282	0.0878	mg/kg	1		07/24/21 20:0
Trichloroethene	0.0565 U	0.113	0.0338	mg/kg	1		07/24/21 20:0
Trichlorofluoromethane	0.565 U	1.13	0.338	mg/kg	1		07/24/21 20:0
Vinyl acetate	1.13 U	2.25	0.698	mg/kg	1		07/24/21 20:0
Vinyl chloride	0.00900 U	0.0180	0.00563	mg/kg	1		07/24/21 20:0
Xylenes (total)	0.845 U	1.69	0.514	mg/kg	1		07/24/21 20:0
urrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		07/24/21 20:0
4-Bromofluorobenzene (surr)	114	55-151		%	1		07/24/21 20:0
Toluene-d8 (surr)	100	85-116		%	1		07/24/21 20:0

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J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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

<u>Parameter</u> Diesel Range Organics	Result Qual 22.9 J	<u>LOQ/CL</u> 23.0	<u>DL</u> 7.14	<u>Units</u> mg/kg	<u>DF</u>	Allowable Limits	<u>Date Analyzed</u> 07/21/21 21:10
Surrogates			7.14				
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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	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/Ti

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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

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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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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
sopropylbenzene (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 20:2
n-Butylbenzene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
n-Propylbenzene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
o-Xylene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
P & M -Xylene	0.0431 U	0.0862	0.0259	mg/kg	1		07/24/21 20:2
sec-Butylbenzene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
Styrene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
ert-Butylbenzene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
Tetrachloroethene	0.0108 U	0.0216	0.00672	mg/kg	1		07/24/21 20:2
Toluene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
trans-1,2-Dichloroethene	0.0216 U	0.0431	0.0134	mg/kg	1		07/24/21 20:2
trans-1,3-Dichloropropene	0.0108 U	0.0216	0.00672	mg/kg	1		07/24/21 20:2
Trichloroethene	0.00431 U	0.00862	0.00259	mg/kg	1		07/24/21 20:2
Trichlorofluoromethane	0.0431 U	0.0862	0.0259	mg/kg	1		07/24/21 20:2
Vinyl acetate	0.0860 U	0.172	0.0534	mg/kg	1		07/24/21 20:2
Vinyl chloride	0.000690 U	0.00138	0.000431	mg/kg	1		07/24/21 20:2
Xylenes (total)	0.0645 U	0.129	0.0393	mg/kg	1		07/24/21 20:2
urrogates							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		07/24/21 20:2
4-Bromofluorobenzene (surr)	104	55-151		%	1		07/24/21 20:2
Toluene-d8 (surr)	98.9	85-116		%	1		07/24/21 20:2:

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J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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



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 Gasoline Range Organics	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
	1.09 J	2.53	0.759	mg/kg	1	Limits	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	<u>Limits</u> <u>Date Ana</u>	lyzed
1,1,1,2-Tetrachloroethane	0.0101 U	0.0202	0.00627	mg/kg	1	07/20/21	14:1
1,1,1-Trichloroethane	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
1,1,2,2-Tetrachloroethane	0.00101 U	0.00202	0.000627	mg/kg	1	07/20/21	14:1
1,1,2-Trichloroethane	0.000405 U	0.000810	0.000253	mg/kg	1	07/20/21	14:1
1,1-Dichloroethane	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
1,1-Dichloroethene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
1,1-Dichloropropene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
1,2,3-Trichlorobenzene	0.0253 U	0.0506	0.0152	mg/kg	1	07/20/21	14:1
1,2,3-Trichloropropane	0.00101 U	0.00202	0.000627	mg/kg	1	07/20/21	14:1
1,2,4-Trichlorobenzene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
1,2,4-Trimethylbenzene	0.0253 U	0.0506	0.0152	mg/kg	1	07/20/21	14:1
,2-Dibromo-3-chloropropane	0.0505 U	0.101	0.0314	mg/kg	1	07/20/21	14:1
,2-Dibromoethane	0.000505 U	0.00101	0.000405	mg/kg	1	07/20/21	14:1
,2-Dichlorobenzene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
,2-Dichloroethane	0.00101 U	0.00202	0.000708	mg/kg	1	07/20/21	14:1
,2-Dichloropropane	0.00505 U	0.0101	0.00314	mg/kg	1	07/20/21	14:1
,3,5-Trimethylbenzene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
,3-Dichlorobenzene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
,3-Dichloropropane	0.00505 U	0.0101	0.00314	mg/kg	1	07/20/21	14:1
,4-Dichlorobenzene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
2,2-Dichloropropane	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
2-Butanone (MEK)	0.127 U	0.253	0.0789	mg/kg	1	07/20/21	14:1
-Chlorotoluene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
-Hexanone	0.0505 U	0.101	0.0314	mg/kg	1	07/20/21	14:1
-Chlorotoluene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
l-Isopropyltoluene	0.0505 U	0.101	0.0253	mg/kg	1	07/20/21	14:1
-Methyl-2-pentanone (MIBK)	0.127 U	0.253	0.0789	mg/kg	1	07/20/21	14:1
cetone	0.127 U	0.253	0.0789	mg/kg	1	07/20/21	14:1
Benzene	0.00635 U	0.0127	0.00395	mg/kg	1	07/20/21	14:1
Bromobenzene	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
Bromochloromethane	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
Bromodichloromethane	0.00101 U	0.00202	0.000627	mg/kg	1	07/20/21	14:1
Bromoform	0.0127 U	0.0253	0.00789	mg/kg	1	07/20/21	14:1
Bromomethane	0.0101 U	0.0202	0.00627	mg/kg	1	07/20/21	14:1
Carbon disulfide	0.0505 U	0.101	0.0314	mg/kg	1	07/20/21	14:1
Carbon tetrachloride	0.00635 U	0.0127	0.00395	mg/kg	1	07/20/21	14:1

Print Date: 08/06/2021 4:51:57PM J flagging is activated



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

_						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	Date Analyzed
Chlorobenzene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1:
Chloroethane	0.101 U	0.202	0.0627	mg/kg	1		07/20/21 14:1:
Chloroform	0.00202 U	0.00405	0.00101	mg/kg	1		07/20/21 14:1:
Chloromethane	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1:
sis-1,2-Dichloroethene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1:
sis-1,3-Dichloropropene	0.00635 U	0.0127	0.00395	mg/kg	1		07/20/21 14:1:
Dibromochloromethane	0.00253 U	0.00506	0.00152	mg/kg	1		07/20/21 14:1:
Dibromomethane	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1:
Dichlorodifluoromethane	0.0253 U	0.0506	0.0152	mg/kg	1		07/20/21 14:1:
Ethylbenzene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1:
Freon-113	0.0505 U	0.101	0.0314	mg/kg	1		07/20/21 14:1
Hexachlorobutadiene	0.0101 U	0.0202	0.00627	mg/kg	1		07/20/21 14:1
sopropylbenzene (Cumene)	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
Methylene chloride	0.0505 U	0.101	0.0314	mg/kg	1		07/20/21 14:1
Methyl-t-butyl ether	0.0505 U	0.101	0.0314	mg/kg	1		07/20/21 14:1
Naphthalene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
n-Butylbenzene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
n-Propylbenzene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
o-Xylene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
P & M -Xylene	0.0253 U	0.0506	0.0152	mg/kg	1		07/20/21 14:1
sec-Butylbenzene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
Styrene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
ert-Butylbenzene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
Tetrachloroethene	0.00635 U	0.0127	0.00395	mg/kg	1		07/20/21 14:1
Toluene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
rans-1,2-Dichloroethene	0.0127 U	0.0253	0.00789	mg/kg	1		07/20/21 14:1
rans-1,3-Dichloropropene	0.00635 U	0.0127	0.00395	mg/kg	1		07/20/21 14:1
Frichloroethene	0.00253 U	0.00506	0.00152	mg/kg	1		07/20/21 14:1
   Frichlorofluoromethane	0.0253 U	0.0506	0.0152	mg/kg	1		07/20/21 14:1
/inyl acetate	0.0505 U	0.101	0.0314	mg/kg	1		07/20/21 14:1
/inyl chloride	0.000405 U	0.000810	0.000253	mg/kg	1		07/20/21 14:1
(ylenes (total)	0.0380 U	0.0759	0.0231	mg/kg	1		07/20/21 14:1
ırrogates							
,2-Dichloroethane-D4 (surr)	98.4	71-136		%	1		07/20/21 14:1
I-Bromofluorobenzene (surr)	103	55-151		%	1		07/20/21 14:1
(Guil)	95	00 101		,,	•		J., L. G, L. 1 1-7. 1.

Print Date: 08/06/2021 4:51:57PM

J flagging is activated



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

<u>Allowable</u>

<u>Parameter Result Qual LOQ/CL DL Units DF Limits Date Analyzed</u>

### **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

QC for Samples:

Matrix: Soil/Solid (dry weight)

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

Print Date: 08/06/2021 4:52:02PM



# **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

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	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 Analysis Date: 07/19/2021 17:34
Duplicate Sample ID: 1624216 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	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	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 Analysis Date: 07/19/2021 17:34
Duplicate Sample ID: 1624217 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	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	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

QC for Samples: 1214339001

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

<u>Parameter</u>	<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 4:52:09PM



Blank ID: MB for HBN 1822628 [VXX/37454]

Blank Lab ID: 1624305

QC for Samples: 1214339001

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

	D !!	1.00/01	D.	
<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%
. 5.55.10 40 (5411)	•	00 110		,,

Print Date: 08/06/2021 4:52:09PM



Blank ID: MB for HBN 1822628 [VXX/37454]

Blank Lab ID: 1624305

QC for Samples: 1214339001

Matrix: Soil/Solid (dry weight)

## Results by SW8260D

<u>Parameter</u> <u>Results</u> <u>LOQ/CL</u> <u>DL</u> <u>Units</u>

### **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

Print Date: 08/06/2021 4:52:09PM



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)									
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>					
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)					

Print Date: 08/06/2021 4:52:13PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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)

Print Date: 08/06/2021 4:52:13PM



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)								
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>				
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:

Print Date: 08/06/2021 4:52:13PM



Original Sample ID: 1624307 MS Sample ID: 1624308 MS MSD Sample ID: 1624309 MSD

QC for Samples: 1214339001

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)

# Results by SW8260D

Parameter         Sample         Spike         Result         Rec (%)         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-Trichloroethane         0.000795U         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-Dichloroethane         0.00990U         0.595         0.556         93         0.595         0.541         91         70-131         2.70         (< 20 )           1,1-Dichloroethane         0.00990U         0.595         0.543         91         0.595         0.541         91         70-131         2.70
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       0.649       109       73-125       2.60       (< 20 )         1,2,3-Trichloropropane       0.000795U       0.595       0.632       106       0.595       0.649
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       0.649       109       73-125       2.60       (< 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-Dichloroethane       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 )
1,1-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 )
1,1-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 )
1,1-Dichloropropene     0.00990U     0.595     0.543     91     0.595     0.536     90     76-125     1.40     (< 20 )       1,2,3-Trichloropropane     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 )
1,2,3-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 )
1,2,3-Trichloropropane 0.000795U 0.595 0.632 106 0.595 0.649 109 73-125 2.60 (< 20 )
<b>1,2,4-Trichlorobenzene</b> 0.00990U 0.595 0.611 <b>103</b> 0.595 0.635 <b>107</b> 67-129 <b>3.90</b> (< 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 )
<b>1,2-Dibromoethane</b> 0.000396U 0.595 0.610 103 0.595 0.617 104 78-122 1.20 (< 20 )
<b>1,2-Dichlorobenzene</b> 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 )
<b>1,4-Dichlorobenzene</b> 0.00990U 0.595 0.588 99 0.595 0.590 99 75-120 0.40 (< 20 )
<b>2,2-Dichloropropane</b> 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 )
<b>2-Chlorotoluene</b> 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



Original Sample ID: 1624307 MS Sample ID: 1624308 MS MSD Sample ID: 1624309 MSD

QC for Samples: 1214339001

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)

# Results by SW8260D

Matrix Spike (mg/kg) Spike Duplicate (mg/kg)										
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	<u>Spike</u>	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	

Print Date: 08/06/2021 4:52:15PM



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 (%)

<u>Parameter</u> <u>Sample</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u> <u>RPD (%)</u> <u>RPD CL</u>

**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



Blank ID: MB for HBN 1822660 [VXX/37457]

Blank Lab ID: 1624481

QC for Samples:

1214339002, 1214339014

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 4:52:18PM



Blank ID: MB for HBN 1822660 [VXX/37457]

Blank Lab ID: 1624481

QC for Samples:

1214339002, 1214339014

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

_				
<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%
. 5.555 40 (54.17)	~ 1	00 110		,,

Print Date: 08/06/2021 4:52:18PM



Blank ID: MB for HBN 1822660 [VXX/37457]

Blank Lab ID: 1624481

QC for Samples:

1214339002, 1214339014

Matrix: Soil/Solid (dry weight)

### 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

Print Date: 08/06/2021 4:52:18PM



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)								
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>				
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)				

Print Date: 08/06/2021 4:52:22PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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)

Print Date: 08/06/2021 4:52:22PM



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)								
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>				
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



Original Sample ID: 1624483 MS Sample ID: 1624484 MS MSD Sample ID: 1624485 MSD

QC for Samples: 1214339002, 1214339014

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)

# Results by SW8260D

	Matrix Spike (mg/kg)				Spike Duplicate (mg/kg)					
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Original Sample ID: 1624483 MS Sample ID: 1624484 MS MSD Sample ID: 1624485 MSD

QC for Samples: 1214339002, 1214339014

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)

# Results by SW8260D

recounts by errozoob		Mat	rix Spike (r	ng/kg)	Spike	Duplicate	(mg/kg)			
<u>Parameter</u>	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



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 (%)

<u>Parameter</u> <u>Sample</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u> <u>RPD (%)</u> <u>RPD CL</u>

**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

Print Date: 08/06/2021 4:52:24PM



Blank ID: MB for HBN 1822832 [VXX/37470]

Blank Lab ID: 1625004

QC for Samples:

1214339003, 1214339004

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

_				
<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 4:52:26PM



Blank ID: MB for HBN 1822832 [VXX/37470]

Blank Lab ID: 1625004

QC for Samples:

1214339003, 1214339004

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

	- ·	1.00/01	ъ.	
<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%
. 5.25110 40 (0411)	30. <u>L</u>	30 110		, 0

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Blank ID: MB for HBN 1822832 [VXX/37470]

Blank Lab ID: 1625004

QC for Samples:

1214339003, 1214339004

Matrix: Soil/Solid (dry weight)

### 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

Print Date: 08/06/2021 4:52:26PM



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

	i	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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 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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>CL</u>
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 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

E	Blank Spike	(mg/kg)	
Spike	Result	Rec (%)	<u>CL</u>
0.750	0.704	94	( 56-135 )
2.25	2.22	99	( 78-124 )
0.750		93	(71-136)
0.750		96	( 55-151 )
0.750		100	(85-116)
	<u>Spike</u> 0.750 2.25 0.750 0.750	Spike         Result           0.750         0.704           2.25         2.22           0.750         0.750           0.750         0.750	0.750     0.704     94       2.25     2.22     99       0.750     93       0.750     96

### **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



Original Sample ID: 1625006 MS Sample ID: 1625007 MS MSD Sample ID: 1625008 MSD

QC for Samples: 1214339003, 1214339004

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)

Results by SW8260D

		Mat	rix Spike (r	ng/kg)	Spike Duplicate (mg/kg)		(mg/kg)			
<u>Parameter</u>	<u>Sample</u>	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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Original Sample ID: 1625006 MS Sample ID: 1625007 MS MSD Sample ID: 1625008 MSD

QC for Samples: 1214339003, 1214339004

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)

# Results by SW8260D

Trocalio by Circzob		Matrix Spike (mg/kg)		Spike	Duplicate	(mg/kg)				
<u>Parameter</u>	Sample	Spike	Result	Rec (%)	<u>Spike</u>	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	

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Original Sample ID: 1625006 MS Sample ID: 1625007 MS MSD Sample ID: 1625008 MSD

QC for Samples: 1214339003, 1214339004

Analysis Date:

Analysis Date: 07/21/2021 19:11 Analysis Date: 07/21/2021 19:27 Matrix: Solid/Soil (Wet Weight)

## Results by SW8260D

Matrix Spike (%)

Spike Duplicate (%)

<u>Parameter</u> <u>Sample</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u> <u>RPD (%)</u> <u>RPD CL</u>

**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



Blank ID: MB for HBN 1822904 [VXX/37482]

Blank Lab ID: 1625343

QC for Samples:

1214339001, 1214339002, 1214339003, 1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009

Matrix: Soil/Solid (dry weight)

Results by AK101

ParameterResultsLOQ/CLDLUnitsGasoline Range Organics1.12J2.500.750mg/kg

**Surrogates** 

4-Bromofluorobenzene (surr) 97.5 50-150 %

**Batch Information** 

Analytical Batch: VFC15727 Prep Batch: VXX37482
Analytical Method: AK101 Prep Method: SW5035A

Instrument: Agilent 7890A PID/FID Prep Date/Time: 7/23/2021 6:00:00AM

Analyst: MDT Prep Initial Wt./Vol.: 50 g
Analytical Date/Time: 7/24/2021 1:24:00AM Prep Extract Vol: 25 mL

Print Date: 08/06/2021 4:52:34PM



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

	E	Blank Spike	(mg/kg)	S	Spike Duplic	ate (mg/kg)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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

Print Date: 08/06/2021 4:52:38PM



Blank ID: MB for HBN 1822913 [VXX/37485]

Blank Lab ID: 1625397

QC for Samples:

1214339005, 1214339006

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

_				
<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

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Blank ID: MB for HBN 1822913 [VXX/37485]

Blank Lab ID: 1625397

QC for Samples:

1214339005, 1214339006

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

<u>Parameter</u>	<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%
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Print Date: 08/06/2021 4:52:42PM



Blank ID: MB for HBN 1822913 [VXX/37485]

Blank Lab ID: 1625397

QC for Samples:

1214339005, 1214339006

Matrix: Soil/Solid (dry weight)

### Results by SW8260D

<u>Parameter</u> <u>Results</u> <u>LOQ/CL</u> <u>DL</u> <u>Units</u>

### **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

Print Date: 08/06/2021 4:52:42PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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
1-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 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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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 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)									
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>					
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



Original Sample ID: 1625399 MS Sample ID: 1625400 MS MSD Sample ID: 1625401 MSD

QC for Samples: 1214339005, 1214339006

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)

# Results by SW8260D

	Matrix Spike (mg/kg) Spike Duplicate (mg/kg)									
<u>Parameter</u>	<u>Sample</u>	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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Original Sample ID: 1625399 MS Sample ID: 1625400 MS MSD Sample ID: 1625401 MSD

QC for Samples: 1214339005, 1214339006

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)

# Results by SW8260D

		Mat	rix Spike (r	ng/kg)	Spike Duplicate (mg/kg)					
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	<u>Spike</u>	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	

Print Date: 08/06/2021 4:52:48PM



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 (%)

<u>Parameter</u> <u>Sample</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u> <u>RPD (%)</u> <u>RPD CL</u>

**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

Print Date: 08/06/2021 4:52:48PM



Blank ID: MB for HBN 1822991 [VXX/37497]

Blank Lab ID: 1625654

QC for Samples:

 $1214339007,\, 1214339008,\, 1214339009,\, 1214339010,\, 1214339011,\, 1214339012,\, 1214339013$ 

Matrix: Soil/Solid (dry weight)

## Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 4:52:52PM



Blank ID: MB for HBN 1822991 [VXX/37497]

Blank Lab ID: 1625654

QC for Samples:

 $1214339007,\, 1214339008,\, 1214339009,\, 1214339010,\, 1214339011,\, 1214339012,\, 1214339013$ 

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%

Print Date: 08/06/2021 4:52:52PM



Blank ID: MB for HBN 1822991 [VXX/37497]

Blank Lab ID: 1625654

QC for Samples:

 $1214339007,\, 1214339008,\, 1214339009,\, 1214339010,\, 1214339011,\, 1214339012,\, 1214339013$ 

Results by SW8260D

LOQ/CL <u>Parameter</u> Results DL <u>Units</u>

**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

Matrix: Soil/Solid (dry weight)

Prep Initial Wt./Vol.: 50 g Prep Extract Vol: 25 mL

Print Date: 08/06/2021 4:52:52PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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)

Print Date: 08/06/2021 4:52:55PM



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)										
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>							
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)							

Print Date: 08/06/2021 4:52:55PM



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)										
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>						
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



 Original Sample ID: 1625656
 Analysis Date: 07/24/2021 18:44

 MS Sample ID: 1625657 MS
 Analysis Date: 07/24/2021 16:48

 MSD Sample ID: 1625658 MSD
 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

results by GTTGZGGD		Matrix Spike (mg/kg)		Spike Duplicate (mg/kg)						
Parameter_	<u>Sample</u>	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 )

Print Date: 08/06/2021 4:52:57PM



 Original Sample ID: 1625656
 Analysis Date: 07/24/2021 18:44

 MS Sample ID: 1625657 MS
 Analysis Date: 07/24/2021 16:48

 MSD Sample ID: 1625658 MSD
 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)										
<u>Parameter</u>	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



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



Blank ID: MB for HBN 1823173 [VXX/37520]

Blank Lab ID: 1626444

QC for Samples:

1214339010, 1214339011, 1214339012, 1214339013, 1214339014

Matrix: Soil/Solid (dry weight)

## Results by AK101

ParameterResultsLOQ/CLDLUnitsGasoline Range Organics1.32J2.500.750mg/kg

**Surrogates** 

4-Bromofluorobenzene (surr) 85.3 50-150 %

## **Batch Information**

Analytical Batch: VFC15737 Prep Batch: VXX37520
Analytical Method: AK101 Prep Method: SW5035A

Instrument: Agilent 7890A PID/FID Prep Date/Time: 7/28/2021 6:00:00AM

Analyst: MDT Prep Initial Wt./Vol.: 50 g
Analytical Date/Time: 7/28/2021 3:52:00PM Prep Extract Vol: 25 mL

Print Date: 08/06/2021 4:53:00PM



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

	E	Blank Spike	(mg/kg)	S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	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

Print Date: 08/06/2021 4:53:03PM



Blank ID: MB for HBN 1822538 [XXX/45180]

Blank Lab ID: 1623932

QC for Samples:

1214339001, 1214339002

Matrix: Soil/Solid (dry weight)

## Results by 8270D SIM (PAH)

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 4:53:07PM



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)

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	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

Applyet: I AM

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



Original Sample ID: 1214208005 MS Sample ID: 1623934 MS MSD Sample ID: 1623935 MSD

QC for Samples: 1214339001, 1214339002

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)

#### Results by 8270D SIM (PAH)

results by 02700 Silli (i Air)										
		Mat	rix Spike (n	ng/kg)	Spike	Duplicate	(mg/kg)			
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	<u>Spike</u>	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										
_		0.123	0.106	86	0.124	0.115	93	58-103	8.50	
2-Methylnaphthalene-d10 (surr) Fluoranthene-d10 (surr)		0.123	0.106	86	0.124	0.115	93 87	54-113	2.40	
Fidoralitielle-d to (Suff)		0.123	0.100	00	0.124	0.109	01	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



Blank ID: MB for HBN 1822542 [XXX/45183]

Blank Lab ID: 1623949

QC for Samples:

1214339001, 1214339002

Matrix: Soil/Solid (dry weight)

## Results by AK102

ParameterResultsLOQ/CLDLUnitsDiesel Range Organics10.0U20.06.20mg/kg

**Surrogates** 

5a Androstane (surr) 101 60-120 %

## **Batch Information**

Analytical Batch: XFC16004 Prep Batch: XXX45183
Analytical Method: AK102 Prep Method: SW3550C

Instrument: Agilent 7890B F Prep Date/Time: 7/19/2021 8:51:44AM

Analyst: IVM Prep Initial Wt./Vol.: 30 g Analytical Date/Time: 7/19/2021 4:41:00PM Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:15PM



Blank Spike ID: LCS for HBN 1214339 [XXX45183]

Blank Spike Lab ID: 1623950 Date Analyzed: 07/19/2021 16:51

QC for Samples: 1214339001, 1214339002

Spike Duplicate ID: LCSD for HBN 1214339

[XXX45183]

Spike Duplicate Lab ID: 1623951 Matrix: Soil/Solid (dry weight)

## Results by AK102

	В	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)				
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1822542 [XXX/45183]

Blank Lab ID: 1623949

QC for Samples:

1214339001, 1214339002

Matrix: Soil/Solid (dry weight)

## Results by AK103

ParameterResultsLOQ/CLDLUnitsResidual Range Organics50.0U10043.0mg/kg

**Surrogates** 

n-Triacontane-d62 (surr) 101 60-120 %

## **Batch Information**

Analytical Batch: XFC16004 Prep Batch: XXX45183
Analytical Method: AK103 Prep Method: SW3550C

Instrument: Agilent 7890B F Prep Date/Time: 7/19/2021 8:51:44AM

Analyst: IVM Prep Initial Wt./Vol.: 30 g Analytical Date/Time: 7/19/2021 4:41:00PM Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:23PM



Blank Spike ID: LCS for HBN 1214339 [XXX45183]

Blank Spike Lab ID: 1623950 Date Analyzed: 07/19/2021 16:51

QC for Samples: 1214339001, 1214339002

Spike Duplicate ID: LCSD for HBN 1214339

[XXX45183]

Spike Duplicate Lab ID: 1623951 Matrix: Soil/Solid (dry weight)

## Results by AK103

	ВІ	667 100		Sp	oike Duplica	ate (mg/kg)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	Spike	Result	Rec (%)	<u>CL</u>	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



Blank ID: MB for HBN 1822558 [XXX/45186]

Blank Lab ID: 1624012

QC for Samples: 1214339003

Matrix: Soil/Solid (dry weight)

## 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

Print Date: 08/06/2021 4:53:29PM



Blank Spike ID: LCS for HBN 1214339 [XXX45186]

Blank Spike Lab ID: 1624013 Date Analyzed: 07/19/2021 17:31

QC for Samples: 1214339003

Spike Duplicate ID: LCSD for HBN 1214339

[XXX45186]

Spike Duplicate Lab ID: 1624014 Matrix: Soil/Solid (dry weight)

## Results by AK102

	E	667 726 <b>109</b>		S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1822558 [XXX/45186]

Blank Lab ID: 1624012

QC for Samples: 1214339003

Matrix: Soil/Solid (dry weight)

## Results by AK103

ParameterResultsLOQ/CLDLUnitsResidual Range Organics50.0U10043.0mg/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

Print Date: 08/06/2021 4:53:39PM



Blank Spike ID: LCS for HBN 1214339 [XXX45186]

Blank Spike Lab ID: 1624013 Date Analyzed: 07/19/2021 17:31

QC for Samples: 1214339003

Spike Duplicate ID: LCSD for HBN 1214339

[XXX45186]

Spike Duplicate Lab ID: 1624014 Matrix: Soil/Solid (dry weight)

## Results by AK103

	В	lank Spike	(mg/kg)	S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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

Print Date: 08/06/2021 4:53:43PM



Blank ID: MB for HBN 1822606 [XXX/45195]

Blank Lab ID: 1624211

QC for Samples:

1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012

Matrix: Soil/Solid (dry weight)

Results by AK102

ParameterResultsLOQ/CLDLUnitsDiesel Range Organics17.0J20.06.20mg/kg

**Surrogates** 

5a Androstane (surr) 94.7 60-120 %

**Batch Information** 

Analytical Batch: XFC16008 Prep Batch: XXX45195
Analytical Method: AK102 Prep Method: SW3550C

Instrument: Agilent 7890B F Prep Date/Time: 7/20/2021 7:38:35AM

Analyst: IVM Prep Initial Wt./Vol.: 30 g
Analytical Date/Time: 7/20/2021 3:27:00PM Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:47PM



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

	E	688 103		S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1822606 [XXX/45195]

Blank Lab ID: 1624211

QC for Samples:

1214339004, 1214339005, 1214339006, 1214339007, 1214339008, 1214339009, 1214339010, 1214339011, 1214339012

Matrix: Soil/Solid (dry weight)

Results by AK103

ParameterResultsLOQ/CLDLUnitsResidual Range Organics50.0U10043.0mg/kg

**Surrogates** 

n-Triacontane-d62 (surr) 94 60-120 %

**Batch Information** 

Analytical Batch: XFC16008 Prep Batch: XXX45195
Analytical Method: AK103 Prep Method: SW3550C

Instrument: Agilent 7890B F Prep Date/Time: 7/20/2021 7:38:35AM

Analyst: IVM Prep Initial Wt./Vol.: 30 g Analytical Date/Time: 7/20/2021 3:27:00PM Prep Extract Vol: 5 mL

Print Date: 08/06/2021 4:53:54PM



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

	В	674 101		S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1822609 [XXX/45196]

Blank Lab ID: 1624226

QC for Samples:

1214339003, 1214339004, 1214339005

Matrix: Soil/Solid (dry weight)

## Results by 8270D SIM (PAH)

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 4:54:01PM



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)

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	
1-Methylnaphthalene	0.111	0.121	108	
2-Methylnaphthalene	0.111	0.121	109	
Acenaphthene	0.111	0.128	115	*
Acenaphthylene	0.111	0.125	112	
Anthracene	0.111	0.126	113	
Benzo(a)Anthracene	0.111	0.128	115	
Benzo[a]pyrene	0.111	0.130	117	
Benzo[b]Fluoranthene	0.111	0.136	123	
Benzo[g,h,i]perylene	0.111	0.130	117	
Benzo[k]fluoranthene	0.111	0.129	116	
Chrysene	0.111	0.129	116	
Dibenzo[a,h]anthracene	0.111	0.128	115	
Fluoranthene	0.111	0.128	115	
Fluorene	0.111	0.126	113	
Indeno[1,2,3-c,d] pyrene	0.111	0.130	117	
Naphthalene	0.111	0.123	110	
Phenanthrene	0.111	0.125	113	
Pyrene	0.111	0.129	116	
•				
Surrogates				
2-Methylnaphthalene-d10			116	*
Fluoranthene-d10 (surr)	0.111		114	*

#### **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



Original Sample ID: 1214314004 MS Sample ID: 1624228 MS MSD Sample ID: 1624229 MSD

QC for Samples: 1214339003, 1214339004, 1214339005

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)

## Results by 8270D SIM (PAH)

Tresults by 62700 Silvi (FAII)	,									
		Mat	rix Spike (r	ng/kg)	Spike	Duplicate	(mg/kg)			
<u>Parameter</u>	<u>Sample</u>	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



Blank ID: MB for HBN 1822754 [XXX/45205]

Blank Lab ID: 1624620

QC for Samples: 1214339013

Matrix: Soil/Solid (dry weight)

## Results by AK102

ParameterResultsLOQ/CLDLUnitsDiesel Range Organics7.11J20.06.20mg/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

Print Date: 08/06/2021 4:54:09PM



Blank Spike ID: LCS for HBN 1214339 [XXX45205]

Blank Spike Lab ID: 1624621 Date Analyzed: 07/21/2021 17:18

QC for Samples: 1214339013

Spike Duplicate ID: LCSD for HBN 1214339

[XXX45205]

Spike Duplicate Lab ID: 1624622 Matrix: Soil/Solid (dry weight)

## Results by AK102

	В			Sį	pike Duplica	ate (mg/kg)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1822754 [XXX/45205]

Blank Lab ID: 1624620

QC for Samples: 1214339013

Matrix: Soil/Solid (dry weight)

## Results by AK103

ParameterResultsLOQ/CLDLUnitsResidual Range Organics50.0U10043.0mg/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

Print Date: 08/06/2021 4:54:15PM



Blank Spike ID: LCS for HBN 1214339 [XXX45205]

Blank Spike Lab ID: 1624621 Date Analyzed: 07/21/2021 17:18

QC for Samples: 1214339013

Spike Duplicate ID: LCSD for HBN 1214339

[XXX45205]

Spike Duplicate Lab ID: 1624622 Matrix: Soil/Solid (dry weight)

## Results by AK103

	E	Blank Spike (mg/kg) Spike Result Rec (%) 667 723 108			pike Duplic	ate (mg/kg)			
<u>Parameter</u>	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

Print Date: 08/06/2021 4:54:19PM

# **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

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Pieces Weight Ib   It   It   2   102.0   L   C   C   C   C   C   C   C   C   C	em No.	102	t Other	Charges	e		AS A	GRE		SAMPLES  Dims: 24 x 13	x14 x 2
Pieces Weight Ib   It   1t   2   102.0   L   C	em No.	102	t Other	Charges			AS A	GRE		SAMPLES  Dims: 24 x 13	x14 x 2
Pieces Weight Ib It  2 102.0 L C  Prepaid Weight Charge AS AGREED	em No.	102	t Other	Charges	e		AS A	GRE		SAMPLES  Dims: 24 x 13	x14 x 2
Pieces Weight Ib It  2 102.0 L C  Prepaid Weight Charge AS AGREED	em No.	102	t Other	Charges	e		AS A	GRE		SAMPLES  Dims: 24 x 13	x14 x 2
Pieces Weight Ib   It   It   It   It   It   It   It	em No.	102	t Other XE	Charges Charges Charges Charges	.00		AS AC	GRE	ED	SAMPLES  Dims: 24 x 13  GSX RDS CC  Volume: 5.056	x14 x 2
Pieces Weight Ib It  2 102.0 L C  Prepaid Weight Charge AS AGREED Valuation Charge  Valuation Charge	em No.	102	t Other XE	Charges  Charges  Charges  Charges	.00	such p	AS AG	GRE	ED are corriberations	GSX RDS CC Volume: 5.056	x14 x 2  DL  part of the consig condition for carr
Pieces Weight Ib I It  2 102.0 L C  Prepaid Weight Charge AS AGREED  Valuation Cha	ge Trge	102	t Other XE	Charges  Charges  Charges  Charges  Charges	.00	, such p dicable l	AS AG	GRE	ED are corriberations	GSX RDS CC Volume: 5.056	ensions or Volume  x14 x 2  DL  part of the consiguent of the consiguence condition for can spection of this consiguence condition consiguence condition control
Pieces Weight Ib I It  2 102.0 L C  Prepaid Weight Charge AS AGREED  Valuation Cha	ge Trge	102	Shipp contable a For	Charges  Cha	.00	, such p dicable l	AS AG	GRE	ED are corriberations	GSX RDS CC Volume: 5.056	ensions or Volume  x14 x 2  DL  part of the consiguent of the consiguence condition for can spection of this consiguence condition consiguence condition control
Pieces Weight Ib I It  2 102.0 L C  Prepaid Weight Charge AS AGREED  Valuation Cha	ge Trge	102	t Other XE	Charges  Charges  Charges  Charges  Charges  Charges  Charges  Charges  Charges  Charges  Charges	.00	, such policable l	AS AG	GRE	ED are corriberations	GSX RDS CC Volume: 5.056	ensions or Volume  x14 x 2  DL  part of the consig condition for car spection of this c
Pieces Weight Ib I It  2 102.0 L C  Prepaid Weight Charge AS AGREED  Valuation Cha	ge Trge	102	Shipp contable a For	Charges  Cha	.00	, such policable I	AS AG	GRE	ED are corriberations	GSX RDS CC Volume: 5.056	ensions or Volume  x14 x 2  DL  part of the consig condition for car spection of this c

Page 0267-76624 8246

# Alert Expeditors Inc.

#413277

Citywide Delivery • 440-3351 8421 Flamingo Drive • Anchorage, Alaska 99502

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Collect 🗇	Prepay □	Advance Charges □
Job#	PO# \$5	7445246
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# **Sample Containers and Preservatives**

Container Id	<u>Preservative</u>	<u>Container</u> <u>Condition</u>	<u>Container Id</u>	<u>Preservative</u>	Container Condition
1214339001-A	Methanol field pres. 4 C	ОК			
1214339001-B	No Preservative Required	OK			
1214339002-A	Methanol field pres. 4 C	OK			
1214339002-В	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	ОК			

#### **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.

- $\ensuremath{\mathsf{OK}}$  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	

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Labo	oratory Report Date:
A	August 9, 2021
CS S	Site Name:
Ι	Dillingham DOT&PF
ľ	Note: Any N/A or No box checked must have an explanation in the comments box.
1. <u>I</u>	<u>Laboratory</u>
	a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	The samples were not transferred to a network laboratory.
2. <u>c</u>	Chain of Custody (CoC)
	a. CoC information completed, signed, and dated (including released/received by)?
	$Yes \boxtimes No \square N/A \square$ 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:
	Tesz Troll Tritle Comments.
3. <u>I</u>	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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<ul> <li>c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>	
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.?	
$Yes \square No \square N/A \boxtimes Comments:$	
No discrepancies were identified by the laboratories.	
e. Data quality or usability affected?	
Comments:	
Data quality/usability is not affected; see above.	
4. <u>Case Narrative</u>	
a. Present and understandable?	
$Yes \boxtimes No \square N/A \square$ Comments:	

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b. Discrepancies, errors, or QC failures identified by the lab?

diluted due to the dark color of the extract.

Yes  $\boxtimes$  No  $\square$  N/A  $\square$  Comments: SS-Grid-A3 - 8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was

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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CS	Site	Jame:
	Dil	ngham DOT&PF
		Were all corrective actions documented?
	Г	$Yes \boxtimes No \square N/A \square$ Comments:
		orrective actions were documented in the Case Narrative.
		What is the effect on data quality/usability according to the case narrative?
		Comments:
		he case narrative does not specify an effect on data quality/usability. See sections 5 and 6 for further ssessment.
5.	Saı	oles Results
		Correct analyses performed/reported as requested on COC?
		Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	_	All applicable holding times met?
		$Yes \boxtimes No \square N/A \square$ Comments:
	L	All soils reported on a dry weight basis?
		Yes⊠ No□ N/A□ Comments:
	Ŀ	Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?
	Г	Yes $\square$ No $\boxtimes$ N/A $\square$ Comments:  everal analytes had reporting limits above the associated DEC regulatory limit. These non-detect
		esults are bolded on the associated data table.
		Data quality or usability affected?
		Ve cannot determine if analytes with elevated reporting limits are present at concentrations above the EC regulatory limit.

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aboratory Report Date:
August 9, 2021
S Site Name:
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Dillingham DOT&PF
. 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?
$Yes \square No \boxtimes N/A \square$ 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 <i>SED-02</i> , <i>SED-102</i> , <i>SED-03</i> , <i>SED-04</i> , <i>SED-05</i> , <i>SED-104</i> , and <i>SED-09</i> results are affected. Concentrations detected in samples <i>SED-02</i> , <i>Sed-102</i> , <i>SED-03</i> , <i>SED-04</i> , <i>SED-05</i> , and <i>SED-104</i> 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 <i>SED-05</i> and <i>SED-09</i> 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.

Laboratory Report Date:  August 9, 2021  CS Site Name:  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 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:
CS Site Name:  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 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?
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?
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:  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?
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?
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?
<ul> <li>b. Laboratory Control Sample/Duplicate (LCS/LCSD)</li> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> <li>Yes⊠ No□ N/A□ Comments:</li> <li>LCS/LCSD pairs were reported for methods AK101, AK102, and AK103.</li> <li>LCSs were reported for methods SW8260D and 8270D SIM (PAH).</li> <li>ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?</li> </ul>
<ul> <li>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:     </li> <li>LCS/LCSD pairs were reported for methods AK101, AK102, and AK103.         LCSs were reported for methods SW8260D and 8270D SIM (PAH).     </li> <li>ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?</li> </ul>
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?
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?
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?
samples?
Yes $\square$ No $\square$ N/A $\boxtimes$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\boxtimes$ N/A $\square$ 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 $\square$ No $\boxtimes$ N/A $\square$ 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
	<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
	Yes⊠ No□ N/A□ Comments:
	<ul> <li>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)</li> <li>Yes□ No⊠ N/A□ Comments:</li> </ul>
	The percent recovery for PAH surrogates 2methylnaphthalene-d10 and fluoranthene-d10 were above laboratory limits for project sample <i>SED-102</i> . 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 <i>SED-06</i> . 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
	<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>
	Yes⊠ No□ N/A□ Comments:

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Aug	gust 9, 2021
CS Site	Name:
Dill	ingham DOT&PF
	<ul><li>ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC?</li><li>(If not, a comment explaining why must be entered below)</li></ul>
Γ	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.
1	f. Field Duplicate
	i. One field duplicate submitted per matrix, analysis and 10 project samples?
Γ	Yes⊠ No□ N/A□ Comments:
Ĺ	ii. Submitted blind to lab?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:

1214220	
1214339	
Laboratory Report Date:	
August 9, 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 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.	
<ul> <li>g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?</li> <li>Yes□ No⊠ N/A□ Comments:</li> </ul>	
Reusable equipment was not used in this sampling event; therefore, an equipment blank was not necessary.	
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>	
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.	

1	214339		
Labo	oratory Report Date:		
A	August 9, 2021		
CS S	site Name:		
Ι	Dillingham DOT&PF		
7. <u>c</u>	Other Data Flags/Qualifiers (ACOI	E, AFCEE, Lab Specific, etc.)	
	a. Defined and appropriate?		
	$Yes \square No \square N/A \boxtimes$	Comments:	
	No additional data flags/qualific	ers 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

Starten C. Ede 2021.08.19

16:48:53 -08'00'

Jennifer Dawkins

Date

Project Manager Jennifer.Dawkins@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.

Print Date: 08/19/2021 4:15:06PM



#### **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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a>. 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/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.

Print Date: 08/19/2021 4:15:09PM

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	<u>Collected</u>	Received	<u>Matrix</u>
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 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



# **Detectable Results Summary**

Client Sample ID: SB13-35-37.5 Lab Sample ID: 1214673001 Semivolatile Organic Fuels Volatile Fuels	<u>Parameter</u> Diesel Range Organics Gasoline Range Organics	<u>Result</u> 8.09J 0.736J	<u>Units</u> mg/kg mg/kg
Client Sample ID: SB13-135-137.5 Lab Sample ID: 1214673002 Semivolatile Organic Fuels Volatile Fuels	<u>Parameter</u> Diesel Range Organics Gasoline Range Organics	Result 8.29J 1.01J	<u>Units</u> mg/kg mg/kg
Client Sample ID: SB11-22.5-25.4 Lab Sample ID: 1214673003 Semivolatile Organic Fuels	<u>Parameter</u> Diesel Range Organics	Result 7.69J	<u>Units</u> mg/kg
Client Sample ID: <b>Drum 55</b> Lab Sample ID: 1214673004 <b>TCLP Constituents Metals</b>	<u>Parameter</u>	Result	<u>Units</u>
	Barium	0.278	mg/L
	Chromium	0.314	mg/L
Client Sample ID: <b>Drum 40</b> Lab Sample ID: 1214673005 <b>TCLP Constituents Metals</b>	<u>Parameter</u>	Result	<u>Units</u>
	Barium	0.239	mg/L
Client Sample ID: <b>Trip Blank</b> Lab Sample ID: 1214673006 <b>Volatile Fuels</b>	<u>Parameter</u>	Result	<u>Units</u>
	Gasoline Range Organics	1.29J	mg/kg

Print Date: 08/19/2021 4:15:12PM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/19/2021 4:15:14PM J flagging is activated



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	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable Limits	Date Analyzed
Gasoline Range Organics  Surrogates	0.736 J	2.06	0.617	mg/kg	1		08/05/21 20:08
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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

Print Date: 08/19/2021 4:15:14PM

J flagging is activated



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

						Allowable
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u> <u>Date Analyze</u>
Chloroethane	0.0825 U	0.165	0.0510	mg/kg	1	08/04/21 05:0
Chloroform	0.00165 U	0.00329	0.000823	mg/kg	1	08/04/21 05:0
Chloromethane	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
cis-1,2-Dichloroethene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
cis-1,3-Dichloropropene	0.00515 U	0.0103	0.00321	mg/kg	1	08/04/21 05:0
Dibromochloromethane	0.00206 U	0.00411	0.00123	mg/kg	1	08/04/21 05:0
Dibromomethane	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
Dichlorodifluoromethane	0.0206 U	0.0411	0.0123	mg/kg	1	08/04/21 05:0
Ethylbenzene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
Freon-113	0.0411 U	0.0823	0.0255	mg/kg	1	08/04/21 05:0
Hexachlorobutadiene	0.00825 U	0.0165	0.00510	mg/kg	1	08/04/21 05:0
Isopropylbenzene (Cumene)	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
Methylene chloride	0.0411 U	0.0823	0.0255	mg/kg	1	08/04/21 05:0
Methyl-t-butyl ether	0.0411 U	0.0823	0.0255	mg/kg	1	08/04/21 05:0
Naphthalene	0.0103 U	0.0206	0.00642	mg/kg	1	08/05/21 14:2
n-Butylbenzene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
n-Propylbenzene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
o-Xylene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
P & M -Xylene	0.0206 U	0.0411	0.0123	mg/kg	1	08/04/21 05:0
sec-Butylbenzene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
Styrene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
tert-Butylbenzene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
Tetrachloroethene	0.00515 U	0.0103	0.00321	mg/kg	1	08/04/21 05:0
Toluene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
trans-1,2-Dichloroethene	0.0103 U	0.0206	0.00642	mg/kg	1	08/04/21 05:0
trans-1,3-Dichloropropene	0.00515 U	0.0103	0.00321	mg/kg	1	08/04/21 05:0
Trichloroethene	0.00206 U	0.00411	0.00123	mg/kg	1	08/04/21 05:0
Trichlorofluoromethane	0.0206 U	0.0411	0.0123	mg/kg	1	08/04/21 05:0
Vinyl acetate	0.0411 U	0.0823	0.0255	mg/kg	1	08/04/21 05:0
Vinyl chloride	0.000329 U	0.000658	0.000206	mg/kg	1	08/04/21 05:0
Xylenes (total)	0.0309 U	0.0617	0.0188	mg/kg	1	08/04/21 05:0
Surrogates						
1,2-Dichloroethane-D4 (surr)	95.5	71-136		%	1	08/04/21 05:0
4-Bromofluorobenzene (surr)	97	55-151		%	1	08/04/21 05:0
Toluene-d8 (surr)	104	85-116		%	1	08/04/21 05:0

Print Date: 08/19/2021 4:15:14PM

J flagging is activated



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

Analytical Batch: VMS21025 Analytical Method: SW8260D

Analyst: S.S

Analytical Date/Time: 08/05/21 14:28 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

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

Print Date: 08/19/2021 4:15:14PM J flagging is activated



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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	<u>DL</u>	<u>Units</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/19/2021 4:15:14PM J flagging is activated



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 Gasoline Range Organics	Result Qual 1.01 J	<u>LOQ/CL</u> 2.56	<u>DL</u> 0.768	<u>Units</u> mg/kg	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

Print Date: 08/19/2021 4:15:14PM

J flagging is activated



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u> <u>Date Analyz</u>	<u>zed</u>
Chloroethane	0.103 U	0.205	0.0635	mg/kg	1	08/04/21 05	5:25
Chloroform	0.00205 U	0.00410	0.00102	mg/kg	1	08/04/21 05	5:25
Chloromethane	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
cis-1,2-Dichloroethene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
cis-1,3-Dichloropropene	0.00640 U	0.0128	0.00399	mg/kg	1	08/04/21 05	5:25
Dibromochloromethane	0.00256 U	0.00512	0.00154	mg/kg	1	08/04/21 05	5:25
Dibromomethane	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
Dichlorodifluoromethane	0.0256 U	0.0512	0.0154	mg/kg	1	08/04/21 05	5:25
Ethylbenzene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
Freon-113	0.0510 U	0.102	0.0317	mg/kg	1	08/04/21 05	5:25
Hexachlorobutadiene	0.0103 U	0.0205	0.00635	mg/kg	1	08/04/21 05	5:25
Isopropylbenzene (Cumene)	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
Methylene chloride	0.0510 U	0.102	0.0317	mg/kg	1	08/04/21 05	5:25
Methyl-t-butyl ether	0.0510 U	0.102	0.0317	mg/kg	1	08/04/21 05	5:25
Naphthalene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
n-Butylbenzene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
n-Propylbenzene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
o-Xylene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
P & M -Xylene	0.0256 U	0.0512	0.0154	mg/kg	1	08/04/21 05	5:25
sec-Butylbenzene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
Styrene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
tert-Butylbenzene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
Tetrachloroethene	0.00640 U	0.0128	0.00399	mg/kg	1	08/04/21 05	5:25
Toluene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
trans-1,2-Dichloroethene	0.0128 U	0.0256	0.00799	mg/kg	1	08/04/21 05	5:25
trans-1,3-Dichloropropene	0.00640 U	0.0128	0.00399	mg/kg	1	08/04/21 05	5:25
Trichloroethene	0.00256 U	0.00512	0.00154	mg/kg	1	08/04/21 05	5:25
Trichlorofluoromethane	0.0256 U	0.0512	0.0154	mg/kg	1	08/04/21 05	5:25
Vinyl acetate	0.0510 U	0.102	0.0317	mg/kg	1	08/04/21 05	5:25
Vinyl chloride	0.000409 U	0.000819	0.000256	mg/kg	1	08/04/21 05	5:25
Xylenes (total)	0.0384 U	0.0768	0.0233	mg/kg	1	08/04/21 05	5:25
Surrogates							
1,2-Dichloroethane-D4 (surr)	90.1	71-136		%	1	08/04/21 05	5:25
4-Bromofluorobenzene (surr)	101	55-151		%	1	08/04/21 05	5:25
Toluene-d8 (surr)	104	85-116		%	1	08/04/21 05	5:25

Print Date: 08/19/2021 4:15:14PM

J flagging is activated



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

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 Semivolatile Organic Fuels

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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 Gasoline Range Organics	Result Qual 1.48 U	<u>LOQ/CL</u> 2.95	<u>DL</u> 0.885	<u>Units</u> mg/kg	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	DL	<u>Units</u>	<u>DF</u>	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

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### 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	<u>DF</u>	<u>Allowable</u> Limits	Date Analyzed
Chloroethane	0.118 U	0.236	0.0731	mg/kg	1	LIIIIII	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

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### 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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/19/2021 4:15:14PM



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	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> 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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	DF	<u>Limits</u>	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



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

<u>Parameter</u> Gasoline Range Organics	Result Qual 1.29 J	<u>LOQ/CL</u> 2.52	<u>DL</u> 0.756	<u>Units</u> mg/kg	<u>DF</u> 1	Allowable <u>Limits</u>	<u>Date Analyzed</u> 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



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	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

Print Date: 08/19/2021 4:15:14PM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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



Blank ID: MB for HBN 1823762 [MXT/6134]

Blank Lab ID: 1628767

QC for Samples:

1214673004, 1214673005

Matrix: Water (Surface, Eff., Ground)

### Results by SW6020B TCLP

<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>
0.0150U	0.0300	0.0125	mg/L
0.00750U	0.0150	0.00470	mg/L
0.00500U	0.0100	0.00300	mg/L
0.0100U	0.0200	0.00650	mg/L
0.00250U	0.00500	0.00155	mg/L
0.00125U	0.00250	0.000900	mg/L
0.0500U	0.100	0.0310	mg/L
0.00500U	0.0100	0.00310	mg/L
	0.0150U 0.00750U 0.00500U 0.0100U 0.00250U 0.00125U 0.0500U	0.0150U     0.0300       0.00750U     0.0150       0.00500U     0.0100       0.0100U     0.0200       0.00250U     0.00500       0.00125U     0.00250       0.0500U     0.100	0.0150U         0.0300         0.0125           0.00750U         0.0150         0.00470           0.00500U         0.0100         0.00300           0.0100U         0.0200         0.00650           0.00250U         0.00500         0.00155           0.00125U         0.00250         0.000900           0.0500U         0.100         0.0310

#### **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

Print Date: 08/19/2021 4:15:17PM



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

	E	Blank Spike	(mg/L)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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:

Print Date: 08/19/2021 4:15:20PM



Original Sample ID: 1628769 MS Sample ID: 1628771 MS MSD Sample ID: 1628772 MSD

QC for Samples: 1214673004, 1214673005

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)

### Results by SW6020B TCLP

		Mat	trix Spike (	mg/L)	Spike	e Duplicate	e (mg/L)		
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	<u>Spike</u>	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:

QC for Samples: 1214673004, 1214673005

Analysis Date: 08/11/2021 5:47 Analysis Date: 08/11/2021 6:00

Analysis Date:

Matrix: Solid/Soil (Wet Weight)

### Results by SW6020B TCLP

		Mat	trix Spike (	mg/L)	Spike	Duplicate	e (mg/L)			
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1823230 [SPT/11336]

Blank Lab ID: 1626709

QC for Samples:

1214673001, 1214673002, 1214673003, 1214673004, 1214673005

Matrix: Soil/Solid (dry weight)

# 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

Print Date: 08/19/2021 4:15:23PM



## **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

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	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

QC for Samples:

 $1214673001,\, 1214673002,\, 1214673003,\, 1214673004,\, 1214673005$ 

Analysis Date: 07/29/2021 17:30 Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	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

QC for Samples:

 $1214673001,\, 1214673002,\, 1214673003,\, 1214673004,\, 1214673005$ 

Analysis Date: 07/29/2021 17:30 Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	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



Blank ID: MB for HBN 1823306 [VXX/37543]

Blank Lab ID: 1627090

QC for Samples: 1214673003

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

_				
<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/19/2021 4:15:28PM



Blank ID: MB for HBN 1823306 [VXX/37543]

Blank Lab ID: 1627090

QC for Samples: 1214673003

Matrix: Soil/Solid (dry weight)

# 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	0.00800	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		%

Print Date: 08/19/2021 4:15:28PM



Blank ID: MB for HBN 1823306 [VXX/37543]

Blank Lab ID: 1627090

QC for Samples: 1214673003

Matrix: Soil/Solid (dry weight)

## 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

Print Date: 08/19/2021 4:15:28PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	<u>Spike</u>	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)
1-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)

Print Date: 08/19/2021 4:15:31PM



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)						
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>CL</u>			
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 )			

Print Date: 08/19/2021 4:15:31PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>CL</u>
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:

Print Date: 08/19/2021 4:15:31PM



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

Parameter         Sample         Spike         Result         Rec (%)         Spike         Result         Rec (%)         Class         RPD (%)         RPD (
1,1,2-Tetrachloroethane
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-Dichloroethane       0.0112U       0.671       0.688       103       0.671       0.717       107       70-131       1.60       (< 20)         1,1-Dichloropropane       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       0.684       102       76-125       0.59       (< 20)         1,2,4-Trichlorobenzene       0.0112U       0.671       0.787       117       0.671       0.679       101       73-125       0.59       (< 20)         1,2-4-Trimethylbenzene       0.0112U       0.671       0.673       100       0.671       0.679       <
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-Dichloroethane       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)         1,2,4-Trichlorobenzene       0.00890U       0.671       0.675       101       0.671       0.675       101       0.671       0.750       112       67-129       4.70       (< 20)         1,2,4-Trimethylbenzene       0.0223U       0.671       0.673       100       0.671       0.750       112       67-129       4.70       (< 20)         1,2-Dichromo-3-chloropropane       0.0445U       0.671       0.727
1,1-Dichloroethane
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       0.724       108       0.671       0.701       104       61-132       3.70       (< 20)         1,2-Dichlorobenzene       0.0112U       0.671       0.686       102       0.671       0.690
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       0.00145U       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
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       0.00445U       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-Dichloropropane       0.00445U       0.671       0.689       103       0.671       0.6604
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-Dichloropropane       0.000890U       0.671       0.682       93       0.671       0.604       90       73-128       3.10       (< 20)         1,3-5-Trimethylbenzene       0.0112U       0.671       0.675       101       0.676       101
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-Dichlorobenzene       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       0.666       99       0.671       0.685
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-Dichlorobenzene       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       0.666       90       73-128       3.10       (< 20 )         1,3,5-Trimethylbenzene       0.0112U       0.671       0.665       99       0.671       0.685       102       77-121       2.80       (< 20 )         1,3-Dichloropropane       0.0112U       0.671       0.666       99       0.671       0.685
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
1,2-Dichlorobenzene
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       2.80       (< 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
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 <t< th=""></t<>
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 )
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 )
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 )
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 )
2,2-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-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-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 )
1-Chlorotoluene 0.0112U 0.671 0.669 100 0.671 0.685 102 72-124 2.40 (< 20 )
1-Isopropyltoluene 0.0445U 0.671 0.677 101 0.671 0.707 105 73-127 4.40 (< 20 )
1-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 )

Print Date: 08/19/2021 4:15:32PM



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)						
<u>Parameter</u>	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD C
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



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)

Matrix Spike (%)

Spike Duplicate (%)

<u>Parameter</u> <u>Sample</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u> <u>RPD (%)</u> <u>RPD CL</u>

**Batch Information** 

Results by SW8260D

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



Blank ID: MB for HBN 1823550 [VXX/37579]

Blank Lab ID: 1628093

QC for Samples:

1214673001, 1214673002, 1214673006

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/19/2021 4:15:34PM



Blank ID: MB for HBN 1823550 [VXX/37579]

Blank Lab ID: 1628093

QC for Samples:

1214673001, 1214673002, 1214673006

Matrix: Soil/Solid (dry weight)

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%

Print Date: 08/19/2021 4:15:34PM



Blank ID: MB for HBN 1823550 [VXX/37579]

Blank Lab ID: 1628093

QC for Samples:

1214673001, 1214673002, 1214673006

Matrix: Soil/Solid (dry weight)

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

Print Date: 08/19/2021 4:15:34PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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)

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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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>CL</u>
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)

Print Date: 08/19/2021 4:15:36PM



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)							
<u>Parameter</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u>							
Surrogates							
<b>1,2-Dichloroethane-D4 (surr)</b> 0.750 <b>92</b> (71	I-136 )						
4-Bromofluorobenzene (surr) 0.750 90 (55	5-151)						
Toluene-d8 (surr) 0.750 102 (85	5-116)						

#### **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:

Print Date: 08/19/2021 4:15:36PM



Original Sample ID: 1628100 MS Sample ID: 1628101 MS MSD Sample ID: 1628102 MSD

1214673001, 1214673002, 1214673006

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)

## Results by SW8260D

QC for Samples:

results by GTTG2GGB		Mat	rix Spike (r	mg/kg)	Spike	Duplicate	(mg/kg)			
<u>Parameter</u>	<u>Sample</u>	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 )

Print Date: 08/19/2021 4:15:38PM



Original Sample ID: 1628100 MS Sample ID: 1628101 MS MSD Sample ID: 1628102 MSD

QC for Samples: 1214673001, 1214673002, 1214673006

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)

## Results by SW8260D

recounts by Orrozoob		Mat	rix Spike (r	ng/kg)	Spike	Duplicate	(mg/kg)			
<u>Parameter</u>	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



Original Sample ID: 1628100 MS Sample ID: 1628101 MS MSD Sample ID: 1628102 MSD

QC for Samples: 1214673001, 1214673002, 1214673006

Analysis Date:

Analysis Date: 08/03/2021 23:45 Analysis Date: 08/04/2021 0:00 Matrix: Solid/Soil (Wet Weight)

# Results by SW8260D

Matrix Spike (%)

Spike Duplicate (%)

<u>Parameter</u> <u>Sample</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>Spike</u> <u>Result</u> <u>Rec (%)</u> <u>CL</u> <u>RPD (%)</u> <u>RPD CL</u>

**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



Blank ID: MB for HBN 1823634 [VXX/37592]

Blank Lab ID: 1628473

QC for Samples:

1214673001, 1214673002, 1214673003, 1214673006

Matrix: Soil/Solid (dry weight)

## Results by AK101

ParameterResultsLOQ/CLDLUnitsGasoline Range Organics1.17J2.500.750mg/kg

**Surrogates** 

4-Bromofluorobenzene (surr) 93.6 50-150 %

## **Batch Information**

Analytical Batch: VFC15752 Prep Batch: VXX37592
Analytical Method: AK101 Prep Method: SW5035A

Instrument: Agilent 7890 PID/FID Prep Date/Time: 8/5/2021 6:00:00AM

Analyst: MDT Prep Initial Wt./Vol.: 50 g
Analytical Date/Time: 8/5/2021 3:14:00PM Prep Extract Vol.: 25 mL

Print Date: 08/19/2021 4:15:39PM



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

	E	Blank Spike	(mg/kg)	S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	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

Print Date: 08/19/2021 4:15:42PM



Blank ID: MB for HBN 1823641 [VXX/37595]

Blank Lab ID: 1628504

QC for Samples: 1214673001

Matrix: Soil/Solid (dry weight)

## Results by SW8260D

<u>Parameter</u>	<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/19/2021 4:15:44PM



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)						
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>		
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:

Print Date: 08/19/2021 4:15:47PM



Original Sample ID: 1628506 MS Sample ID: 1628507 MS MSD Sample ID: 1628508 MSD

QC for Samples: 1214673001

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)

## Results by SW8260D

		Mat	rix Spike (r	mg/kg)	Spike	Duplicate	(mg/kg)			Ì
<u>Parameter</u>	<u>Sample</u>	Spike	Result	Rec (%)	Spike	Result	Rec (%)	<u>CL</u>	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



Blank ID: MB for HBN 1823178 [XXX/45263]

Blank Lab ID: 1626466

QC for Samples:

1214673004, 1214673005

Matrix: Soil/Solid (dry weight)

## Results by SW8270D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/19/2021 4:15:50PM



Blank ID: MB for HBN 1823178 [XXX/45263]

Blank Lab ID: 1626466

QC for Samples:

1214673004, 1214673005

Matrix: Soil/Solid (dry weight)

## Results by SW8270D

Benzo[g,h,i]perylene Benzo[k]fluoranthene	0.125U	0.050		
Benzo[k]fluoranthene		0.250	0.0780	mg/kg
= =	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		%

Print Date: 08/19/2021 4:15:50PM



Blank ID: MB for HBN 1823178 [XXX/45263]

Blank Lab ID: 1626466

QC for Samples:

1214673004, 1214673005

Matrix: Soil/Solid (dry weight)

## Results by SW8270D

<u>Parameter</u>	Results	LOQ/CL DL	<u>Units</u>
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

Print Date: 08/19/2021 4:15:50PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>CL</u>
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 )

Print Date: 08/19/2021 4:15:52PM



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

	E	Blank Spike	(mg/kg)	
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>
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 )
ndeno[1,2,3-c,d] pyrene	4.44	4.14	93	( 45-133 )
sophorone	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)

Print Date: 08/19/2021 4:15:52PM



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)										
<u>Parameter</u>	Spike	Result	Rec (%)	<u>CL</u>						
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:

Print Date: 08/19/2021 4:15:52PM



Original Sample ID: 1214673005 MS Sample ID: 1626471 MS MSD Sample ID: 1626470 MSD

QC for Samples: 1214673004, 1214673005

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)

## Results by SW8270D

results by GTTGETGB		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



Original Sample ID: 1214673005 MS Sample ID: 1626471 MS MSD Sample ID: 1626470 MSD

QC for Samples: 1214673004, 1214673005

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)

## Results by SW8270D

results by GTTGE TOD		Mat	rix Spike (r	mg/kg)	Spike Duplicate (mg/kg)					
<u>Parameter</u>	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



Original Sample ID: 1214673005 MS Sample ID: 1626471 MS MSD Sample ID: 1626470 MSD

QC for Samples: 1214673004, 1214673005

Analysis Date:

Analysis Date: 07/29/2021 22:01 Analysis Date: 07/29/2021 22:18 Matrix: Soil/Solid (dry weight)

## Results by SW8270D

		М	atrix Spike	(%)	Spi	ke Duplica	ite (%)			
<u>Parameter</u>	<u>Sample</u>	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



Blank ID: MB for HBN 1823231 [XXX/45270]

Blank Lab ID: 1626714

QC for Samples:

1214673001, 1214673002, 1214673003

Matrix: Soil/Solid (dry weight)

## Results by AK102

ParameterResultsLOQ/CLDLUnitsDiesel Range Organics7.53J20.06.20mg/kg

**Surrogates** 

5a Androstane (surr) 117 60-120 %

## **Batch Information**

Analytical Batch: XFC16025 Prep Batch: XXX45270
Analytical Method: AK102 Prep Method: SW3550C

Instrument: Agilent 7890B R Prep Date/Time: 7/30/2021 9:41:33AM

Analyst: A.A Prep Initial Wt./Vol.: 30 g Analytical Date/Time: 8/3/2021 2:40:00AM Prep Extract Vol: 5 mL

Print Date: 08/19/2021 4:15:55PM



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

	E	Blank Spike	(mg/kg)	S	Spike Duplic	ate (mg/kg)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	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  $\,$ 

Print Date: 08/19/2021 4:15:58PM



Blank ID: MB for HBN 1823231 [XXX/45270]

Blank Lab ID: 1626714

QC for Samples:

1214673001, 1214673002, 1214673003

Matrix: Soil/Solid (dry weight)

## Results by AK103

ParameterResultsLOQ/CLDLUnitsResidual Range Organics50.0U10043.0mg/kg

**Surrogates** 

n-Triacontane-d62 (surr) 114 60-120 %

## **Batch Information**

Analytical Batch: XFC16025 Prep Batch: XXX45270
Analytical Method: AK103 Prep Method: SW3550C

Instrument: Agilent 7890B R Prep Date/Time: 7/30/2021 9:41:33AM

Analyst: A.A Prep Initial Wt./Vol.: 30 g Analytical Date/Time: 8/3/2021 2:40:00AM Prep Extract Vol: 5 mL

Print Date: 08/19/2021 4:16:00PM



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

	В	lank Spike	(mg/kg)	S	pike Duplic	ate (mg/kg)			
<u>Parameter</u>	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

Print Date: 08/19/2021 4:16:03PM



Blank ID: MB for HBN 1823384 [XXX/45298]

Blank Lab ID: 1627412

QC for Samples:

1214673001, 1214673002

Matrix: Soil/Solid (dry weight)

## Results by 8270D SIM (PAH)

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/19/2021 4:16:05PM



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)											
		Blank Spike	(mg/kg)								
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>CL</u>							
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:

Print Date: 08/19/2021 4:16:08PM



Original Sample ID: 1214703001 MS Sample ID: 1627414 MS MSD Sample ID: 1627415 MSD

QC for Samples: 1214673001, 1214673002

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)

## Results by 8270D SIM (PAH)

		Mat	rix Spike (n	ng/kg)	Spike	Duplicate	(mg/kg)			
<u>Parameter</u>	<u>Sample</u>	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.
===	SECTECHNICAL AND ENVIRONMENTAL CONSULTANTS



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* Trip blank	(EA)	-		<b>/</b>	/						1	Trip	black	/sand
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Project Information	Sample	Receipt		Reliquis	shed By	': 1.		Reliqu	uished E	By: 2.		Rel	iquished	By: 3.
Number: 102581-009	Total No. of Containe	ers:	Signat	1. /1.	. 1	Time:_0	30 Sign	ature:		Time:	_[	Signature:		Time:
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Ongoing Project? Yes No	Temp:	4 Andre			Made	4	Com	pany:				Company:		
Sampler: ALF	Delivery Method:	2010RENC		NOMMON	· SWI	Ism,I	inc.				_}			
No	tes:			Recei	ved By:	1.		Rece	eived By	ı: 2.		R	eceived E	
			Signat	:ure:		Time:	Sign	ature:		Time:		Signature:	3	Time: 16:32
0 0	1 50727	11	Drinte	d Name:	/	Date:	Print	ted Name:	_/	Date:		Printed Nam	ne:	Date:
1 Prome	t 3507329	, ,		/ / /				_/				Ryan	1 Car	1 '
Distribution: White - w/shipment - returned	d to Shannon & Wilson	n w/ laboratory	report Comp	any.			Com	pany:			ľ	Company:	11	18
Yellow - w/shipment - for cor Pink - Shannon & Wilson - jo	isignee illes b file											0 (5)	1 1 '.	, , ,

\* stored/shipped in some cooler@ soil samples

Cooler temp. 5.2,055



## 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

Analyst: \_\_\_\_\_\_\_

Sample Container ID:	Matrix	%	Is sufficient volume/mass available?	Notes:			
Drum 55	Xylene miscible (Top layer * = matrix 3 **)			If multiple jars were received, were they consistent?  (es) / No / NA  If biphasic, was there <b>only</b> one layer with sufficient sample?			
Violini	Water miscible (Middle layer = matrix 6)		( No.	Yes / No / (Va)  Sample description/other observations:			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)	00		**Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.			
	Xylene miscible (Top layer * = matrix 3 **)			If multiple jars were received, were they consistent?  / No / NA  If biphasic, was there <b>only</b> one layer with sufficient sample			
Deum40	Water miscible (Middle layer = matrix 6)		(Yes) / No	Yes / No / (Sample description/other observations:			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)	ottom layer = matrix 7		**Are samples Glycol or Solvent in appearance or odor? I yes schedule TCLP Metals matrix 6 acode.			
·	Xylene miscible (Top layer * = matrix 3 **)			If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there only one layer with sufficient sample			
	Water miscible (Middle layer = matrix 6)		Yes / No	Yes / No / NA Sample description/other observations:			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)			**Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.			
	Xylene miscible (Top layer * = matrix 3 **)			If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there <b>only</b> one layer with sufficient sample			
	Water miscible (Middle layer = matrix 6)		Yes / No	Yes / No / NA Sample description/other observations:			
·	Solid (Bottom layer = matrix 7 or 2 if % solids required)			**Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.			
	Xylene miscible (Top layer * = matrix 3 **)			If multiple jars were received, were they consistent? Yes / No / NA If biphasic, was there only one layer with sufficient sample			
	Water miscible (Middle layer = matrix 6)		Yes / No	Yes / No / NA Sample description/other observations:			
	Solid (Bottom layer = matrix 7 or 2 if % solids required)  *= Chlorinated oils will be heavi			**Are samples Glycol or Solvent in appearance or odor? If yes schedule TCLP Metals matrix 6 acode.			

- 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
	Collect □ Prepay □ Advance Charges □
	Job# DLG PO# 1/5 764 8794
•	1 Jay Sayle
	Shipped Signature
	Received By:  Page 84 4 6672



e-Sample Receipt Form

SGS Workorder #:

1214673

1214673

<u> </u>							
Review Criteria	Condition (Yes,	No, N/A			eptions Not		
Chain of Custody / Temperature Requi	rements		N/A	Exemption pe	rmitted if samp	ler hand carries/deliv	/ers.
Were Custody Seals intact? Note # &	location Yes	1F, 1R					
COC accompanied sa							
DOD: Were samples received in COC corresponding of	coolers? N/A						
N/A **Exemption permitted if		cted <8 h	ours	ago, or for sam	nples where ch	illing is not required	
Temperature blank compliant* (i.e., 0-6 °C after		Cooler		1	@	5.2 °C Therm. ID:	D55
Tomporatare starik compilarit (i.o., o o o and	31 01 ).	Cooler			@	°C Therm. ID:	
If samples received without a temperature blank, the "cooler temperature" wil	I he	Cooler			@	°C Therm. ID:	
documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "ch							
be noted if neither is available.		Cooler			@	°C Therm. ID:	
***		Cooler	ID:		@	°C Therm. ID:	
*If >6°C, were samples collected <8 hours	s ago? N/A	]					
If <0°C, were sample containers ice	e free? N/A						
Note: Identify containers received at non-compliant tempe							
Use form FS-0029 if more space is n	eeded.						
Holding Time / Documentation / Sample Condition R	<u>equirements</u>	Note: Ref	er to fo	orm F-083 "Samp	le Guide" for spe	cific holding times.	
Were samples received within holding	g time? Yes						
	<u> </u>	Ĭ					
Do samples match COC** (i.e.,sample IDs,dates/times colle	ected)? Yes						
**Note: If times differ <1hr, record details & login per C	•	ľ					
***Note: If sample information on containers differs from COC, SGS will default to							
Were analytical requests clear? (i.e., method is specified for ar	nalvege Yes						
with multiple option for analysis (Ex: BTEX,							
,,, (=,	,						
			NI/A	***Everantion	narmittad for n	actala (a. a. 200 9/602	0.4.)
NA	()		N/A	Exemption	permitted for n	netals (e.g,200.8/602	<u>(UA).</u>
Were proper containers (type/mass/volume/preservative***	)used? Yes						
Maladia III II a Bar							
Volatile / LL-Hg Red							
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with sal							
Were all water VOA vials free of headspace (i.e., bubbles ≤							
Were all soil VOAs field extracted with MeOH	+BFB? Yes						
Note to Client: Any "No", answer above indicates no	n-compliance	with stan	dard p	orocedures and	d may impact d	ata quality.	
۸ ططانه: م.م.	al notos (if a	nnliaah	۱۵)٠				
Additiona	al notes (if a	phiican	ı <b>∪</b> ).				



## **Sample Containers and Preservatives**

Container Id	<u>Preservative</u>	Container Condition	Container Id	<u>Preservative</u>	<u>Container</u> <u>Condition</u>
1214673001-A	No Preservative Required	ОК			
1214673001-B	Methanol field pres. 4 C	ОК			
1214673002-A	No Preservative Required	OK			
1214673002-B	Methanol field pres. 4 C	OK			
1214673003-A	No Preservative Required	ОК			
1214673003-B	Methanol field pres. 4 C	ОК			
1214673004-A	No Preservative Required	ОК			
1214673004-B	No Preservative Required	OK			
1214673005-A	No Preservative Required	ОК			
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	

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	August 19, 2021
CS	Site Name:
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	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?
	$Yes \square No \square N/A \boxtimes Comments:$
2.	Chain of Custody (CoC)
	a. CoC information completed, signed, and dated (including released/received by)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b. Correct analyses requested?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:

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c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
$Yes \boxtimes No \square N/A \square$ 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. <u>Case Narrative</u>
a. Present and understandable?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
The LOQs for semivolatile organic compounds (SVOCs) in project samples <i>Drum 55</i> and <i>Drum 40</i> 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?
	$Yes \boxtimes No \square N/A \square$ Comments:
	b. All applicable holding times met?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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:
	<ul> <li>d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?</li> <li>Yes□ No⊠ N/A□ Comments:</li> </ul>
	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?

$Yes \boxtimes No \square N/A \square$	Comments:	

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

	Yes⊠	$No\square$	$N/A\square$	Comment
--	------	-------------	--------------	---------

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 at 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:	
The GRO results for project samples <i>SB13-35-37.5</i> and <i>SB13-135-137.5</i> 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 <i>SB13-35-37.5</i> , <i>SB13-135-137.5</i> , and <i>SB11-22.5-25.4</i> 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)	
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>	
Yes $\square$ No $\boxtimes$ N/A $\square$ 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 $\square$ No $\boxtimes$ N/A $\square$ 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 an 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)	d
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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<ul> <li>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)</li> </ul>
$Yes \boxtimes No \square N/A \square$ Comments:
v. If %R or RPD is outside of acceptable limits, what samples are affected?  Comments:
Project samples <i>Drum 40</i> and <i>Drum 55</i> 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 $\square$ No $\boxtimes$ N/A $\square$ 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.
<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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.

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	<ul> <li>iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?</li> <li>Yes□ No⊠ N/A□ Comments:</li> </ul>
	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 hexachlorocyclopentadiene. These samples are associated with preparation batch XXX45263. The parent sample is <i>Drum 40</i> 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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CS Site	e Name:
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	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
	<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
-	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\boxtimes$ N/A $\square$ 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?
Γ	Yes $\square$ No $\boxtimes$ N/A $\square$ 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
	<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	Trip blank samples were analyzed for GRO and VOCs.

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<ul> <li>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)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>	?
The samples were submitted in a single cooler.	
<ul><li>iii. All results less than LOQ and project specified objectives?</li><li>Yes□ No⊠ N/A□ Comments:</li></ul>	
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.	1
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?	
$Yes \square No \boxtimes N/A \square$ 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.	l
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:	
Yes; see above.	

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	iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)
F	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.
_	<ul> <li>g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?</li> <li>Yes□ No□ N/A⋈ Comments:</li> </ul>
	Theses sample was not collected with reusable equipment; therefore, potential for equipment based cross-contamination does not exist.
	<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
	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.
٦	iii. Data quality or usability affected?  Comments:
	The data quality and/or usability are not affected; see above.

_			
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7.	Other Data Flags/Qualifiers (ACOE	, AFCEE, Lab Specific, etc.)	
	a. Defined and appropriate?		
	Yes□ No□ N/A⊠	Comments:	
	There were no additional flags/q	ualifiers 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.

Date

Sincerely,

SGS North America Inc.

Stephen C. Ede

Staphen C. Ede 2021.08.06

11:29:29 -08'00'

Jennifer Dawkins

SGS North America Inc.

**Project Manager** 

Jennifer.Dawkins@sgs.com

Print Date: 08/06/2021 10:36:03AM Results via Engage



#### **Case Narrative**

SGS Client: **Shannon & Wilson-Fairbanks**SGS Project: **1214677**Project Name/Site: **102581-009 Dillingham Airport** 

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.

Print Date: 08/06/2021 10:36:04AM



#### **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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a>. 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.

Print Date: 08/06/2021 10:36:06AM

SGS North America Inc. | 200 West Potter Drive, Anchorage, AK 99518



## **Sample Summary**

Client Sample ID	Lab Sample ID	Collected	Received	<u>Matrix</u>
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 Description

AK101 Gasoline Range Organics (W)

SW8260D Volatile Organic Compounds (W) FULL

Print Date: 08/06/2021 10:36:08AM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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



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

						Allowable	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u> D	ate Analyzed
Chloroform	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Chloromethane	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1	0	8/03/21 18:52
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1	0	8/03/21 18:52
Dibromomethane	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Freon-113	5.00 U	10.0	3.10	ug/L	1	0	8/03/21 18:52
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Methylene chloride	5.00 U	10.0	3.10	ug/L	1	0	8/03/21 18:52
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1	0	8/03/21 18:52
Naphthalene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
o-Xylene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1	0	8/03/21 18:52
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Styrene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Toluene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Trichloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1	0	8/03/21 18:52
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1	0	8/03/21 18:52
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1	0	8/03/21 18:52
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1	0	8/03/21 18:52
urrogates							
1,2-Dichloroethane-D4 (surr)	101	81-118		%	1	0	8/03/21 18:52
4-Bromofluorobenzene (surr)	99.7	85-114		%	1	0	8/03/21 18:52
Toluene-d8 (surr)	98.5	89-112		%	1	0	8/03/21 18:52

Print Date: 08/06/2021 10:36:10AM

J flagging is activated



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



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 Gasoline Range Organics	Result Qual	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
	0.0500 U	0.100	0.0450	mg/L	1	Limits	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



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/06/2021 10:36:10AM

J flagging is activated



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

Danamastan	D	1.00/01	DI	1.1	DE	<u>Allowable</u>	Data Amalomad
Parameter	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		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 19:0
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		08/03/21 19:0
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		08/03/21 19:0
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		08/03/21 19:0
urrogates							
1,2-Dichloroethane-D4 (surr)	101	81-118		%	1		08/03/21 19:0
4-Bromofluorobenzene (surr)	98.9	85-114		%	1		08/03/21 19:0 <sup>-</sup>
Toluene-d8 (surr)	99	89-112		%	1		08/03/21 19:0 <sup>-</sup>

Print Date: 08/06/2021 10:36:10AM

J flagging is activated



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

Print Date: 08/06/2021 10:36:10AM J flagging is activated



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/06/2021 10:36:10AM J flagging is activated



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/06/2021 10:36:10AM

J flagging is activated



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

Chloroform  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 Chloromethane  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 cis-1,3-Dichloroethene  O.500 U  0.500  O.500  O.500  O.150  Ug/L  1  O8/03/21 17:52 cis-1,3-Dichloropropene  O.250 U  O.500  O.150  Ug/L  1  O8/03/21 17:52 Dibromochloromethane  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 Dibromochloromethane  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 Dibromochloromethane  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 Ethylbenzene  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 Freon-113  5.00 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 Dibromochlorobutadiene  Sopropylbenzene (Cumene)  O.500 U  1.00  O.310  Ug/L  1  O8/03/21 17:52 O8/0							Allowable	
Chloromethane	<u>Parameter</u>	Result Qual	LOQ/CL		<u>Units</u>	DF	<u>Limits</u>	Date Analyzed
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         0.150 ug/L         1         08/03/21 17:52 cis-1,3-Dichloropropene         0.250 U         0.500 U         0.150 ug/L         1         08/03/21 17:52 cis-1,3-Dichloropropene         0.250 U         0.500 U         0.150 ug/L         1         08/03/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         08/03/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         08/03/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500 U         1.00 U         0.310 ug/L         1         0.803/21 17:52 cis-1,3-Dichloropropene         0.500	Chloroform	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 U         ug/L         1         08/03/21 17:52           Dibromochloromethane         0.250 U         0.500         0.150 Ug/L         1         08/03/21 17:52           Dibromochloromethane         0.500 U         1.00 0.310 Ug/L         1         08/03/21 17:52           Elhylbenzene         0.500 U         1.00 0.310 Ug/L         1         08/03/21 17:52           Elhylbenzene         0.500 U         1.00 0.310 Ug/L         1         08/03/21 17:52           Freon-113         5.00 U         1.00 0.310 Ug/L         1         08/03/21 17:52           Iexachlorobutadiene         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         1.00 0.310 Ug/L         1         08/03/21 17:52           Methyl-t-butyl ether         5.00 U         1.00 0.310 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           o-Xylene	Chloromethane	0.500 U	1.00	0.310	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           Ethylbenzene         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         0.310         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           Methyl-Lebulf ether         5.00 U         10.0         3.10         ug/L         1         08/03/21 17:52           Methyl-Lebulf ether         5.00 U         1.00         3.10         ug/L         1         08/03/21 17:52           Methyl-Lebulf ether         5.00 U         1.00         0.310         ug/L         1         08/03/21 17:52           Naphthalene         0.500 U         1.00 </td <td>cis-1,2-Dichloroethene</td> <td>0.500 U</td> <td>1.00</td> <td>0.310</td> <td>ug/L</td> <td>1</td> <td></td> <td>08/03/21 17:52</td>	cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		08/03/21 17:52
Dibromomethane	cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		08/03/21 17:52
Dichlorodiffluoromethane         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           Methyle-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           Naphthalene         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           n-Propylbenzene         0.500 U         1.00 0.310 ug/L         1         08/03/21 17:52           sec-Butylbenzene         1.00 U         2.00 0.620 ug/L         1         08/03/21 17:52           sec-Butylbenzene         <	Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		08/03/21 17:52
Ethylbenzene	Dibromomethane	0.500 U	1.00	0.310	ug/L	1		08/03/21 17:52
Freon-113	Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		08/03/21 17:52
Hexachlorobutadiene	Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/21 17:52
Sopropylbenzene (Cumene)	Freon-113	5.00 U	10.0	3.10	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           o-Xylene         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           o-Xylene         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           Styrene         0.500 U         1.00         0.310         ug/L	Hexachlorobutadiene	0.500 U	1.00	0.310	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           o-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           tert-Butylbenzene         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           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	Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		08/03/21 17:52
Naphthalene	Methylene chloride	5.00 U	10.0	3.10	ug/L	1		08/03/21 17:52
n-Butylbenzene	Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		08/03/21 17:52
n-Propylbenzene	Naphthalene	0.500 U	1.00	0.310	ug/L	1		08/03/21 17:52
o-Xylene	n-Butylbenzene	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 sec-Butylbenzene 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 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 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 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 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 urrogates 1,2-Dichloroethane-D4 (surr) 101 81-118 % 1 08/03/21 17:52 urrogates 1,2-Dichloroethane-D4 (surr) 101 81-118 % 1 08/03/21 17:52 urrogates	n-Propylbenzene	0.500 U	1.00	0.310	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         1.00         3.10         ug/L         1         08/03/21 17:52           Vinyl chloride         0.0750 U         0.15	o-Xylene	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         Vylenes (total)       1.50 U       3.00       1.00       ug/L       1       08/03/21 17:52         Varrogates <td>P &amp; M -Xylene</td> <td>1.00 U</td> <td>2.00</td> <td>0.620</td> <td>ug/L</td> <td>1</td> <td></td> <td>08/03/21 17:52</td>	P & M -Xylene	1.00 U	2.00	0.620	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 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 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  urrogates  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	sec-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           urrogates         1,2-Dichloroethane-D4 (surr)         101         81-118         %         1         08/03/21 17:52           4-Bromofluorobenzene (surr)	Styrene	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 Trichlorofluoromethane 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 Trichlorofluoromethane 0.500 U 1.00 0.310 ug/L 1 08/03/21 17:52 Uriyl acetate 5.00 U 10.0 3.10 ug/L 1 08/03/21 17:52 Uriyl chloride 0.0750 U 0.150 0.0500 ug/L 1 08/03/21 17:52 Urrogates 1,2-Dichloroethane-D4 (surr) 101 81-118 % 1 08/03/21 17:52 Urrogates 1,2-Dichloroethane-D4 (surr) 101 85-114 % 1 08/03/21 17:52	tert-Butylbenzene	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 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 Villourogates 1.50 U 3.00 1.00 ug/L 1 08/03/21 17:52 Utrogates 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	Tetrachloroethene	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 5.00 U 10.0 3.10 ug/L 1 08/03/21 17:52 Xylenes (total) 0.0750 U 0.150 0.0500 ug/L 1 08/03/21 17:52  Trichloroethane-D4 (surr) 101 81-118 % 1 08/03/21 17:52  4-Bromofluorobenzene (surr) 101 85-114 % 1 08/03/21 17:52	Toluene	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           urrogates         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	trans-1,2-Dichloroethene	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         urrogates         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	trans-1,3-Dichloropropene	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         urrogates         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	Trichloroethene	0.500 U	1.00	0.310	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         urrogates       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	Trichlorofluoromethane	0.500 U	1.00	0.310	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         urrogates       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	Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		08/03/21 17:52
urrogates       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	Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		08/03/21 17:52
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	Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		08/03/21 17:52
4-Bromofluorobenzene (surr) 101 85-114 % 1 08/03/21 17:52	Surrogates							
	1,2-Dichloroethane-D4 (surr)	101	81-118		%	1		08/03/21 17:52
Toluene-d8 (surr) 99.6 89-112 % 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

Print Date: 08/06/2021 10:36:10AM

J flagging is activated



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

Print Date: 08/06/2021 10:36:10AM J flagging is activated



Blank ID: MB for HBN 1823395 [VXX/37556]

Blank Lab ID: 1627464

QC for Samples:

1214677001, 1214677002, 1214677003

Matrix: Water (Surface, Eff., Ground)

#### 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 Prep Batch: VXX37556
Analytical Method: AK101 Prep Method: SW5030B

Instrument: Agilent 7890A PID/FID Prep Date/Time: 8/2/2021 6:00:00AM

Analyst: MDT

Analytical Date/Time: 8/2/2021 9:24:00AM

Prep Initial Wt./Vol.: 5 mL Prep Extract Vol: 5 mL

Print Date: 08/06/2021 10:36:12AM



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

0.0500

#### Results by AK101

		Blank Spike	(mg/L)	5	Spike Dupli	cate (mg/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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									

0.0500

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#### **Batch Information**

4-Bromofluorobenzene (surr)

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

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Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

(50-150) 6.90

Print Date: 08/06/2021 10:36:14AM



Blank ID: MB for HBN 1823490 [VXX/37574]

Blank Lab ID: 1627818

QC for Samples:

1214677001, 1214677002, 1214677003

Matrix: Water (Surface, Eff., Ground)

## Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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

Print Date: 08/06/2021 10:36:17AM



Blank ID: MB for HBN 1823490 [VXX/37574]

Blank Lab ID: 1627818

QC for Samples:

1214677001, 1214677002, 1214677003

Matrix: Water (Surface, Eff., Ground)

## Results by SW8260D

<u>Parameter</u>	<u>Results</u>	LOQ/CL	<u>DL</u>	<u>Units</u>
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		%
• •				

Print Date: 08/06/2021 10:36:17AM



Blank ID: MB for HBN 1823490 [VXX/37574]

Blank Lab ID: 1627818

QC for Samples:

1214677001, 1214677002, 1214677003

Matrix: Water (Surface, Eff., Ground)

Results by SW8260D

<u>Parameter</u> <u>Results</u> <u>LOQ/CL</u> <u>DL</u> <u>Units</u>

**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 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	e (ug/L)	;	Spike Dupli	cate (ug/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	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 )

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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	e (ug/L)		Spike Dupli	cate (ug/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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)

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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 Spik	ke (%)		Spike Dup	licate (%)			
<u>Parameter</u>	<u>Spike</u>	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

Print Date: 08/06/2021 10:36:19AM

SHANNON & WILSON, INC.  2355 Hill Road Fairbanks, AK 99709 (907) 479-0600	CHAIN-OF-CUSTO	DDY RECORD  Analytical Methods (included)	Page o LaboratorySGS	of 1
www.shannonwilson.com	SGS-2016  Yes No Date Time Sampled	Sylon Ak Ak Sylon	Remarks/Matrix Composition/Grab	?
Sample Identity  Lab No.  DLG-MWIII-34  DLG-MWIII-34  ZAF)  *Trip Black  340	Time Sampled  1800 7/12/11 / 1		8 Grandwater 8 Water	s
		1214677		
Project Information  Number: 102581-009  Name: Dilmhan Prot Contact: MDN  Ongoing Project? Yes No Sampler: VTY SAH  Notes:  Notes:	Signature: Tim  M. M. A. July  Printed Name: Dat  Nary World  Company:  Shannak Wilso  Received By:	Printed Name: D  Company:  Received By:		3.
Distribution: White - w/shipment - returned to Shannon & Wilson Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file		te:Printed Name: D	Signature  Date:  Printed Name:  Ryan Conon  Company:  SGS IF, IR  MP 5-2 DSS No.	7 9/2

\* TB stred in some cooler as project samples.

# Alert Expeditors Inc.

Citywide Delivery • 440-3351 8421 Flamingo Drive • Anchorage, Alaska 99502

From		J			
То	Sample of St.	3a			
Collect C	) .	Prepay	7	Adva	nce Charges
Job #	)L(+	PO#		7464	3774
	···				
		e e e e e e e e e e e e e e e e e e e	· .		
		*	A STATE OF THE STA		
					<u> </u>
Shipped	Signature	The !	Commenced	p; à	
		Laga	- (a	Total Gharge	30.72
Received	d By:	60°		7	4821



e-Sample Receipt Form

SGS Workorder #:

1214677

1214677

Review Criteria	Condition (Yes,	No, N/A			tions Not		
Chain of Custody / Temperature Requi	rements		N/A	Exemption perm	itted if sampl	er hand carries/deliv	ers.
Were Custody Seals intact? Note # &	location Yes	1F, 1R					
COC accompanied sa	amples? Yes						
DOD: Were samples received in COC corresponding of	coolers? N/A						
N/A **Exemption permitted if		cted <8 h	ooure	ago, or for sampl	as where chil	lling is not required	
		_		1		5.2 °C Therm. ID:	DEE
Temperature blank compliant* (i.e., 0-6 °C after	er CF)? Yes		_	'	@		D33
		Cooler	_		@	°C Therm. ID:	
If samples received without a temperature blank, the "cooler temperature" will documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "ch		Cooler	ID:		@	°C Therm. ID:	
be noted if neither is available.		Cooler	ID:		@	°C Therm. ID:	
		Cooler	ID:		@	°C Therm. ID:	
*If >6°C, were samples collected <8 hours	s ago? N/A					•	
	<u></u>	i					
If <0°C, were sample containers ice	e free? N/A						
	1.771	ł					
Note: Identify containers received at non-compliant tempe	rature						
Use form FS-0029 if more space is n							
000 10 mm r 0 0020 m more opened 10 m							
11.11							
Holding Time / Documentation / Sample Condition Ro		Note: Ref	er to fo	orm F-083 "Sample (	Guide" for spec	ific holding times.	
Were samples received within holding	g time? Yes						
Do samples match COC** (i.e.,sample IDs,dates/times collected)? 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 0	COC information						
Were analytical requests clear? (i.e., method is specified for ar	nalyses Yes						
with multiple option for analysis (Ex: BTEX, Metals)							
			N/A	***Exemption pe	rmitted for m	etals (e.g,200.8/602	0A).
Were proper containers (type/mass/volume/preservative***	()used? Ves		- 4,7 (	2.0			<u></u>
Troid proper containers (type/mass/volume/preservative	/4304 : <b>163</b>						
Volatile / LL-Hg Req	ujromonto						
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with sai							
Were all water VOA vials free of headspace (i.e., bubbles ≤							
Were all soil VOAs field extracted with MeOH	+BFB? N/A						
Note to Client: Any "No", answer above indicates no	n-compliance	with stan	dard	procedures and m	nay impact da	ata quality.	
A dalitions	al notos (if a	nnliaah	ام).				
Additiona	al notes (if a	ppiicab	ı⊌).				



## **Sample Containers and Preservatives**

Container Id	<u>Preservative</u>	<u>Container</u> <u>Condition</u>	Container Id	<u>Preservative</u>	Container Condition
1214677001-A	HCL to pH < 2	ОК			
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	ОК			

#### **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.

- $\ensuremath{\mathsf{OK}}$  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	

12	214677
Labor	atory Report Date:
A	ugust 6, 2021
CS Si	te Name:
D	illingham DOT&PF
N	ote: Any N/A or No box checked must have an explanation in the comments box.
1. <u>L</u> a	aboratory
	a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	The samples were not transferred to a network laboratory.
2. <u>Cl</u>	hain of Custody (CoC)
	a. CoC information completed, signed, and dated (including released/received by)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
ſ	Tese Not NAC Comments.
L	b. Correct analyses requested?
	Yes $\square$ No $\boxtimes$ N/A $\square$ Comments:
	DRO and RRO analysis was also requested; however, the bottles were not submitted. They were submitted under a different work order.
3. <u>La</u>	aboratory Sample Receipt Documentation
	a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
L	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)?			
$Yes \boxtimes No \square N/A \square$ 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.?			
$Yes \square No \square N/A \boxtimes Comments:$			
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. <u>Case Narrative</u>			
a. Present and understandable?			
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:			
TCS NOL WAL Comments.			
b. Discrepancies, errors, or QC failures identified by the lab?			
Yes $\square$ No $\boxtimes$ N/A $\square$ Comments:			
No discrepancies, errors, or QC failures were identified by the lab.			
c. Were all corrective actions documented?			
Yes $\square$ No $\square$ N/A $\boxtimes$ 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.

	12	14677			
La	bora	atory Report Date:			
	Αι	igust 6, 2021			
CS	Sit	e Name:			
	Di	llingham DOT&PF			
5.	Sa	mples Results			
	a. Correct analyses performed/reported as requested on COC?				
		Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:			
b. All applicable holding times met?					
	İ	$Yes \boxtimes No \square N/A \square$ Comments:			
c. All soils reported on a dry weight basis?					
	ĺ	Yes $\square$ No $\square$ N/A $\boxtimes$ 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?			
	1	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	<u>C Samples</u>			
		a. Method Blank			
		i. One method blank reported per matrix, analysis and 20 samples?			
		$Yes \boxtimes No \square N/A \square$ Comments:			
	'	ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?			
	1	Yes⊠ No□ N/A□ Comments:			

12	214677		
Labora	atory Report Date:		
Αι	ugust 6, 2021		
CS Sit	te Name:		
Di	illingham 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 acceptable limits; see 6.b.iii.		
	vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes $\square$ No $\square$ N/A $\boxtimes$ 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?		
	$Yes \square No \square N/A \boxtimes Comments:$		
	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?		
	$Yes \square No \square N/A \boxtimes Comments:$		
	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?		
	$Yes \square No \square N/A \boxtimes Comments:$		
	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.		
	$Yes \square No \square N/A \boxtimes Comments:$		
	MS/MSD sample pairs were not reported for this work order.		

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Laboratory	Report Date:		
August	6, 2021		
CS Site Na	me:		
Dilling	nam DOT&PF		
v. If %R or RPD is outside of acceptable limits, what samples are affected?  Comments:			
San	nples 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:			
N/A	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 Me			
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laborates?</li> </ul>			
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:		
	<ul> <li>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)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>		
	iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?		
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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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Laboratory Report Date:			
August 6, 2021			
CS Site Name:			
Dillingham DOT&PF			
<ul> <li>e. Trip Blanks</li> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)</li> </ul>			
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:			
ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the C (If not, a comment explaining why must be entered below)			
$Yes \boxtimes No \square N/A \square$ 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.			
<ul> <li>f. Field Duplicate</li> <li>i. One field duplicate submitted per matrix, analysis and 10 project samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>			
<ul> <li>ii. Submitted blind to lab?</li> <li>Yes⊠ No□ N/A□ Comments:</li> <li>The field duplicate sample DLG-MW11-34/DLG-MW111-34 was submitted with this work order.</li> </ul>			

1214677	
boratory Report Date:	
August 6, 2021	
S Site Name:	
Dillingham DOT&PF	
iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)	
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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.	

	1214677			
La	oratory Report Date:			
	August 6, 2021			
CS	Site Name:			
	Dillingham DOT&PF			
7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)				
	a. Defined and appropriate?			
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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

Staphen C. Ede 2021.08.25

11:47:32 -08'00'

Jennifer Dawkins

Date

Project Manager Jennifer.Dawkins@sgs.com

Print Date: 08/25/2021 11:17:48AM Results via Engage



#### **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.

Print Date: 08/25/2021 11:17:50AM



#### **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 <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a>. 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	<u>Matrix</u>
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)

MethodMethod Description8270D SIM LV (PAH)8270 PAH SIM GC/MS LVAK102DRO/RRO Low Volume WaterAK103DRO/RRO Low Volume WaterAK101Gasoline Range Organics (W)

SW8260D Volatile Organic Compounds (W) FULL



# **Detectable Results Summary**

Client Sample ID: <b>EB-MW14-50</b> Lab Sample ID: 1214737003	Demonstra	Decemb	1.1
'	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
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	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
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	<u>Parameter</u>	Result	<u>Units</u>
Semivolatile Organic Fuels	Diesel Range Organics	0.217J	mg/L

Print Date: 08/25/2021 11:17:55AM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

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

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

Print Date: 08/25/2021 11:17:57AM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/25/2021 11:17:57AM

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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

_						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	<u>Date Analyzed</u>
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



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	<u>DL</u>	<u>Units</u>	<u>DF</u>	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



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	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable <u>Limits</u>	Date Analyzed
Chloroform	0.500 U	1.00	0.310	ug/L	1	Littito	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

Print Date: 08/25/2021 11:17:57AM



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



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

_						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	Allowable	<u>Date Analyzed</u>
Diesel Range Organics	0.283 U	0.566	0.170	mg/L	1	Limits	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/25/2021 11:17:57AM



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	<u>DF</u>	Allowable Limits Date	Analyze
<u>Chloroform</u>	0.500 U	1.00	0.310	ug/L	1	· · · · · · · · · · · · · · · · · · ·	/21 14:2
Chloromethane	0.500 U	1.00	0.310	ug/L	1		/21 14:2 /21 14:2
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		/21 14:2 /21 14:2
cis-1,3-Dichloropropene	0.250 U	0.500	0.310	ug/L ug/L	1		/21 14.2 /21 14:2
Dibromochloromethane	0.250 U	0.500	0.150	ug/L ug/L	1		/21 14.2 /21 14:2
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		/21 14:2 /21 14:2
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L ug/L	1		/21 14.2 /21 14:2
Ethylbenzene	0.500 U	1.00	0.310	ug/L ug/L	1		/21 14.2 /21 14:2
reon-113	5.00 U	1.00	3.10	Ū	1		/21 14 /21 14::
				ug/L			
lexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		/21 14::
sopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		/21 14:
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		/21 14:
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		/21 14:
aphthalene	0.500 U	1.00	0.310	ug/L	1		/21 14:
-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		/21 14:
-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		/21 14:
-Xylene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
& M -Xylene	1.00 U	2.00	0.620	ug/L	1	08/06	/21 14:
ec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
tyrene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
ert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
etrachloroethene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
oluene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
rans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
rans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
richloroethene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
richlorofluoromethane	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:
/inyl acetate	5.00 U	10.0	3.10	ug/L	1	08/06	/21 14:
/inyl chloride	0.0750 U	0.150	0.0500	ug/L	1	08/06	/21 14:
(ylenes (total)	1.50 U	3.00	1.00	ug/L	1	08/06	/21 14:
urrogates							
1,2-Dichloroethane-D4 (surr)	104	81-118		%	1	08/06	/21 14::
1-Bromofluorobenzene (surr)	100	85-114		%	1	08/06	/21 14::
Foluene-d8 (surr)	100	89-112		%	1	08/06	/21 14:2

Print Date: 08/25/2021 11:17:57AM



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



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

						<u>Allowable</u>
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u> <u>Date Analyzed</u>
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

Print Date: 08/25/2021 11:17:57AM



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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 Gasoline Range Organics	Result Qual 0.0500 U	LOQ/CL 0.100	<u>DL</u> 0.0450	<u>Units</u> mg/L	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 08/06/21 01:05
Surrogates  4 Promofluorobonzono (curr)	86.0	50 150		%	1		08/06/21 01:05
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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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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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	<u>DL</u>	Units	<u>DF</u>	<u>Allowable</u> Limits Date	Analyzed
Chloroform	0.500 U	1.00	0.310	ug/L	<u> </u>		/21 14:43
Chloromethane	0.500 U	1.00	0.310	ug/L	1		/21 14:43 /21 14:43
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		/21 14:43 /21 14:43
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L ug/L	1		/21 14:43 /21 14:43
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		/21 14:43 /21 14:43
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		/21 14:43
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		/21 14:43 /21 14:43
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		/21 14:43 /21 14:43
Freon-113	5.00 U	10.0	3.10	ug/L ug/L	1		/21 14:43 /21 14:43
				•			
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		/21 14:43
sopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		/21 14:43
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		/21 14:43
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		/21 14:43
Naphthalene	0.500 U	1.00	0.310	ug/L	1		/21 14:4
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		/21 14:4:
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4:
o-Xylene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4:
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1	08/06	/21 14:4:
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
Styrene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
Toluene	0.479 J	1.00	0.310	ug/L	1	08/06	/21 14:4
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
Trichloroethene	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1	08/06	/21 14:4
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1	08/06	/21 14:4
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1	08/06	/21 14:4
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1	08/06	/21 14:4
urrogates							
1,2-Dichloroethane-D4 (surr)	102	81-118		%	1	08/06	/21 14:4
4-Bromofluorobenzene (surr)	102	85-114		%	1		/21 14:4
Toluene-d8 (surr)	100	89-112		%	1		/21 14:4

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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



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 Diesel Range Organics	Result Qual 0.206 J	<u>LOQ/CL</u> 0.566	<u>DL</u> 0.170	<u>Units</u> mg/L	<u>DF</u> 1	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u> 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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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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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

_						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>		Date Analyzed
Chloroform	0.500 U	1.00	0.310	ug/L	1		8/06/21 14:58
Chloromethane	0.500 U	1.00	0.310	ug/L	1		8/06/21 14:58
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1	0	8/06/21 14:58
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1	0	8/06/21 14:58
Dibromomethane	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Freon-113	5.00 U	10.0	3.10	ug/L	1	0	8/06/21 14:58
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
lsopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Methylene chloride	5.00 U	10.0	3.10	ug/L	1	0	8/06/21 14:58
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1	0	8/06/21 14:58
Naphthalene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
o-Xylene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1	0	8/06/21 14:58
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Styrene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Toluene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Trichloroethene	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1	0	8/06/21 14:58
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1	0	8/06/21 14:58
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1	0	8/06/21 14:58
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		8/06/21 14:58
urrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1	0	8/06/21 14:58
4-Bromofluorobenzene (surr)	101	85-114		%	1	0	8/06/21 14:58
Toluene-d8 (surr)	100	89-112		%	1	0	8/06/21 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

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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 Gasoline Range Organics	Result Qual 0.0500 U	LOQ/CL 0.100	<u>DL</u> 0.0450	<u>Units</u> mg/L	<u>DF</u> 1	Allowable Limits	<u>Date Analyzed</u> 08/05/21 17:20
Surrogates	02.0	50 150		0/.	1		09/05/24 47:20
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

Print Date: 08/25/2021 11:17:57AM J flagging is activated



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

<u>Parameter</u>	<u>Result Qual</u>	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	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

Print Date: 08/25/2021 11:17:57AM

J flagging is activated



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	<u>DF</u>	<u>Allowable</u> Limits	Date Analyze
<u>- arameter</u> Chloroform	0.500 U	1.00	0.310	ug/L	1	LIIIIIIS	08/03/21 23:3
Chloromethane	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:3
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L ug/L	1		08/03/21 23:3
cis-1,3-Dichloropropene	0.250 U	0.500	0.310	ug/L ug/L	1		08/03/21 23:3
Dibromochloromethane	0.250 U	0.500	0.150	ug/L ug/L	1		08/03/21 23:3
Dibromocnioromethane	0.500 U	1.00	0.130	J	1		08/03/21 23:3
Dichlorodifluoromethane	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:3
				ug/L			
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:3
Freon-113	5.00 U	10.0	3.10	ug/L	1		08/03/21 23:3
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
sopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
Methylene chloride	5.00 U	10.0	3.10	ug/L	1		08/03/21 23:
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		08/03/21 23:
Naphthalene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
o-Xylene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		08/03/21 23:
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
Styrene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
ert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
Toluene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
rans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
rans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		08/03/21 23:
√inyl acetate	5.00 U	10.0	3.10	ug/L	1		08/03/21 23:
/inyl chloride	0.0750 U	0.150	0.0500	ug/L	1		08/03/21 23:
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		08/03/21 23:
urrogates							
1,2-Dichloroethane-D4 (surr)	103	81-118		%	1		08/03/21 23:
1-Bromofluorobenzene (surr)	100	85-114		%	1		08/03/21 23:
Toluene-d8 (surr)	98.8	89-112		%	1		08/03/21 23:3

Print Date: 08/25/2021 11:17:57AM

J flagging is activated



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

Print Date: 08/25/2021 11:17:57AM 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: 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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/25/2021 11:17:57AM

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: 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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

						<u>Allowable</u>	
<u>Parameter</u>	Result Qual	LOQ/CL	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Limits</u>	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

Print Date: 08/25/2021 11:17:57AM J flagging is activated



Blank ID: MB for HBN 1823490 [VXX/37574]

Blank Lab ID: 1627818

QC for Samples:

1214737001, 1214737005

Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

. 1000				
<u>Parameter</u>	Results	LOQ/CL	DL	<u>Units</u>
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



Blank ID: MB for HBN 1823490 [VXX/37574]

Blank Lab ID: 1627818

QC for Samples:

1214737001, 1214737005

Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

Parameter	Results	LOQ/CL	<u>DL</u>	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		%



Blank ID: MB for HBN 1823490 [VXX/37574]

Blank Lab ID: 1627818

QC for Samples:

1214737001, 1214737005

Matrix: Water (Surface, Eff., Ground)

### Results by SW8260D

LOQ/CL <u>Parameter</u> Results DL <u>Units</u>

#### **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 ID: LCS for HBN 1214737 [VXX37574]

Blank Spike Lab ID: 1627819 Date Analyzed: 08/03/2021 15:15

QC for Samples: 1214737001, 1214737005

Spike Duplicate ID: LCSD for HBN 1214737

[VXX37574]

Spike Duplicate Lab ID: 1627820 Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

Blank Spike (ug/L) Spike Duplicate (ug/L)											
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	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 ID: LCS for HBN 1214737 [VXX37574]

Blank Spike Lab ID: 1627819 Date Analyzed: 08/03/2021 15:15

QC for Samples: 1214737001, 1214737005

Spike Duplicate ID: LCSD for HBN 1214737

[VXX37574]

Spike Duplicate Lab ID: 1627820 Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

Blank Spike (ug/L) Spike Duplicate (ug/L)										
<u>Parameter</u>	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 ID: LCS for HBN 1214737 [VXX37574]

Blank Spike Lab ID: 1627819 Date Analyzed: 08/03/2021 15:15

QC for Samples: 1214737001, 1214737005

Spike Duplicate ID: LCSD for HBN 1214737

[VXX37574]

Spike Duplicate Lab ID: 1627820 Matrix: Water (Surface, Eff., Ground)

### Results by SW8260D

		Blank Spike (%)				Spike Duplicate (%)				
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	Spike	Result	Rec (%)	<u>CL</u>	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



Blank ID: MB for HBN 1823607 [VXX/37587]

Blank Lab ID: 1628353

QC for Samples: 1214737005

Matrix: Water (Surface, Eff., Ground)

### 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 Prep Batch: VXX37587
Analytical Method: AK101 Prep Method: SW5030B

Instrument: Agilent 7890A PID/FID Prep Date/Time: 8/5/2021 6:00:00AM

Analyst: MDT Prep Initial Wt./Vol.: 5 mL Analytical Date/Time: 8/5/2021 10:47:00AM Prep Extract Vol: 5 mL



Blank Spike ID: LCS for HBN 1214737 [VXX37587]

Blank Spike Lab ID: 1628354 Date Analyzed: 08/05/2021 11:40

QC for Samples: 1214737005 Spike Duplicate ID: LCSD for HBN 1214737

[VXX37587]

Spike Duplicate Lab ID: 1628355 Matrix: Water (Surface, Eff., Ground)

### Results by AK101

		Blank Spike	e (mg/L)	5	Spike Dupli	cate (mg/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.991	99	1.00	1.09	109	(60-120)	9.10	(< 20 )
Commo moto o									

# **Surrogates**

0.0500 4-Bromofluorobenzene (surr) 0.0500 99 104 (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



Blank ID: MB for HBN 1823608 [VXX/37588]

Blank Lab ID: 1628356

QC for Samples:

1214737001, 1214737002, 1214737003, 1214737004

Matrix: Water (Surface, Eff., Ground)

### 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 Prep Batch: VXX37588
Analytical Method: AK101 Prep Method: SW5030B

Instrument: Agilent 7890A PID/FID Prep Date/Time: 8/5/2021 6:00:00AM

Analyst: MDT Prep Initial Wt./Vol.: 5 mL Analytical Date/Time: 8/6/2021 12:11:00AM Prep Extract Vol: 5 mL



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)

1214737001, 1214737002, 1214737003, 1214737004 QC for Samples:

### Results by AK101

		Blank Spike	e (mg/L)	5	Spike Dupli	cate (mg/L)			
<u>Parameter</u>	Spike	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.998	100	1.00	1.02	102	(60-120)	2.30	(< 20 )
0									

### **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



Blank ID: MB for HBN 1823791 [VXX/37606]

Blank Lab ID: 1628874

QC for Samples:

1214737002, 1214737003, 1214737004

Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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



Blank ID: MB for HBN 1823791 [VXX/37606]

Blank Lab ID: 1628874

QC for Samples:

1214737002, 1214737003, 1214737004

Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

Parameter	Results	LOQ/CL	<u>DL</u>	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		%



Blank ID: MB for HBN 1823791 [VXX/37606]

Blank Lab ID: 1628874

QC for Samples:

1214737002, 1214737003, 1214737004

Matrix: Water (Surface, Eff., Ground)

### Results by SW8260D

<u>Parameter</u> <u>Results</u> <u>LOQ/CL</u> <u>DL</u> <u>Units</u>

#### **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



### Leaching Blank

Blank ID: LB for HBN 1823225 [TCLP/11308

Blank Lab ID: 1626662

QC for Samples:

1214737002, 1214737003, 1214737004

Matrix: Water (Surface, Eff., Ground)

# Results by SW8260D

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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



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	e (ug/L)		Spike Dupli	cate (ug/L)			
<u>Parameter</u>	<u>Spike</u>	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 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	e (ug/L)		Spike Dupli	cate (ug/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	Result	Rec (%)	<u>CL</u>	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 )



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 Spik	ke (%)		Spike Dup	licate (%)			
<u>Parameter</u>	<u>Spike</u>	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



Blank ID: MB for HBN 1823335 [XXX/45294]

Blank Lab ID: 1627216

QC for Samples:

1214737001, 1214737002, 1214737003

Matrix: Water (Surface, Eff., Ground)

# Results by 8270D SIM LV (PAH)

<u>Parameter</u>	Results	LOQ/CL	<u>DL</u>	<u>Units</u>
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 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	e (ug/L)	;	Spike Dupli	cate (ug/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1823369 [XXX/45297]

Blank Lab ID: 1627333

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

Matrix: Water (Surface, Eff., Ground)

**Surrogates** 

5a Androstane (surr) 95.5 60-120 %

**Batch Information** 

Analytical Batch: XFC16037 Prep Batch: XXX45297
Analytical Method: AK102 Prep Method: SW3520C

Instrument: Agilent 7890B R Prep Date/Time: 8/2/2021 4:27:41PM

Analyst: IVM Prep Initial Wt./Vol.: 250 mL Analytical Date/Time: 8/9/2021 11:38:00AM Prep Extract Vol: 1 mL



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)

1214737001, 1214737002, 1214737003, 1214737004, 1214737006, 1214737007 QC for Samples:

### Results by AK102

		Blank Spike	(mg/L)	5	Spike Dupli	cate (mg/L)			
<u>Parameter</u>	<u>Spike</u>	Result	Rec (%)	<u>Spike</u>	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



Blank ID: MB for HBN 1823369 [XXX/45297]

Blank Lab ID: 1627333

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

Matrix: Water (Surface, Eff., Ground)

**Surrogates** 

n-Triacontane-d62 (surr) 107 60-120 %

**Batch Information** 

Analytical Batch: XFC16037 Prep Batch: XXX45297
Analytical Method: AK103 Prep Method: SW3520C

Instrument: Agilent 7890B R Prep Date/Time: 8/2/2021 4:27:41PM

Analyst: IVM Prep Initial Wt./Vol.: 250 mL Analytical Date/Time: 8/9/2021 11:38:00AM Prep Extract Vol: 1 mL



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	e (mg/L)	5	Spike Dupli	cate (mg/L)			
<u>Parameter</u>	<u>Spike</u>	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

SHANNON & WILSO GEOTECHNICAL AND ENVIRONMENTAL OF 2355 HIII ROAD FAIrbanks, AK 99709	DN, INC.	СНА	IN-OF-	CUS	TOD			RD	P	_aboratory <b>S</b> Attn:	Page_ <u>6</u> \$ No	1 of 1 ctcAmerica
(907) 479-0600 www.shannonwilson.com			مجلته و ا				1473	7	le preser	rvative if used)	/	7
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Ongoing Project? Yes No	Temp:		1 7 7	Nadel	<del> </del>	Comp	nany.			Company:		
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Not	es:		CONTRACTOR DESCRIPTION OF THE PROPERTY OF THE	eived By	ETHERUS JEHOTE HIS SON PERSONNELLEN		Receiv	ved By:	2.	Re	ceived By	/; 3.
D			Signature:		Time:	Signa	ature:	- -	Time:	Signature:		Time: 15,65
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Distribution: White - w/shipment - returned Yellow - w/shipment - for cons Pink - Shannon & Wilson - job	signee files	n w/ laboratory re	eport Company:			Comp	pany:			Company:	12	
*TB IN SOME	cooler as	sample	S						4.1	)52 Alex	No.	

Page 59 of 63

027 DLG 7664 9145 Not Negotiable Shipper's Account Number 27442311496 Shipper's Name and Address Shannon and Wilson Inc Air Waybill Customer's ID Number 10925 5430 Fairbanks Street Issued By Suite 3 Anchorage, AK 99518 P.O. BOX 68900 SEATTLE, WA 98168 800-225-2752 ALASKACARGO.COM USA Tel: 907-561-2120 Also notify Consignee's Name and Address 27400215947 SGS North America 200 W Potter Drive Anchorage, AK 99518 USA Tel: Tel: 907-562-2343 10925 Accounting Information Issuing Carrier's Agent and City Shannon and Wilson Inc. 5430 Fairbanks Street Anchorage, AK 99518 Agent's IATA Code ccount No. USA Airport of Departure (Addr. of First Carrier) and Requested Routing GoldStreak Dillingham Declared Value For Carriage Declared Value For Customs WT/VAL Other To / By Currency NVD NCV ANC Alaska Airlines usd Þx light/Date Amount of Insurance Flight/Date Airport of Destination AS 2114/30 XXX Anchorage Handling Information STORE IN COOLER WHEN POSSIBLE SCI Nature and Quantity of Goods (Incl. Dimensions or Volume) Chargeable Weight Rate / Gross Weight Commodity Total Charge Pieces WATER SAMPLES AS AGREED 44.0 44.0 Dims: 26 x 13 x14 x 1 GSX COL AS AGREED Volume: 2.738 44.0 1 Collect Other Charges Weight Charge Prepaid AS AGREED **XBC** 10.00 Valuation Charge Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment Total Other Charges Due Agent 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. Signature of Shipper or his Agent Total Other Charges Due Carrier For: Shannon and Wilson Inc HIS SHIPMENT <u>DOES NOT</u> CONTAIN DANGEROUS GOODS HIS SHIPMENT DOES CONTAIN ANGEROUS GOODS Total Prepaid -Total Collect AS AGREED Alaska Airlines Dillingham 11:00 30 Jul 2021 at (Place) Signature of Issuing Carrier or its Agent Executed On (Date) 027-7664 9145

# Alert Expeditors Inc.

#413948

Citywide Delivery • 440-3351 8421 Flamingo Drive • Anchorage, Alaska 99502

From			
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Collect □	Prepay □	Advance Charges D	]
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Received By:		Page 60 of 63	



e-Sample Receipt Form

SGS Workorder #:

1214737

1214737

Review Criteria	Condition (Yes,						
Chain of Custody / Temperature Requi			N/A	Exemption pe	rmitted if samp	ler hand carries/deliv	vers.
Were Custody Seals intact? Note # &	location Yes	1F					
COC accompanied sa	amples? Yes						
DOD: Were samples received in COC corresponding							
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		Cooler		1	@	4.1 °O Therm. ID:	D52
Tomporatare starik compilarit (i.e., c c c and	01 01 /1	Cooler	_		@	°C Therm. ID:	
If samples received without a temperature blank, the "cooler temperature" wil	II be	Cooler			@	°C Therm. ID:	
documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "ch			_				
be noted if neither is available.		Cooler	_		@	°C Therm. ID:	
*** 000	0	Cooler	D:		@	°C Therm. ID:	
*If >6°C, were samples collected <8 hours	s ago? N/A						
If <0°C, were sample containers ice	e free? N/A						
Note: Identify containers received at non-compliant tempe							
Use form FS-0029 if more space is n	needed.						
Holding Time / Documentation / Sample Condition R	equirements	Note: Ref	er to fo	orm F-083 "Samp	le Guide" for spe	cific holding times.	
Were samples received within holding	g time? Yes						
	<u></u>						
Do samples match COC** (i.e.,sample IDs,dates/times colle	ected)? Yes						
**Note: If times differ <1hr, record details & login per C							
***Note: If sample information on containers differs from COC, SGS will default to							
Were analytical requests clear? (i.e., method is specified for an	nalvses Yes						
with multiple option for analysis (Ex: BTEX,							
	,						
			NI/A	***Everenties	narmittad for n	netals (e.g,200.8/602	20.4.)
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	*\aad0	Sample	N/A				<u>:UA).</u>
Were proper containers (type/mass/volume/preservative***	)used?	Sample	4 wa	s received wit	II 2 VOAS IOI	voc.	
Valatila / I I Um Daa	irama::1-						
Volatile / LL-Hg Rec							
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with sa							
Were all water VOA vials free of headspace (i.e., bubbles ≤							
Were all soil VOAs field extracted with MeOH	I+BFB? N/A						
Note to Client: Any "No", answer above indicates no	on-compliance	with stan	dard	procedures and	d may impact d	ata quality.	
\ dditions	al notes (if a	nnlicah	اما.				
Additions	ai iiules (il a	ppiicab	ic).				



# **Sample Containers and Preservatives**

Container Id	<u>Preservative</u>	Container Condition	Container Id	<u>Preservative</u>	<u>Container</u> <u>Condition</u>
1214737001-A	HCL to pH < 2	ОК			
1214737001 A	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 E	HCL to pH < 2	OK			
1214737001 T	HCL to pH < 2	OK			
1214737001 G	HCL to pH < 2	OK			
1214737001-I	HCL to pH < 2	OK			
1214737001 1 1214737001-J	HCL to pH < 2	OK			
1214737001 3 1214737002-A	HCL to pH < 2	OK			
1214737002 A	HCL to pH < 2	OK			
1214737002-C	No Preservative Required	OK			
1214737002-D	No Preservative Required	OK			
1214737002 B	HCL to pH < 2	OK			
1214737002 E 1214737002-F	HCL to pH < 2	OK			
1214737002 T	HCL to pH < 2	OK			
1214737002 G	HCL to pH < 2	OK			
1214737002-I	HCL to pH < 2	OK			
1214737002 I	HCL to pH < 2	OK			
1214737002 5	HCL to pH < 2	OK			
1214737003 A	HCL to pH < 2	OK			
1214737003 B	No Preservative Required	OK			
1214737003 C	No Preservative Required	OK			
1214737003 E	HCL to pH < 2	OK			
1214737003 E	HCL to pH < 2	OK			
1214737003 T	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-В	HCL to pH < 2	OK			
1214737005-C	HCL to pH < 2	OK			
1214737005-D	HCL to pH < 2	OK			
1214737005-Е	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	ОК			

<u>Container Id Preservative Container Id Preservative Container Id Cont</u>

#### **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	

1	1214737
Labo	oratory Report Date:
A	August 25, 2021
CS S	Site Name:
Ι	Dillingham DOT&PF
ľ	Note: Any N/A or No box checked must have an explanation in the comments box.
1. <u>I</u>	Laboratory
	a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	The samples were not transferred to a network laboratory.
2. <u>c</u>	Chain of Custody (CoC)
	a. CoC information completed, signed, and dated (including released/received by)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	Tese Not NAL Comments.
	b. Correct analyses requested?
	Yes⊠ No□ N/A□ Comments:
	TESM NOU N/AU Comments.
э т	Calamata and Camarla Basacina Danama antation
3. <u>I</u>	Laboratory Sample Receipt Documentation
	a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
	$Yes \boxtimes No \square N/A \square$ Comments:
	b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
	Yes⊠ No□ N/A□ Comments:

	1214737		
Lał	poratory Report Date:		
	August 25, 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 except that "Sample 4" ( <i>DLG-MW12-40</i> ) 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.?		
	$Yes \square No \square N/A \boxtimes Comments:$		
	No discrepancies were identified by the laboratories.		
	e. Data quality or usability affected?		
	Comments:		
	Data quality/usability is not affected; see above.		
	4. <u>Case Narrative</u>		
	a. Present and understandable?		
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:		
	b. Discrepancies, errors, or QC failures identified by the lab?		
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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.

	1214737		
Lab	poratory Report Date:		
	August 25, 2021		
CS	Site Name:		
	Dillingham DOT&PF		
5.	Samples Results		
	a. Correct analyses performed/reported as requested on COC?		
	$Yes \boxtimes No \square N/A \square$ Comments:		
	b. All applicable holding times met?		
	$Yes \boxtimes No \square N/A \square$ Comments:		
	c. All soils reported on a dry weight basis?		
	$Yes \square No \square N/A \boxtimes Comments:$		
	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?		
	$Yes \boxtimes No \square N/A \square$ Comments:		
	Teses Two Twite Comments.		

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<ul> <li>ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?</li> <li>Yes□ No⊠ N/A□ Comments:</li> </ul>
The method blank associated with preparatory batch XXX45294 detected a concentration of phenanthrene below the LOQ. Due to this method blank detection the sample <i>EB-MW14-50</i> 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.
<ul> <li>b. Laboratory Control Sample/Duplicate (LCS/LCSD)</li> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
LCS/LCSD pairs were reported for methods AK101, AK102, AK103, SW8260D, and 8270D SIM (PAH).
<ul> <li>ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
Metals/Inorganics analyses were not requested with this work order.
<ul> <li>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)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>

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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:
Tese Not NAT 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 $\square$ No $\square$ N/A $\boxtimes$ 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.
<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> </ul>
$Yes \square No \square N/A \boxtimes Comments:$
MS/MSD sample pairs were not reported for this work order.
<ul><li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li><li>Yes□ No□ N/A⊠ Comments:</li></ul>
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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<ul> <li>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.</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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 $\square$ No $\square$ N/A $\boxtimes$ 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
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
$Yes \boxtimes No \square N/A \square$ 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

results are considered estimated, flagged 'UJ' on the associated analytical table.

DLG-MW14-50. None of the associated analytes are detected in the sample; therefore, the not detected

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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 <i>DLG-MW14-50</i> are considered affected:  • 1-Methylnaphthalene
• 2-Methylnaphthalene
Acenaphthene
• Acenaphthylene
<ul><li>Anthracene</li><li>Fluorene</li></ul>
Naphthalene
• Phenanthrene
iv. Data quality or usability affected?  Comments:
The data quality/usability is affected; see above.
e. Trip Blanks
<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)</li> </ul>
Yes⊠ No□ N/A□ Comments:
<ul><li>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)</li></ul>
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?
$Yes \boxtimes No \square N/A \square$ Comments:
ii. Submitted blind to lab?  Yes⊠ No□ N/A□ Comments:  The field duplicate samples <i>DLG-MW14-50/DLG-MW14-150</i> and <i>DLG-MW11-34/DLG-MW111-34</i> 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)?
$Yes \boxtimes No \square N/A \square$ Comments:
EB-MW14-50 was submitted with this work order.

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	ts less than LOQ Io□ N/A□	and project specified object Comments:	ives?	
	-MW14-50. The	), RRO, and toluene were det phenanthrene detection is co		
Project samples a equipment blank		<i>DLG-MW14-150</i> , and <i>DLG-</i>	MW12-40 are associate	ed with the
		OQ in project sample <i>DLG-M</i> 'UB' at the LOQ.	W12-40. The DRO rest	ult is considered
No other analyte qualifications are		equipment blank were detect data.	ted in the affected samp	oles; therefore, no
ii. If above	LOQ or project	specified objectives, what sa Comments:	imples are affected?	
Project sample D	<i>LG-MW12-</i> 40 is	affected; see above.		
iii. Data qu	ality or usability	affected? Comments:		
Data usability is	not affected.			
7. Other Data Flags/Qu	alifiers (ACOE,	AFCEE, Lab Specific, etc.)		
a. Defined and	appropriate?			
Yes□ N	Io□ N/A⊠	Comments:		
No additional da	ta flags/qualifier	s are required.		

Page 10 May 2020



# **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

Jamil altimo

Authorized for release by: 7/29/2021 2:26:23 PM

David Alltucker, Project Manager I (916)374-4383

David.Alltucker@Eurofinset.com

·····LINKS ······

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Shannon & Wilson, Inc Project/Site: Dilling ham Quarterly Laboratory Job ID: 320-75676-1

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### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

#### **Qualifiers**

#### **LCMS**

Qualifier **Qualifier Description** 

Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

#### **Glossary**

Appreviation	These commonly used appreviations 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

Duplicate Error Ratio (normalized absolute difference) DER

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)

Estimated Detection Limit (Dioxin) **EDL** 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 MLMinimum Level (Dioxin) MPN Most Probable Number Method Quantitation Limit MQL

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** 

Relative Error Ratio (Radiochemistry) **RER** 

Reporting Limit or Requested Limit (Radiochemistry) RL

**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 5.6° 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.

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Client: Shannon & Wilson, Inc Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

Client Sample ID: 191290

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

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

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	56	1.9	0.49	ng/L		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

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	21		1.9	0.48	ng/L		_	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

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

Analyte	Result Qualifier	RL	MDL Unit	Dil Fac D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	5.5	2.1	0.53 ng/L		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)	29	21	0.53 ng/l	1	537 1 DW	Total/NA

This Detection Summary does not include radiochemical test results.

7/29/2021 (Rev. 1)

Lab Sample ID: 320-75676-1

Lab Sample ID: 320-75676-2

Lab Sample ID: 320-75676-3

Lab Sample ID: 320-75676-4

Lab Sample ID: 320-75676-5

Lab Sample ID: 320-75676-6

Job ID: 320-75676-1

Client: Shannon & Wilson, Inc Project/Site: Dilling ham Quarterly

Client Sample ID: 191090 Lab Sample ID: 320-75676-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac [	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 Q	ualifier	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

Lab Sample ID: 320-75676-10 Client Sample ID: 172190

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 Lab Sample ID: 320-75676-1

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100

13C2 PFDA

d5-NEtFOSAA

13C3 HFPO-DA

Date Collected: 06/27/21 11:31 Matrix: Water
Date Received: 07/01/21 15:25

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 10:47	1
11-Chloroeicosafluoro-3-oxaundecan e-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

70 - 130

70 - 130

70 - 130

07/07/21 16:26 07/10/21 10:47

07/07/21 16:26 07/10/21 10:47

07/07/21 16:26 07/10/21 10:47

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15

Client: Shannon & Wilson, Inc Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

Date Received: 07/01/21 15:25

Client Sample ID: 291050 Lab Sample ID: 320-75676-2 Date Collected: 06/27/21 12:20

**Matrix: Water** 

Analyte	Result Qualif	ier 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND	1.9	0.47	ng/L		07/07/21 16:26	07/09/21 15:01	1
11-Chloroeicosafluoro-3-oxaundecan e-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 Qualif	ier Limits				Prepared	Analvzed	Dil Fac

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 Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

Client Sample ID: 191050 Lab Sample ID: 320-75676-3

Date Collected: 06/27/21 12:25

Date Received: 07/01/21 15:25

Matrix: Water

Method: 537.1 DW - Perfluorin Analyte	•	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.49	ng/L		07/07/21 16:26	07/10/21 10:54	1
11-Chloroeicosafluoro-3-oxaundecan e-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

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 HEPO-DA	99	70 - 130	07/07/21 16:26	07/10/21 10:54	1

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4 E

Client: Shannon & Wilson, Inc Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

13C2 PFHxA

13C2 PFDA

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-75676-4 Client Sample ID: 191741

Date Collected: 06/27/21 13:43 **Matrix: Water** Date Received: 07/01/21 15:25

Analyte	Result Qualif	ier 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND	1.9	0.48	ng/L		07/07/21 16:26	07/09/21 15:16	1
11-Chloroeicosafluoro-3-oxaundecan e-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 Qualif	ier Limits				Prepared	Analyzed	Dil Fac

70 - 130

70 - 130

70 - 130

70 - 130

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123

Eurofins TestAmerica, Sacramento

07/07/21 16:26 07/09/21 15:16

07/07/21 16:26 07/09/21 15:16

07/07/21 16:26 07/09/21 15:16

07/07/21 16:26 07/09/21 15:16

Client: Shannon & Wilson, Inc Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-75676-5 Client Sample ID: 191170

Date Collected: 06/27/21 15:15 **Matrix: Water** Date Received: 07/01/21 15:25

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		2.0	0.49	ng/L		07/07/21 16:26	07/10/21 11:02	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-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

70 - 130

70 - 130

104

97

07/07/21 16:26 07/10/21 11:02

07/07/21 16:26 07/10/21 11:02

Client: Shannon & Wilson, Inc Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

Client Sample ID: 191280

Date Collected: 06/27/21 16:02 Date Received: 07/01/21 15:25

_ab	Sample	ID: 320-7	5676-6
		Matri	x: Water

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		2.1	0.53	ng/L		07/07/21 16:26	07/09/21 15:32	1
11-Chloroeicosafluoro-3-oxaundecan e-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
12C2 DEUVA	101		70 120				07/07/21 16:26	07/00/21 15:22	

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 Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

Client Sample ID: 191090

Lab Sample ID: 320-75676-7 Date Collected: 06/27/21 16:48

**Matrix: Water** Date Received: 07/01/21 15:25

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/10/21 11:10	1
11-Chloroeicosafluoro-3-oxaundecan e-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

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 Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

Date Received: 07/01/21 15:25

Client Sample ID: 200310 Lab Sample ID: 320-75676-8 Date Collected: 06/27/21 17:34

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/10/21 11:17	1
11-Chloroeicosafluoro-3-oxaundecan e-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 Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

d5-NEtFOSAA

13C3 HFPO-DA

Client Sample ID: 191320 Lab Sample ID: 320-75676-9

Date Collected: 06/28/21 15:37 **Matrix: Water** Date Received: 07/01/21 15:25

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	88		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluoroheptanoic acid (PFHpA)	15		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorooctanoic acid (PFOA)	3.4		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorononanoic acid (PFNA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorotridecanoic acid (PFTriA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorobutanesulfonic acid (PFBS)	23		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorohexanesulfonic acid (PFHxS)	9.7		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF	ND		1.9	0.48			07/07/21 16:26	07/09/21 16:33	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
l,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:33	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	118		70 - 130				07/07/21 16:26	07/09/21 16:33	
13C2 PFDA	119		70 - 130				07/07/21 16:26	07/09/21 16:33	
JE NEJEOOAA			70 100				07/07/04 40 00	07/00/04 40 00	

70 - 130

70 - 130

98

111

07/07/21 16:26 07/09/21 16:33

07/07/21 16:26 07/09/21 16:33

Client: Shannon & Wilson, Inc Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

d5-NEtFOSAA

13C3 HFPO-DA

Client Sample ID: 172190 Lab Sample ID: 320-75676-10

Date Collected: 06/28/21 17:02 Matrix: Water Date Received: 07/01/21 15:25

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.47	ng/L		07/07/21 16:26	07/09/21 16:41	1
11-Chloroeicosafluoro-3-oxaundecan e-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

70 - 130

70 - 130

116

120

2

3

5

7

9

11

12

14

15

07/07/21 16:26 07/09/21 16:41

07/07/21 16:26 07/09/21 16:41

Client: Shannon & Wilson, Inc Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

13C3 HFPO-DA

Lab Sample ID: 320-75676-11 Client Sample ID: 172245

Date Collected: 06/28/21 18:07 **Matrix: Water** Date Received: 07/01/21 15:25

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-PF	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		07/07/21 16:26	07/09/21 16:49	•
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	125		70 - 130				07/07/21 16:26	07/09/21 16:49	
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	

70 - 130

122

07/07/21 16:26 07/09/21 16:49

### **Surrogate Summary**

Client: Shannon & Wilson, Inc Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

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

			P	ercent Surro	ogate Reco
		PFHxA	PFDA	d5NEFOS	HFPODA
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(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

PFHxA = 13C2 PFHxA PFDA = 13C2 PFDA d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

Client: Shannon & Wilson, Inc Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

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** 

	MB				_			
	Qualifier				<u>D</u>			Dil Fac
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
ND		2.0	0.50	ng/L		07/07/21 16:26	07/09/21 14:45	1
	Result  ND ND ND ND ND ND ND ND ND ND ND ND ND	Result Qualifier  ND ND ND ND ND ND ND ND ND ND ND ND ND	Result         Qualifier         RL           ND         2.0           ND         2.0	Result         Qualifier         RL         MDL           ND         2.0         0.50           ND         2.0         0.50	Result         Qualifier         RL         MDL         Unit           ND         2.0         0.50         ng/L           ND <t< td=""><td>Result         Qualifier         RL         MDL         Unit         D           ND         2.0         0.50         ng/L         ng/L           ND         2.0         0.50         ng/L     <td>Result         Qualifier         RL         MDL         Unit         D         Prepared           ND         2.0         0.50         ng/L         07/07/21 16:26           ND         2.0         0.50         ng/L</td><td>Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed           ND         2.0         0.50         ng/L         07/07/21 16:26         07/09/21 14:45           ND         2.0         0.50         ng/L         07/07/21 16:26         07/09/21 14:45</td></td></t<>	Result         Qualifier         RL         MDL         Unit         D           ND         2.0         0.50         ng/L         ng/L           ND         2.0         0.50         ng/L <td>Result         Qualifier         RL         MDL         Unit         D         Prepared           ND         2.0         0.50         ng/L         07/07/21 16:26           ND         2.0         0.50         ng/L</td> <td>Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed           ND         2.0         0.50         ng/L         07/07/21 16:26         07/09/21 14:45           ND         2.0         0.50         ng/L         07/07/21 16:26         07/09/21 14:45</td>	Result         Qualifier         RL         MDL         Unit         D         Prepared           ND         2.0         0.50         ng/L         07/07/21 16:26           ND         2.0         0.50         ng/L	Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed           ND         2.0         0.50         ng/L         07/07/21 16:26         07/09/21 14:45           ND         2.0         0.50         ng/L         07/07/21 16:26         07/09/21 14:45

MB MB

Surrogate	%Recovery	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** 

Alialysis Datell. 303342							Tiep Daten. 304000
	Spike	LLCS	LLCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%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

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc
Project/Site: Dilling ham Quarterly

Job ID: 320-75676-1

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 Type: Total/NA Prep Batch: 504888

-	Spike	LLCS	LLCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	4.00	4.19		ng/L		105	50 - 150	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	4.00	4.01		ng/L		100	50 - 150	
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid (9CI-PF3O	3.73	3.57		ng/L		96	50 - 150	
11-Chloroeicosafluoro-3-oxaund ecane-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	

LLCS LLCS

Surrogate	%Recovery	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** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 504888

Analysis Batch: 505342 **RPD** Spike LLCSD LLCSD %Rec. Analyte Added Result Qualifier Unit %Rec Limits **RPD** Limit Perfluorohexanoic acid (PFHxA) 4.00 4.64 50 - 150 2 50 ng/L 116 Perfluoroheptanoic acid (PFHpA) 4.00 4.75 50 - 150 2 50 ng/L 119 4.00 Perfluorooctanoic acid (PFOA) 4.52 50 - 150 50 ng/L 113 5 Perfluorononanoic acid (PFNA) 4.00 4.47 ng/L 112 50 - 150 50 Perfluorodecanoic acid (PFDA) 4.00 4.52 ng/L 113 50 - 150 6 50 Perfluoroundecanoic acid 4.00 4.49 ng/L 112 50 - 150 50 (PFUnA) Perfluorododecanoic acid 4.00 4.48 ng/L 112 50 - 150 50 (PFDoA) 4.00 4.36 109 Perfluorotridecanoic acid 50 - 150 50 ng/L (PFTriA) Perfluorotetradecanoic acid 4.00 4.30 ng/L 107 50 - 150 0.7 50 (PFTeA) 3.54 3.54 100 Perfluorobutanesulfonic acid ng/L 50 - 150 50 (PFBS) Perfluorohexanesulfonic acid 3.64 3.69 ng/L 101 50 - 150 50 (PFHxS) 3.71 3.80 Perfluorooctanesulfonic acid ng/L 102 50 - 150 50 (PFOS) N-methylperfluorooctanesulfona 4.00 3.92 ng/L 98 50 - 150 50 midoacetic acid (NMeFOSAA) 4.00 3.82 ng/L N-ethylperfluorooctanesulfonami 96 50 - 150 5 50 doacetic acid (NEtFOSAA) 3.73 3.66 50 9-Chlorohexadecafluoro-3-oxan ng/L 50 - 150 onane-1-sulfonic acid (9CI-PF3O

Eurofins TestAmerica, Sacramento

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# **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-75676-1

Project/Site: Dilling ham Quarterly

13C2 PFHxA

d5-NEtFOSAA

13C3 HFPO-DA

13C2 PFDA

### Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

119

112

109

111

Lab Sample ID: LLCSD 32 Matrix: Water Analysis Batch: 505342	:0-504888/3-A	1			(	Client S	ample	ID: Lat	Control : Prep Ty Prep Ba	pe: Tot	al/NA
-			Spike	LLCSD	LLCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
11-Chloroeicosafluoro-3-oxaund ecane-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
	LLCSD L	LLCSD									
Surrogate	%Recovery (	Qualifier	Limits								

70 - 130

70 - 130

70 - 130

70 - 130

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# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-75676-1 Project/Site: Dilling ham Quarterly

### 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

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Client: Shannon & Wilson, Inc Project/Site: Dilling ham Quarterly

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** 

Dil Initial Batch Batch Batch Final Prepared Method Number or Analyzed **Prep Type** Type Run **Factor Amount** Amount Analyst Lab 537.1 DW 268.3 mL 504888 07/07/21 16:26 EH TAL SAC Total/NA Prep 1.0 mL 07/10/21 10:47 D1R Total/NA 537.1 DW 505555 TAL SAC Analysis 1

Client Sample ID: 291050 Lab Sample ID: 320-75676-2

Date Collected: 06/27/21 12:20 Matrix: Water

Date Received: 07/01/21 15:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-75676-3

Date Collected: 06/27/21 12:25 Matrix: Water

Date Received: 07/01/21 15:25

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-75676-4

Date Collected: 06/27/21 13:43

Matrix: Water

Date Received: 07/01/21 15:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-75676-5

Matrix: Water

Date Received: 07/01/21 15:25

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-75676-6

Matrix: Water

Date Received: 07/01/21 15:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Eurofins TestAmerica, Sacramento

Job ID: 320-75676-1

Client: Shannon & Wilson, Inc Project/Site: Dilling ham Quarterly

Client Sample ID: 191090 Lab Sample ID: 320-75676-7 Date Collected: 06/27/21 16:48

**Matrix: Water** 

Date Received: 07/01/21 15:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-75676-8 Client Sample ID: 200310

Date Collected: 06/27/21 17:34 **Matrix: Water** 

Date Received: 07/01/21 15:25

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-75676-9

Date Collected: 06/28/21 15:37 **Matrix: Water** 

Date Received: 07/01/21 15:25

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 **Lab Sample ID: 320-75676-10** Date Collected: 06/28/21 17:02 **Matrix: Water** 

Date Received: 07/01/21 15:25

	Batch	Batch	_	Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-75676-11 **Matrix: Water** 

Date Collected: 06/28/21 18:07 Date Received: 07/01/21 15:25

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

Eurofins TestAmerica, Sacramento

# **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.

uthority aska (UST)		Program	Identification Number	Expiration Date 02-20-24		
		State	17-020			
The following analyte the agency does not o		report, but the laboratory is r	not certified by the governing authority.	This list may include analytes for whic		
Analysis Method	Prep Method	Matrix	Analyte			
537.1 DW	537.1 DW	Water	11-Chloroeicosafluoro-3-oxa ulfonic acid (11Cl-PF	undecane-1-s		
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-s ulfonic 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-methylperfluorooctanesulf acid (NMeFOSAA)	fonamidoacetic		
537.1 DW	537.1 DW	Water	Perfluorobutanesulfonic acid (PFBS)			
537.1 DW	537.1 DW	Water	Perfluorodecanoic acid (PFD	DA)		
537.1 DW	537.1 DW	Water	Perfluorododecanoic acid (P	PFDoA)		
537.1 DW	537.1 DW	Water	Perfluoroheptanoic acid (PF	HpA)		
537.1 DW	537.1 DW	Water	Perfluorohexanesulfonic acid	d (PFHxS)		
537.1 DW	537.1 DW	Water	Perfluorohexanoic acid (PFF	HxA)		
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 (Pf	FTriA)		
537.1 DW	537.1 DW	Water	Perfluoroundecanoic acid (P	PFUnA)		

Eurofins TestAmerica, Sacramento

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# **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

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## **Sample Summary**

Client: Shannon & Wilson, Inc Project/Site: Dilling ham Quarterly

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
20-75676-7	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

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Job ID: 320-75676-1

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**CHAIN-OF-CUSTODY RECORD** 

7/29/2021 (Rev. 1)

Trizma

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report

Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file

SHANNON & WILSON, INC.

Lot # 1951007°

1 SLCD 7801

Company:

DSLB26597

Laboratory

No. 36424













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7/29/2021 (Rev. 1)

Client: Shannon & Wilson, Inc

Job Number: 320-75676-1

Login Number: 75676

List Source: Eurofins TestAmerica, Sacramento

List Number: 1 Creator: Her, David A

Creator. Her, David A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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. <u>Laboratory</u>
<ul> <li>a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
Analyses were performed by TestAmerica Laboratories, Inc. in West Sacramento, CA.
2. <u>Chain of Custody (CoC)</u>
a. CoC information completed, signed, and dated (including released/received by)?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
b. Correct analyses requested?
Yes⊠ No□ N/A□ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
<ul> <li>a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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.

320-75676-1 Rev1
Laboratory Report Date:
July 29, 2021
CS Site Name:
Dillingham DOT&PF PFAS
<ul> <li>c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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. <u>Case Narrative</u>
a. Present and understandable?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
b. Discrepancies, errors, or QC failures identified by the lab?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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.

	320-75676-1 Rev1
Lab	oratory Report Date:
	July 29, 2021
CS	Site Name:
	Dillingham DOT&PF PFAS
	c. Were all corrective actions documented?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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?
	$Yes \boxtimes No \square N/A \square$ Comments:
	b. All applicable holding times met?
	$Yes \boxtimes No \square N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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.

	320-75676-1 Rev1
Lab	poratory Report Date:
	July 29, 2021
CS	Site Name:
	Dillingham DOT&PF PFAS
<u> </u>	OC Samulas
6.	<u>QC Samples</u>
	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)
	<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
	Yes⊠ No□ N/A□ Comments:
	ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
	Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:
	Metals and/or inorganics were not analyzed as part of this work order.

320-75676-1 Rev1
Laboratory Report Date:
July 29, 2021
CS Site Name:
Dillingham DOT&PF PFAS
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)
$Yes \boxtimes No \square N/A \square$ 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)
$Yes \boxtimes No \square N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:  See above.
vii. Data quality or usability affected? (Use comment box to explain.)  Comments:
The data quality and/or usability are not affected.
The data quality and of associaty 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 $\square$ No $\square$ N/A $\boxtimes$ 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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Dillingham DOT&PF PFAS	
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 are project specified objectives, if applicable?	ıd
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 laborat limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.	ory
Yes $\square$ No $\square$ N/A $\boxtimes$ 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 On	ly
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>	
Yes $\boxtimes$ No $\square$ N/A $\square$ 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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project specified obje	ent recoveries (%R) reported and within method or laboratory limits and ectives, if applicable? (AK Petroleum methods 50-150 %R for field %R for QC samples; all other analyses see the laboratory report pages)  Comments:
iii. Do the sample results flags clearly defined?	s with failed surrogate/IDA recoveries have data flags? If so, are the data
Yes□ No□ N/A⊠	
IDA recoveries were within l	aboratory limits for all reported samples.
iv. Data quality or usab	ility affected?  Comments:
The data quality and/or usabi	lity are not affected.
e. Trip Blanks	
<ul><li>i. One trip blank report (If not, enter explana</li></ul>	ed per matrix, analysis and for each cooler containing volatile samples? tion below.)
Yes□ No□ N/A⊠	Comments:
PFAS are not considered vola	atile compounds; therefore, a trip blank is not required.
	transport the trip blank and VOA samples clearly indicated on the COC? aplaining why must be entered below)
Yes□ No□ N/A⊠	Comments:
iii. All results less than I	LOQ and project specified objectives?
$Yes \square No \square N/A \boxtimes$	Comments:
iv. If above LOQ or pro	ject specified objectives, what samples are affected?  Comments:
None: a trip blank was not su	hmitted with this work order

320-75676-1 Rev1
Laboratory Report Date:
July 29, 2021
CS Site Name:
Dillingham DOT&PF PFAS
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?
$Yes \boxtimes No \square N/A \square$ Comments:
ii. Submitted blind to lab?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
Field duplicate pair 191050 / 291050 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 $R_1 = Sample Concentration$ $R_2 = Field Duplicate Concentration$
$Yes \boxtimes No \square N/A \square$ 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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Dillingham DOT&PF PFAS
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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?
$Yes \square No \square N/A \boxtimes Comments:$
No other flags or qualifications applied.



# **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

Jamil altima

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: Dillingham Laboratory Job ID: 320-76026-1

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#### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

#### **Qualifiers**

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Qualitier	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.
1	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

Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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)

MQL NC

MPN

Not Calculated

ND

Not Detected at the reporting limit (or MDL or EDL if shown)

Negative / Absent NEG POS Positive / Present

PQL Practical Quantitation Limit

**PRES** Presumptive QC **Quality Control** 

**RER** Relative Error Ratio (Radiochemistry)

Most Probable Number

Method Quantitation Limit

Reporting Limit or Requested Limit (Radiochemistry) RL

Relative Percent Difference, a measure of the relative difference between two points **RPD** 

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

**TNTC** Too Numerous To Count

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#### **Case Narrative**

Client: Shannon & Wilson, Inc

Project/Site: Dillingham

Job ID: 320-76026-1

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 3.8° 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) of preparation 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.

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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 F	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.094 J	0.21	0.032 ug/Kg	1 🌣 EPA 537(Mod) 1	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

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.10		0.24		ug/Kg		_	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** 

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.10	JI	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

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

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.079	J	0.22	0.046	ug/Kg		₩	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.

Eurofins TestAmerica, Sacramento

Lab Sample ID: 320-76026-6

Lab Sample ID: 320-76026-7

Lab Sample ID: 320-76026-8

Lab Sample ID: 320-76026-9

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## **Detection Summary**

		Detect	lion Sun	ııııaı y	1		
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		0.21		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		Qualifier	RL	MDL	Unit	Dil Fac D Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.064	J	0.20		ug/Kg	1	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	) <del>-76026-14</del>
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	) <del>-76026-18</del>
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		0.22		ug/Kg	1	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		Qualifier	RL		Unit	Dil Fac D Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.077		0.33		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

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## **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

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 [	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 ₃	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 Q	ualifier	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 Fa	c 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

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SB1-15.7-16.3

Lab Sample ID: 320-76026-1 Date Collected: 06/29/21 10:15 Date Received: 07/09/21 13:12

**Matrix: Solid** Percent Solids: 72.3

Analyte		Qualifier	RL		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.5	0.49	ug/Kg	₩	07/12/21 11:33	07/14/21 02:42	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	F1	2.5	0.46	ug/Kg			07/14/21 02:42	1
9-Chlorohexadecafluoro-3-oxanonan	ND	F1	0.25	0.034	ug/Kg	₩	07/12/21 11:33	07/14/21 02:42	1
e-1-sulfonic acid									
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.31		ug/Kg			07/14/21 02:42	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.25		ug/Kg			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
1802 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		D	Prepared	Analyzed	Dil Fac
Percent Moisture Percent Solids	27.7		0.1	0.1 0.1				07/13/21 13:45 07/13/21 13:45	1

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

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

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	0.21	0.043	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	2.1	0.40	ug/Kg	₽	07/12/21 11:33	07/14/21 03:10	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	2.1		ug/Kg	₩	07/12/21 11:33	07/14/21 03:10	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	0.21		ug/Kg			07/14/21 03:10	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	0.26		ug/Kg			07/14/21 03:10	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	0.21		ug/Kg			07/14/21 03:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.21	0.019	ug/Kg	<b>‡</b>	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 <sub>-</sub> 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 Percent Moisture	Result Qualifier	RL	MDL 0.1	Unit	D	Prepared	Analyzed 07/13/21 13:45	Dil Fac

7/22/2021

07/13/21 13:45

0.1

86.6

0.1 %

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

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

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		ug/Kg	₩	07/12/21 11:33	07/14/21 03:19	1
Perfluorohexanesulfonic acid	0.052	J	0.23		ug/Kg	₩	07/12/21 11:33	07/14/21 03:19	1
(PFHxS)					0 0				
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	₽	07/12/21 11:33	07/14/21 03:19	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg	₩	07/12/21 11:33	07/14/21 03:19	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	₩	07/12/21 11:33	07/14/21 03:19	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 03:19	1
13C3 PFBS	85		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 03:19	1
1802 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					07/14/21 03:19	1
d5-NEtFOSAA	78		50 - 150					07/14/21 03:19	
13C3 HFPO-DA	85		50 - 150					07/14/21 03:19	1
General Chemistry									
A a la ta	Pocult	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte Percent Moisture	16.5	Quanner	0.1	0.1			Fiepaieu	07/14/21 15:42	Diriac

07/14/21 15:42

0.1

83.5

0.1 %

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa	ND		2.0	0.40	ug/Kg	₽	07/12/21 11:33	07/14/21 03:29	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	₽	07/12/21 11:33	07/14/21 03:29	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	86		50 - 150				07/12/21 11:33	07/14/21 03:29	1
13C4 PFOS	91		50 <sub>-</sub> 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		Qualifier	RL	MDL		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	0/			07/14/21 15:42	1

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

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

Method: EPA 537(Mod) - PFAS		.J. Iable D	-10						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	3.9		0.27	0.056	ug/Kg	<u></u>	07/12/21 11:33	07/14/21 03:38	
Perfluoroheptanoic acid (PFHpA)	3.3		0.27	0.039	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorooctanoic acid (PFOA)	9.9		0.27	0.11	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorononanoic acid (PFNA)	15		0.27	0.048	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorodecanoic acid (PFDA)	0.18	J	0.27	0.029	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluoroundecanoic acid (PFUnA)	ND		0.27	0.048	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorododecanoic acid (PFDoA)	ND		0.27	0.089	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorotridecanoic acid (PFTriA)	ND		0.27	0.068	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorotetradecanoic acid (PFTeA)	ND		0.27	0.072	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
Perfluorobutanesulfonic acid (PFBS)	0.078	J	0.27	0.033	ug/Kg	₽	07/12/21 11:33	07/14/21 03:38	
Perfluorohexanesulfonic acid (PFHxS)	4.8		0.27	0.041	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.7	0.52	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.7		ug/Kg			07/14/21 03:38	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.27		ug/Kg			07/14/21 03:38	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.33		ug/Kg			07/14/21 03:38	
1-Chloroeicosafluoro-3-oxaundecan -1-sulfonic acid	ND		0.27		ug/Kg			07/14/21 03:38	
l,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		0.27	0.024	ug/Kg	₩	07/12/21 11:33	07/14/21 03:38	
sotope Dilution	%Recovery		Limits				Prepared	Analyzed	Dil F
13C2 PFHxA		*5+	50 - 150				07/12/21 11:33	07/14/21 03:38	
3C4 PFHpA	87		50 - 150				07/12/21 11:33	07/14/21 03:38	
3C4 PFOA	88		50 - 150				07/12/21 11:33	07/14/21 03:38	
13C5 PFNA	37	*5-							
			50 - 150				07/12/21 11:33	07/14/21 03:38	
13C2 PFDA	72		50 - 150 50 - 150						
	72 66						07/12/21 11:33	07/14/21 03:38	
13C2 PFUnA	66	*5-	50 - 150				07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA	66		50 <sub>-</sub> 150 50 <sub>-</sub> 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA	66 42 57		50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS	66 42 57	*5-	50 - 150 50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS	66 42 57 171	*5-	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS	66 42 57 171 99	*5-	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
3C2 PFUnA 3C2 PFDoA 3C2 PFTeDA 3C3 PFBS 8O2 PFHxS 3C4 PFOS 3-NMeFOSAA	66 42 57 171 99 57 56	*5-	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
3C2 PFUnA 3C2 PFDoA 3C2 PFTeDA 3C3 PFBS 8O2 PFHxS 3C4 PFOS  3-NMeFOSAA	66 42 57 171 99 57 56	*5- *5+	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS 13-NMeFOSAA 15-NEtFOSAA 13C3 HFPO-DA	66 42 57 171 99 57 56 43 118	*5- *5+ *5-	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150	MDL	Unit	 	07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	Dil F
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS 13-NMeFOSAA 15-NEtFOSAA 13C3 HFPO-DA  Method: EPA 537(Mod) - PFAS Analyte Perfluorooctanesulfonic acid	66 42 57 171 99 57 56 43 118	*5- *5+ *5-	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150		Unit ug/Kg		07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS 13-NMeFOSAA 13C3 HFPO-DA  Method: EPA 537(Mod) - PFAS Analyte Perfluorooctanesulfonic acid (PFOS)	66 42 57 171 99 57 56 43 118 for QSM 5 Result	*5- *5+ *5- <b>3, Table B</b> Qualifier	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150				07/12/21 11:33 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38 07/14/21 03:38	
13C2 PFDA 13C2 PFUnA 13C2 PFUnA 13C2 PFDOA 13C2 PFTEDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA 13C3 HFPO-DA  Method: EPA 537(Mod) - PFAS Analyte Perfluorooctanesulfonic acid (PFOS) Isotope Dilution 13C4 PFOS	66 42 57 171 99 57 56 43 118 for QSM 5 Result	*5- *5+ *5- <b>3, Table B</b> Qualifier	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 -15 - DL RL 6.7				07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 Prepared 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38	Dil F
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18C2 PFHxS 13C4 PFOS 13C4 PFOS 13C4 PFOS 13C5-NEtFOSAA 13C3 HFPO-DA  Method: EPA 537(Mod) - PFAS Analyte Perfluorooctanesulfonic acid (PFOS) Isotope Dilution 13C4 PFOS  General Chemistry	66 42 57 171 99 57 56 43 118 for QSM 5 Result 61 %Recovery	*5- *5-  *5- Qualifier  Qualifier	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 -15 - DL RL 6.7  Limits 50 - 150	2.7	ug/Kg		07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33  Prepared 07/12/21 11:33  Prepared 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38	Dil F
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA 13C3 HFPO-DA  Method: EPA 537(Mod) - PFAS Analyte Perfluorooctanesulfonic acid (PFOS) Isotope Dilution	66 42 57 171 99 57 56 43 118 for QSM 5 Result 61 %Recovery	*5- *5+ *5- <b>3, Table B</b> Qualifier	50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 50 - 150 -15 - DL RL 6.7	2.7	ug/Kg Unit		07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 07/12/21 11:33 Prepared 07/12/21 11:33	07/14/21 03:38 07/14/21 03:38	Dil Fa

Eurofins TestAmerica, Sacramento

07/14/21 15:42

Page 12 of 66

0.1

0.1 %

67.3

**Percent Solids** 

2

3

6

8

10

12

14

7/22/2021

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Moisture** 

**Percent Solids** 

Date Received: 07/09/21 13:12

Client Sample ID: SB3-10.0-11.0

Lab Sample ID: 320-76026-6 Date Collected: 07/06/21 12:27 **Matrix: Solid** 

**Percent Solids: 74.8** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.10	J	0.24	0.050	ug/Kg	<u></u>	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		ug/Kg	₩	07/12/21 11:33	07/14/21 03:48	1
Perfluorohexanesulfonic acid (PFHxS)	0.14	J	0.24		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.4		ug/Kg			07/14/21 03:48	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.4	0.44	ug/Kg	₩	07/12/21 11:33	07/14/21 03:48	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 03:48	1
13C4 PFOA	88		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 03:48	1
13C5 PFNA	83		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 03:48	1
13C2 PFDA	92		50 <sub>-</sub> 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					07/14/21 03:48	1
13C2 PFTeDA	82		50 <sub>-</sub> 150					07/14/21 03:48	1
13C3 PFBS	93		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 03:48	1
1802 PFHxS	87		50 - 150					07/14/21 03:48	
13C4 PFOS	91		50 - 150					07/14/21 03:48	1
d3-NMeFOSAA	88		50 - 150					07/14/21 03:48	. 1
d5-NEtFOSAA	96		50 - 150					07/14/21 03:48	
13C3 HFPO-DA	89		50 <sub>-</sub> 150					07/14/21 03:48	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

0.1

0.1

25.2

74.8

0.1 %

0.1 %

07/14/21 15:42

07/14/21 15:42

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

**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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.10	JI	0.24	0.051	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.4	0.47	ug/Kg	☼	07/12/21 11:33	07/14/21 04:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.4	0.45	ug/Kg	₩	07/12/21 11:33	07/14/21 04:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.24		ug/Kg			07/14/21 04:16	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.30		ug/Kg			07/14/21 04:16	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.24		ug/Kg			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
1802 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					07/14/21 04:16	1
13C3 HFPO-DA	87		50 - 150				07/12/21 11:33	07/14/21 04:16	1
General Chemistry	B	Overlight	Б.	p.e.m./	1114	_	D	Anaberra	D:: 5-
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	25.1		0.1	0.1	%			07/14/21 15:42	1

0.1

74.9

0.1 %

07/14/21 15:42

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.067	J	0.22	0.046	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	₩	07/12/21 11:33	07/14/21 04:25	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.2		ug/Kg	₩	07/12/21 11:33	07/14/21 04:25	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.22		ug/Kg		07/12/21 11:33		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.28		ug/Kg			07/14/21 04:25	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.22		ug/Kg		07/12/21 11:33		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		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	13.5		0.1	0.1	%			07/14/21 15:42	

Eurofins TestAmerica, Sacramento

07/14/21 15:42

0.1

0.1 %

86.5

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.079	J	0.22	0.046	ug/Kg	<u></u>	07/12/21 11:33	07/14/21 04:35	
Perfluoroheptanoic acid (PFHpA)	0.070	J	0.22	0.032	ug/Kg	₩	07/12/21 11:33	07/14/21 04:35	
Perfluorooctanoic acid (PFOA)	ND		0.22	0.095	ug/Kg	₩	07/12/21 11:33	07/14/21 04:35	•
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	0.14	J	0.22	0.034	ug/Kg	⇔	07/12/21 11:33	07/14/21 04:35	1
(PFHxS)					0 0				
Perfluorooctanesulfonic acid (PFOS)	ND		0.55	0.22	ug/Kg		07/12/21 11:33		1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	₩	07/12/21 11:33	07/14/21 04:35	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.2	0.41	ug/Kg	₩	07/12/21 11:33	07/14/21 04:35	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
13C4 PFHpA	85		50 <sub>-</sub> 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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:35	
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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:35	
13C2 PFTeDA	85		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:35	
13C3 PFBS	90		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:35	1
1802 PFHxS	84		50 - 150					07/14/21 04:35	
13C4 PFOS	84		50 - 150					07/14/21 04:35	1
d3-NMeFOSAA	89		50 - 150					07/14/21 04:35	
d5-NEtFOSAA	91		50 - 150					07/14/21 04:35	
13C3 HFPO-DA	81		50 - 150					07/14/21 04:35	•
General Chemistry									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	17.5		0.1	0.1	%			07/14/21 15:42	1

0.1

82.5

0.1 %

07/14/21 15:42

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Moisture** 

**Percent Solids** 

**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 Percent Solids: 93.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	— <u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0		ug/Kg	₩	07/12/21 11:33	07/14/21 04:44	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	₩	07/12/21 11:33	07/14/21 04:44	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	83		50 - 150				07/12/21 11:33	07/14/21 04:44	1
13C4 PFOS	66		50 <sub>-</sub> 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

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0.1

0.1

6.3

93.8

0.1 %

0.1 %

07/14/21 15:42

07/14/21 15:42

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-02 Lab Sample ID: 320-76026-11

Date Collected: 07/07/21 11:00

Matrix: Solid

Date Received: 07/09/21 13:12

Percent Solids: 94.1

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21		ug/Kg	— <u></u>		07/14/21 04:53	1
Perfluoroheptanoic acid (PFHpA)	ND		0.21		ug/Kg	₩		07/14/21 04:53	1
Perfluorooctanoic acid (PFOA)	ND		0.21		ug/Kg	₽	07/12/21 11:33	07/14/21 04:53	1
Perfluorononanoic acid (PFNA)	ND		0.21		ug/Kg		07/12/21 11:33	07/14/21 04:53	1
Perfluorodecanoic acid (PFDA)	ND		0.21		ug/Kg	₩	07/12/21 11:33	07/14/21 04:53	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21		ug/Kg	₩	07/12/21 11:33	07/14/21 04:53	1
Perfluorododecanoic acid (PFDoA)	ND		0.21		ug/Kg		07/12/21 11:33	07/14/21 04:53	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21		ug/Kg	₩	07/12/21 11:33	07/14/21 04:53	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21		ug/Kg	₩	07/12/21 11:33	07/14/21 04:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21		ug/Kg			07/14/21 04:53	1
Perfluorohexanesulfonic acid (PFHxS)	0.035	J	0.21		ug/Kg	₩		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	₽	07/12/21 11:33	07/14/21 04:53	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1		ug/Kg			07/14/21 04:53	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:53	1
13C3 PFBS	110		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:53	1
1802 PFHxS	93		50 - 150				07/12/21 11:33	07/14/21 04:53	1
13C4 PFOS	77		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 04:53	1
d3-NMeFOSAA	57		50 - 150					07/14/21 04:53	1
d5-NEtFOSAA	56		50 - 150					07/14/21 04:53	
13C3 HFPO-DA	92		50 - 150				07/12/21 11:33	07/14/21 04:53	1
General Chemistry									
Analyte	Result	Qualifier	RL		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	0/			07/14/21 15:42	1

Eurofins TestAmerica, Sacramento

7/22/2021

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-03 Lab Sample ID: 320-76026-12

Date Collected: 07/07/21 11:15

Matrix: Solid

Date Received: 07/09/21 13:12

Percent Solids: 91.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.043	ug/Kg	— <u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.40	ug/Kg	₩	07/12/21 11:33	07/14/21 05:03	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	₩	07/12/21 11:33	07/14/21 05:03	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	90		50 - 150				07/12/21 11:33	07/14/21 05:03	1
13C3 HFPO-DA									
General Chemistry		<b>.</b>				_			B.:: -
	Result 8.5	Qualifier	RL	<b>MDL</b> 0.1	Unit	D	Prepared	Analyzed 07/14/21 15:42	Dil Fac

7/22/2021

Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

Client Sample ID: SS-04 Lab Sample ID: 320-76026-13

Date Collected: 07/07/21 11:35 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 91.4

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	-13 RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20		ug/Kg	— <u>=</u>		07/14/21 05:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20		ug/Kg	☆		07/14/21 05:12	1
Perfluorooctanoic acid (PFOA)	ND		0.20		ug/Kg	₩		07/14/21 05:12	1
Perfluorononanoic acid (PFNA)	ND		0.20		ug/Kg		07/12/21 11:33	07/14/21 05:12	1
Perfluorodecanoic acid (PFDA)	ND		0.20		ug/Kg	₩		07/14/21 05:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20		ug/Kg	₩		07/14/21 05:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.20		ug/Kg			07/14/21 05:12	 1
Perfluorotridecanoic acid (PFTriA)	ND		0.20		ug/Kg	-ti-		07/14/21 05:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20		ug/Kg	-01-		07/14/21 05:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20		ug/Kg			07/14/21 05:12	· · · · · · · · · · · · · · · · · · ·
Perfluorohexanesulfonic acid (PFHxS)	0.064	J	0.20		ug/Kg	₩		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.40	ug/Kg		07/12/21 11:33	07/14/21 05:12	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.38	ug/Kg	₩	07/12/21 11:33	07/14/21 05:12	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.20		ug/Kg			07/14/21 05:12	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25		ug/Kg	₩		07/14/21 05:12	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.20		ug/Kg	☼		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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 05:12	1
1802 PFHxS	86		50 - 150				07/12/21 11:33	07/14/21 05:12	1
13C4 PFOS	75		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 05:12	1
d3-NMeFOSAA	60		50 - 150					07/14/21 05:12	1
d5-NEtFOSAA	52		50 - 150					07/14/21 05:12	
13C3 HFPO-DA	92		50 - 150					07/14/21 05:12	1
General Chemistry							_		
Analyte		Qualifier	RL		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

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc

Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-05 Lab Sample ID: 320-76026-14

Date Collected: 07/07/21 11:40

Matrix: Solid

Date Received: 07/09/21 13:12

Percent Solids: 93.8

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	— <u></u>	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		ug/Kg	₽	07/12/21 11:33	07/14/21 05:22	1
N-methylperfluorooctanesulfonamidoa	ND		2.0	0.38	ug/Kg	₩	07/12/21 11:33	07/14/21 05:22	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	₽	07/12/21 11:33	07/14/21 05:22	1
9-Chlorohexadecafluoro-3-oxanonan	ND		0.20	0.027	ug/Kg	☼	07/12/21 11:33	07/14/21 05:22	1
e-1-sulfonic acid Hexafluoropropylene Oxide Dimer	ND		0.25	0 11	ug/Kg		07/12/21 11:33	07/14/21 05:22	1
Acid (HFPO-DA)			0.20	0	-9/19	-,-	017.127200	0.7,2	
11-Chloroeicosafluoro-3-oxaundecan	ND		0.20	0.022	ug/Kg	₽	07/12/21 11:33	07/14/21 05:22	1
e-1-sulfonic acid									
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
1802 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		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.2		0.1	0.1	%			07/14/21 15:42	1

7/22/2021

Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

**Client Sample ID: SS-06** 

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Date Collected: 07/07/21 12:00

Date Received: 07/09/21 13:12

13C3 HFPO-DA

Analyte

**General Chemistry** 

**Percent Moisture** 

**Percent Solids** 

Lab Sample ID: 320-76026-15

**Matrix: Solid** 

Percent Solids: 93.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	— <u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	☼	07/12/21 11:33	07/14/21 05:31	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	₩	07/12/21 11:33	07/14/21 05:31	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				07/12/21 11:33	07/14/21 05:31	1
13C3 PFBS	100		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 05:31	1
							- 12::::::::::::::::::::::::::::::::::::		
1802 PFHxS	87		50 - 150				07/12/21 11:33	07/14/21 05:31	1
	87 90		50 - 150 50 - 150					07/14/21 05:31 07/14/21 05:31	1
18O2 PFHxS 13C4 PFOS d3-NMeFOSAA	•						07/12/21 11:33		

Eurofins TestAmerica, Sacramento

07/12/21 11:33 07/14/21 05:31

Prepared

50 - 150

RL

0.1

0.1

MDL Unit

0.1 %

0.1 %

D

82

6.4

93.6

Result Qualifier

Analyzed

07/14/21 15:42

07/14/21 15:42

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-07 Lab Sample ID: 320-76026-16

Date Collected: 07/07/21 12:15

Date Received: 07/09/21 13:12

Matrix: Solid
Percent Solids: 89.9

Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		0.21	0.045	ug/Kg	<u></u>	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.031	ug/Kg	≎	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.092	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.039	ug/Kg	₩	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.024	ug/Kg	₩	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.039	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.072	ug/Kg	₩	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.055	ug/Kg	₩	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.058	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.027	ug/Kg	≎	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.033	ug/Kg	≎	07/12/21 11:33	07/14/21 05:40	1
ND		0.54	0.21	ug/Kg	≎	07/12/21 11:33	07/14/21 05:40	1
ND		2.1	0.42	ug/Kg	₩	07/12/21 11:33	07/14/21 05:40	1
ND		2.1	0.40	ug/Kg	₩	07/12/21 11:33	07/14/21 05:40	1
ND		0.21	0.029	ug/Kg				
ND		0.27			₩	07/12/21 11:33	07/14/21 05:40	1
ND		0.21						1
ND		0.21	0.019	ug/Kg	☼	07/12/21 11:33	07/14/21 05:40	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
93		50 - 150				07/12/21 11:33	07/14/21 05:40	1
81		50 - 150				07/12/21 11:33	07/14/21 05:40	1
90		50 - 150				07/12/21 11:33	07/14/21 05:40	1
74		50 - 150				07/12/21 11:33	07/14/21 05:40	1
85		50 - 150				07/12/21 11:33	07/14/21 05:40	1
82		50 - 150				07/12/21 11:33	07/14/21 05:40	1
77		50 - 150				07/12/21 11:33	07/14/21 05:40	1
82		50 - 150				07/12/21 11:33	07/14/21 05:40	1
98		50 - 150				07/12/21 11:33	07/14/21 05:40	1
82		50 - 150				07/12/21 11:33	07/14/21 05:40	1
80		50 - 150				07/12/21 11:33	07/14/21 05:40	1
78		50 - 150				07/12/21 11:33	07/14/21 05:40	1
83		50 - 150				07/12/21 11:33	07/14/21 05:40	1
82		50 - 150				07/12/21 11:33	07/14/21 05:40	1
<b>.</b>	O 11.01			1114	_	B	A 1	D:: =
Result	Qualifier	RL 0.1	<b>MDL</b> 0.1		D	Prepared	Analyzed 07/14/21 15:42	Dil Fac
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.54         ND       0.21         %Recovery       Qualifier       Limits      <	ND 0.21 0.031 ND 0.21 0.092 ND 0.21 0.039 ND 0.21 0.039 ND 0.21 0.039 ND 0.21 0.039 ND 0.21 0.039 ND 0.21 0.055 ND 0.21 0.055 ND 0.21 0.055 ND 0.21 0.058 ND 0.21 0.027 ND 0.21 0.033 ND 0.21 0.033 ND 0.54 0.21 ND 0.54 0.21 ND 0.54 0.21 ND 0.10 0.21 0.029 ND 0.21 0.029 ND 0.21 0.029 ND 0.21 0.029 ND 0.21 0.029 ND 0.21 0.029 ND 0.21 0.019  **Recovery Qualifier Limits 50 - 150 90 50 - 150 90 50 - 150 85 50 - 150 85 50 - 150 85 50 - 150 82 50 - 150 82 50 - 150 83 50 - 150 84 50 - 150 85 50 - 150 86 50 - 150 87 50 - 150 88 50 - 150	ND 0.21 0.031 ug/Kg ND 0.21 0.092 ug/Kg ND 0.21 0.092 ug/Kg ND 0.21 0.039 ug/Kg ND 0.21 0.039 ug/Kg ND 0.21 0.039 ug/Kg ND 0.21 0.039 ug/Kg ND 0.21 0.055 ug/Kg ND 0.21 0.055 ug/Kg ND 0.21 0.058 ug/Kg ND 0.21 0.058 ug/Kg ND 0.21 0.033 ug/Kg ND 0.21 0.033 ug/Kg ND 0.21 0.033 ug/Kg ND 0.54 0.21 ug/Kg ND 0.54 0.21 ug/Kg ND 0.54 0.21 ug/Kg ND 0.21 0.042 ug/Kg ND 0.21 0.029 ug/Kg ND 0.21 0.029 ug/Kg ND 0.21 0.029 ug/Kg  ND 0.21 0.019 ug/Kg  ND 0.21 0.019 ug/Kg  **Recovery Qualifier Limits**  93 50 - 150 81 50 - 150 85 50 - 150 85 50 - 150 86 50 - 150 87 50 - 150 88 50 - 150	ND       0.21       0.045       ug/Kg       ☆         ND       0.21       0.031       ug/Kg       ☆         ND       0.21       0.092       ug/Kg       ☆         ND       0.21       0.039       ug/Kg       ☆         ND       0.21       0.039       ug/Kg       ☆         ND       0.21       0.072       ug/Kg       ☆         ND       0.21       0.055       ug/Kg       ☆         ND       0.21       0.055       ug/Kg       ☆         ND       0.21       0.058       ug/Kg       ☆         ND       0.21       0.033       ug/Kg       ☆         ND       0.21       0.042       ug/Kg       ☆         ND       0.21       0.042       ug/Kg       ☆         ND       0.21       0.029       ug/Kg       ☆         **       **       **       **         ***       **       **       **	ND         0.21         0.045         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.031         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.092         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.092         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.039         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.039         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.039         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.055         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.058         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.058         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.021         ug/Kg         □ 07/12/21 11:33           ND         0.54         0.21         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.04         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.02         ug/Kg         □ 07/12/21 11:33           ND         0.21         0.02	ND

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-08 Lab Sample ID: 320-76026-17

Date Collected: 07/07/21 12:35

Date Received: 07/09/21 13:12

Matrix: Solid
Percent Solids: 90.2

Method: EPA 537(Mod) - PFAS		3, Table B Qualifier	-15 RL	MDL	Unit	р	Droparad	Analyzod	Dil Fac
Analyte Perfluorohexanoic acid (PFHxA)	ND	Quaiifier			ug/Kg	— <u>D</u>	Prepared 07/12/21 11:33	Analyzed 07/14/21 08:58	DII Fac
,	ND ND		0.21					07/14/21 08:58	1
Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA)	ND ND		0.21		ug/Kg	*		07/14/21 08:58	1
Perfluorononanoic acid (PFNA)					ug/Kg	· · · · ·			
,	ND ND		0.21		ug/Kg	φ.		07/14/21 08:58	1
Perfluorodecanoic acid (PFDA)			0.21		ug/Kg	₩.		07/14/21 08:58	1
Perfluoroundecanoic acid (PFUnA)	ND		0.21		ug/Kg			07/14/21 08:58	
Perfluorododecanoic acid (PFDoA)	ND		0.21		ug/Kg	ψ.		07/14/21 08:58	1
Perfluorotridecanoic acid (PFTriA)	ND		0.21		ug/Kg	<b>*</b>		07/14/21 08:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21		ug/Kg	<del>.</del>		07/14/21 08:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21		ug/Kg			07/14/21 08:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21		ug/Kg	₩		07/14/21 08:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.53		ug/Kg			07/14/21 08:58	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1		ug/Kg			07/14/21 08:58	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1		ug/Kg			07/14/21 08:58	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL	MDL		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: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-09 Lab Sample ID: 320-76026-18

Date Collected: 07/07/21 14:15

Date Received: 07/09/21 13:12

Matrix: Solid
Percent Solids: 93.9

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	<u></u>	07/12/21 11:33	07/14/21 09:07	
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	₩	07/12/21 11:33	07/14/21 09:07	
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg	₩	07/12/21 11:33	07/14/21 09:07	
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	₩	07/12/21 11:33	07/14/21 09:07	
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg	₩	07/12/21 11:33	07/14/21 09:07	
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	₩	07/12/21 11:33	07/14/21 09:07	
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	☼	07/12/21 11:33	07/14/21 09:07	
Perfluorobutanesulfonic acid (PFBS)	ND		0.20	0.025	ug/Kg		07/12/21 11:33	07/14/21 09:07	
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20	0.031	ug/Kg	≎	07/12/21 11:33	07/14/21 09:07	
Perfluorooctanesulfonic acid (PFOS)	ND		0.50	0.20	ug/Kg	≎	07/12/21 11:33	07/14/21 09:07	
N-methylperfluorooctanesulfonamidoa	ND		2.0	0.39	ug/Kg	<b>‡</b>	07/12/21 11:33	07/14/21 09:07	
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	₩	07/12/21 11:33	07/14/21 09:07	•
9-Chlorohexadecafluoro-3-oxanonan	ND		0.20	0.027	ug/Kg	₽	07/12/21 11:33	07/14/21 09:07	
e-1-sulfonic acid							- 1200202020		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25		ug/Kg			07/14/21 09:07	
11-Chloroeicosafluoro-3-oxaundecan	ND		0.20	0.022	ug/Kg	₽	07/12/21 11:33	07/14/21 09:07	
e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid	ND		0.20	0.018	ug/Kg	ř.	07/12/21 11:33	07/14/21 09:07	
(ADONA)	ND		0.20	0.010	ug/itg	¥	07/12/21 11.55	07/14/21 09:07	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	112		50 <sub>-</sub> 150				07/12/21 11:33	07/14/21 09:07	
13C4 PFHpA	82		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C4 PFOA	93		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C5 PFNA	69		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C2 PFDA	92		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C2 PFUnA	76		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C2 PFDoA	67		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C2 PFTeDA	72		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C3 PFBS	113		50 - 150				07/12/21 11:33	07/14/21 09:07	
1802 PFHxS	90		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C4 PFOS	82		50 - 150				07/12/21 11:33	07/14/21 09:07	
d3-NMeFOSAA	61		50 - 150				07/12/21 11:33	07/14/21 09:07	
d5-NEtFOSAA	63		50 - 150				07/12/21 11:33	07/14/21 09:07	
13C3 HFPO-DA	91		50 - 150				07/12/21 11:33	07/14/21 09:07	
General Chemistry									
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Percent Moisture	6.1		0.1	0.1	%	_		07/14/21 15:42	•

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

**Client Sample ID: SS-10** Lab Sample ID: 320-76026-19

Date Collected: 07/07/21 15:45 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 89.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.046	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.2	0.43	ug/Kg	₿	07/12/21 19:00	07/21/21 13:44	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.2	0.41	ug/Kg	₩	07/12/21 19:00	07/21/21 13:44	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	70		50 <sub>-</sub> 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		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	10.8		0.1	0.1	%			07/14/21 15:42	1
					0.4			07/44/04 45 10	

0.1

0.1 %

**89.2** 

07/14/21 15:42

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-11 Lab Sample ID: 320-76026-20

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.044	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	\$	07/12/21 19:00	07/16/21 02:08	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1		ug/Kg	₩	07/12/21 19:00	07/16/21 02:08	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.21	0.028	ug/Kg			07/16/21 02:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26		ug/Kg	₩	07/12/21 19:00	07/16/21 02:08	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.21		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
1802 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 <sub>-</sub> 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	Dec. 16	Ovelifies	DI.	MD	11	_	Duamanad	A se a le ses a d	Dil F
	Result 13.8	Qualifier	RL 0.1	<b>MDL</b> 0.1	Unit	D	Prepared	Analyzed 07/14/21 15:42	Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

Client Sample ID: SS-12 Lab Sample ID: 320-76026-21

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.045	ug/Kg	<u></u>	07/12/21 19:00	07/21/21 14:12	
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.2	0.42	ug/Kg	₩	07/12/21 19:00	07/21/21 14:12	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.2	0.40	ug/Kg	₩	07/12/21 19:00	07/21/21 14:12	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.22	0.029	ug/Kg	.⇔	07/12/21 19:00	07/21/21 14:12	
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-oxaundecan e-1-sulfonic acid	ND		0.22		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
1802 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		o				_			<b></b> -
Analyte		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.0		0.1	0.1	%			07/14/21 15:42	1

Eurofins TestAmerica, Sacramento

07/14/21 15:42

0.1

0.1 %

82.0

3

6

8

11

12 12

14

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

Client Sample ID: SS-13 Lab Sample ID: 320-76026-22

Date Collected: 07/07/21 14:50

Matrix: Solid

Date Received: 07/09/21 13:12

Percent Solids: 60.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.33	0.069	ug/Kg	— <u></u>	07/12/21 19:00	07/21/21 14:22	
Perfluoroheptanoic acid (PFHpA)	ND		0.33	0.047	ug/Kg	≎	07/12/21 19:00	07/21/21 14:22	•
Perfluorooctanoic acid (PFOA)	ND		0.33	0.14	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	•
Perfluorononanoic acid (PFNA)	ND		0.33	0.059	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	· · · · · · · · ·
Perfluorodecanoic acid (PFDA)	0.077	J	0.33	0.036	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	•
Perfluoroundecanoic acid (PFUnA)	ND		0.33	0.059	ug/Kg	≎	07/12/21 19:00	07/21/21 14:22	•
Perfluorododecanoic acid (PFDoA)	ND		0.33	0.11	ug/Kg	≎	07/12/21 19:00	07/21/21 14:22	
Perfluorotridecanoic acid (PFTriA)	ND		0.33	0.083	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	•
Perfluorotetradecanoic acid (PFTeA)	ND		0.33	0.088	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	
Perfluorobutanesulfonic acid (PFBS)	ND		0.33	0.041	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	,
Perfluorohexanesulfonic acid (PFHxS)	ND		0.33	0.051	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	
Perfluorooctanesulfonic acid (PFOS)	1.2	I	0.82	0.33	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	,
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		3.3	0.64	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	,
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		3.3	0.60	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.33	0.044	ug/Kg			07/21/21 14:22	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.41	0.18	ug/Kg	₽	07/12/21 19:00	07/21/21 14:22	,
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.33		ug/Kg			07/21/21 14:22	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.33	0.029	ug/Kg	₩	07/12/21 19:00	07/21/21 14:22	•
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	76		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C4 PFHpA	84		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C4 PFOA	88		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C5 PFNA	95		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C2 PFDA	93		50 - 150				07/12/21 19:00	07/21/21 14:22	
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	
13C2 PFTeDA	84		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C3 PFBS	93		50 - 150				07/12/21 19:00	07/21/21 14:22	7
1802 PFHxS	79		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C4 PFOS	97		50 - 150				07/12/21 19:00	07/21/21 14:22	7
d3-NMeFOSAA	70		50 - 150				07/12/21 19:00	07/21/21 14:22	
d5-NEtFOSAA	84		50 - 150				07/12/21 19:00	07/21/21 14:22	
13C3 HFPO-DA	79		50 - 150				07/12/21 19:00	07/21/21 14:22	•
General Chemistry	<u> </u>	O I''			1114	_	<b>D</b>	A	<b>5 -</b>
Analyte		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	39.8		0.1	0.1	%			07/14/21 15:42	•

Eurofins TestAmerica, Sacramento

7/22/2021

07/14/21 15:42

0.1

0.1 %

60.2

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Client Sample ID: SS-14** Lab Sample ID: 320-76026-23

Date Collected: 07/07/21 16:10 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 89.3

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.045	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa	ND		2.1	0.41	ug/Kg	≎	07/12/21 19:00	07/21/21 14:31	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	☼	07/12/21 19:00	07/21/21 14:31	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				07/12/21 19:00	07/21/21 14:31	1
13C3 PFBS	93		50 <sub>-</sub> 150				07/12/21 19:00	07/21/21 14:31	1
1802 PFHxS	71		50 - 150				07/12/21 19:00	07/21/21 14:31	1
13C4 PFOS	98		50 <sub>-</sub> 150				07/12/21 19:00	07/21/21 14:31	1
d3-NMeFOSAA	55		50 <sub>-</sub> 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					07/21/21 14:31	1
General Chemistry									
Analyte		Qualifier	RL	MDL		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	

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Percent Solids** 

**Client Sample ID: SS-15** Lab Sample ID: 320-76026-24

Date Collected: 07/07/21 16:25 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 91.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg	☼	07/12/21 19:00	07/21/21 14:41	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	₩	07/12/21 19:00	07/21/21 14:41	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.4		0.1	0.1				07/14/21 15:42	1
B	04.0		0.4	0.1	0/			07/44/04 45:40	4

0.1

0.1 %

91.6

07/14/21 15:42

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

**Client Sample ID: SS-16** Lab Sample ID: 320-76026-25

Date Collected: 07/08/21 09:10 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 90.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.92		0.21	0.044	ug/Kg	— <u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	∌	07/12/21 19:00	07/21/21 14:50	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1		ug/Kg	₩	07/12/21 19:00	07/21/21 14:50	1
9-Chlorohexadecafluoro-3-oxanonan e-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	,
11-Chloroeicosafluoro-3-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				07/12/21 19:00	07/21/21 14:50	1
13C3 PFBS	87		50 <sub>-</sub> 150				07/12/21 19:00	07/21/21 14:50	1
18O2 PFHxS	76		50 <sub>-</sub> 150				07/12/21 19:00	07/21/21 14:50	
13C4 PFOS	94		50 - 150					07/21/21 14:50	1
d3-NMeFOSAA	78		50 - 150					07/21/21 14:50	
d5-NEtFOSAA	68		50 - 150					07/21/21 14:50	
13C3 HFPO-DA	73		50 - 150					07/21/21 14:50	•
General Chemistry									
Analyte		Qualifier	RL	MDL		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	0/_			07/14/21 15:42	1

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-17 Lab Sample ID: 320-76026-26

Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA) Perfluorooctanoic acid (PFNA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFDA) Perfluorotridecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMEFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) Isotope Dilution  13C2 PFHXA 13C4 PFHPA 13C4 PFOA 13C2 PFUAA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFHXS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	93					Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFUnA) Perfluoroundecanoic acid (PFDoA) Perfluorotridecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFOS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoacetic acid (NMEFOSAA) N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (ADONA) Isotope Dilution  13C2 PFHXA 13C4 PFDA 13C5 PFNA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFTEDA 13C3 PFBS 18O2 PFHXS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA		0.21	0.044	ug/Kg	<u></u>	07/12/21 19:00	07/16/21 03:21	
Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFDA) Perfluoroundecanoic acid (PFDoA) Perfluorotridecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFOS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  3C2 PFHXA 13C4 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFTEDA 13C3 PFBS 18O2 PFHXS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	11 J	0.21	0.031	ug/Kg	≎	07/12/21 19:00	07/16/21 03:21	1
Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFUnA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  13C2 PFHxA 13C4 PFHpA 13C4 PFOA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFTEDA 13C3 PFBS 18O2 PFHxS 13C4 PFOSAA	1D	0.21	0.091	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
Perfluoroundecanoic acid (PFUnA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFBS) Perfluoroctanesulfonic acid (PFOS) N-methylperfluoroctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluoroctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  13C2 PFHxA 13C4 PFHpA 13C4 PFOA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFTEDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	1D	0.21	0.038	ug/Kg	₩	07/12/21 19:00	07/16/21 03:21	1
Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFBS) Perfluoroctanesulfonic acid (PFOS) Perfluoroctanesulfonic acid (PFOS) N-methylperfluoroctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluoroctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  13C2 PFHxA 13C4 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFTEDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	1D	0.21	0.023	ug/Kg	≎	07/12/21 19:00	07/16/21 03:21	1
Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFBS) Perfluoroctanesulfonic acid (PFOS) Perfluoroctanesulfonic acid (PFOS) Perfluoroctanesulfonic acid (PFOS) N-methylperfluoroctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluoroctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  13C2 PFHXA 13C4 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFHXS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	1D	0.21	0.038	ug/Kg	≎	07/12/21 19:00	07/16/21 03:21	1
Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFHxS) Perfluoroctanesulfonic acid (PFOS) Perfluoroctanesulfonic acid (PFOS) N-methylperfluoroctanesulfonamidoac cetic acid (NMeFOSAA) N-ethylperfluoroctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  3C2 PFHxA 13C4 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	1D	0.21	0.071	ug/Kg	₽	07/12/21 19:00	07/16/21 03:21	1
Perfluorobutanesulfonic acid (PFBS)  Perfluorohexanesulfonic acid (PFHXS)  Perfluorooctanesulfonic acid (PFOS)  N-methylperfluorooctanesulfonamidoac cetic acid (NMeFOSAA)  N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)  9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)  11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (ADONA)  Isotope Dilution  3C2 PFHXA  13C4 PFDA  13C4 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFTDA  13C3 PFBS  18O2 PFHXS  13C4 PFOS d3-NMeFOSAA  d5-NEtFOSAA	1D	0.21	0.054	ug/Kg	≎	07/12/21 19:00	07/16/21 03:21	1
Perfluorohexanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution 73C2 PFHxA 73C4 PFHpA 73C4 PFDA 73C2 PFDA 73C2 PFUNA 73C2 PFDA 73C2 PFTDA 73C3 PFBS 73C4 PFOS 73C4 PFOS 73C4 PFOS 73C4 PFOS 73C5 PFNS 73C6 PFNS 73C6 PFNS 73C6 PFNS 73C7 PFS 73C7	1D	0.21	0.057	ug/Kg	☼	07/12/21 19:00	07/16/21 03:21	1
(PFHxS) Perfluorocotanesulfonic acid (PFOS) N-methylperfluorocotanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorocotanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution 73C2 PFHxA 73C4 PFDA 73C4 PFDA 73C5 PFNA 73C2 PFDA 73C2 PFDA 73C2 PFDA 73C3 PFBS 73C4 PFOS 73C4 PFOS 73C4 PFOS 73C4 PFOS 73C5 PFNS 73C4 PFOS 73C6 PFNS 73C6 PFNS 73C6 PFNS 73C6 PFNS 73C6 PFNS 73C6 PFNS 73C6 PFOS 73C7 PFNS 73C6 PFOS 73C7 PFNS 73C6 PFNS 73	1D	0.21	0.026	ug/Kg	₩	07/12/21 19:00	07/16/21 03:21	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution 3C2 PFHxA 13C4 PFHpA 13C4 PFDA 13C5 PFNA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFTDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA	59 J	0.21		ug/Kg	₽	07/12/21 19:00	07/16/21 03:21	1
cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  3C2 PFHxA  13C4 PFHpA  13C4 PFOA  13C5 PFNA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFTeDA  13C3 PFBS  18O2 PFHxS  13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	1D	0.53	0.21	ug/Kg	₽	07/12/21 19:00	07/16/21 03:21	1
etic acid (NEtFOSAA)  9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)  11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  3C2 PFHxA  13C4 PFHpA  13C4 PFOA  13C5 PFNA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C3 PFBS  18O2 PFHxS  13C4 PFOS d3-NMeFOSAA  d5-NEtFOSAA	ID	2.1	0.41	ug/Kg	₩	07/12/21 19:00	07/16/21 03:21	1
e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution 3C2 PFHXA 13C4 PFHPA 13C4 PFOA 13C5 PFNA 13C2 PFDA 13C2 PFUNA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C3 PFBS 18O2 PFHXS 13C4 PFOS d3-NMeFOSAA	1D	2.1		ug/Kg	₽	07/12/21 19:00	07/16/21 03:21	1
Acid (HFPO-DA)  11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  33C2 PFHxA  13C4 PFHpA 13C4 PFOA 13C5 PFNA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDA 13C2 PFDOA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	1D	0.21		ug/Kg		07/12/21 19:00		
e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution  3C2 PFHXA  13C4 PFHpA  13C5 PFNA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C2 PFDA  13C4 PFOS  13C4 PFOS  13C4 PFOS  13C4 PFOS  13C4 PFOS  13C5 PFNA	<b>I</b> D	0.26		ug/Kg		07/12/21 19:00		1
(ADONA)  Isotope Dilution	<b>I</b> D	0.21		ug/Kg		07/12/21 19:00		1
13C2 PFHxA 13C4 PFHpA 13C4 PFOA 13C5 PFNA 13C5 PFNA 13C2 PFDA 13C2 PFDA 13C2 PFDOA 13C2 PFEDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	<b>I</b> D	0.21	0.019	ug/Kg	₽	07/12/21 19:00	07/16/21 03:21	1
13C4 PFHpA 13C4 PFOA 13C5 PFNA 13C2 PFDA 13C2 PFUnA 13C2 PFDOA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA	ry Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA 13C5 PFNA 13C2 PFDA 13C2 PFUnA 13C2 PFDOA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	63	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C5 PFNA 13C2 PFDA 13C2 PFUnA 13C2 PFUnA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	72	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C2 PFDA 13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	68	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C2 PFUnA 13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	67	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C2 PFDoA 13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	63	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C2 PFTeDA 13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	65	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C3 PFBS 18O2 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	63	50 - 150				07/12/21 19:00	07/16/21 03:21	1
1802 PFHxS 13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	60	50 - 150				07/12/21 19:00	07/16/21 03:21	1
13C4 PFOS d3-NMeFOSAA d5-NEtFOSAA	63	50 - 150				07/12/21 19:00	07/16/21 03:21	1
d3-NMeFOSAA d5-NEtFOSAA	54	50 - 150				07/12/21 19:00	07/16/21 03:21	1
d5-NEtFOSAA	64	50 - 150				07/12/21 19:00	07/16/21 03:21	1
	60	50 - 150				07/12/21 19:00	07/16/21 03:21	1
4000 UEDO DA	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								
	ult Qualifier	- RL 0.1	MDL 0.1	Unit	D	Prepared	Analyzed 07/14/21 15:42	Dil Fac

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 Job ID: 320-76026-1

Project/Site: Dillingham **Client Sample ID: SS-18** 

Lab Sample ID: 320-76026-27 Date Collected: 07/08/21 09:15 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 89.5

Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
0.052	J	0.21	0.044	ug/Kg	<del>-</del>	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.030	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.090	ug/Kg	☼	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.038	ug/Kg	₩	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.023	ug/Kg	₩	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.038	ug/Kg	₽	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.070	ug/Kg	₽	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.054	ug/Kg	₽	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.057	ug/Kg	₽	07/12/21 19:00	07/16/21 03:31	1
ND		0.21	0.026	ug/Kg	₽	07/12/21 19:00	07/16/21 03:31	1
0.047	J	0.21	0.033	ug/Kg	₽	07/12/21 19:00	07/16/21 03:31	1
0.24	J	0.53				07/12/21 19:00	07/16/21 03:31	1
ND		2.1			₽	07/12/21 19:00	07/16/21 03:31	1
ND								1
								1
					₩			1
ND		0.21	0.019	ug/Kg	₩	07/12/21 19:00	07/16/21 03:31	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
62		50 - 150				07/12/21 19:00	07/16/21 03:31	1
66		50 - 150				07/12/21 19:00	07/16/21 03:31	1
66		50 - 150				07/12/21 19:00	07/16/21 03:31	1
69		50 - 150				07/12/21 19:00	07/16/21 03:31	1
64		50 - 150				07/12/21 19:00	07/16/21 03:31	1
63		50 - 150				07/12/21 19:00	07/16/21 03:31	1
62		50 - 150				07/12/21 19:00	07/16/21 03:31	1
59		50 - 150				07/12/21 19:00	07/16/21 03:31	1
63		50 - 150				07/12/21 19:00	07/16/21 03:31	1
53		50 - 150				07/12/21 19:00	07/16/21 03:31	1
60		50 <sub>-</sub> 150				07/12/21 19:00	07/16/21 03:31	1
57		50 - 150					07/16/21 03:31	1
		50 <sub>-</sub> 150					07/16/21 03:31	1
59								
59 60		50 - 150				07/12/21 19:00	07/16/21 03:31	1
60					_			
60	Qualifier	50 - 150  RL 0.1	<b>MDL</b> 0.1		<u>D</u>	07/12/21 19:00 Prepared	07/16/21 03:31  Analyzed  07/14/21 15:42	Dil Fac
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.53         ND       2.1         ND       0.21         ND       0.25         ND       0.21         ND       0.25         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.21         ND       0.2	ND 0.21 0.030 ND 0.21 0.090 ND 0.21 0.098 ND 0.21 0.023 ND 0.21 0.023 ND 0.21 0.038 ND 0.21 0.038 ND 0.21 0.054 ND 0.21 0.054 ND 0.21 0.057 ND 0.21 0.026 0.047 J 0.21 0.033 0.24 J 0.53 0.21  ND 2.1 0.41 ND 2.1 0.39 ND 0.21 0.028  ND 0.21 0.028  ND 0.21 0.028  ND 0.21 0.028  ND 0.21 0.028  ND 0.21 0.029    ND 0.21 0.029   ND 0.21 0.019     WRecovery   Qualifier   Limits     62	ND       0.21       0.030       ug/Kg         ND       0.21       0.090       ug/Kg         ND       0.21       0.038       ug/Kg         ND       0.21       0.023       ug/Kg         ND       0.21       0.038       ug/Kg         ND       0.21       0.070       ug/Kg         ND       0.21       0.054       ug/Kg         ND       0.21       0.057       ug/Kg         ND       0.21       0.026       ug/Kg         ND       0.21       0.033       ug/Kg         ND       2.1       0.41       ug/Kg         ND       0.21       0.028       ug/Kg         ND       0.21       0.028       ug/Kg         ND       0.21       0.028       ug/Kg         ND       0.21       0.023       ug/Kg         ND       0.21       0.023       ug/Kg         ND       0.21       0.023       ug/Kg         ND       0.21       0.019       ug/Kg         ND       0.21       0.019       ug/Kg         %Recovery       Qualifier       Limits         62       50.150      <	ND       0.21       0.030       ug/Kg       ☆         ND       0.21       0.090       ug/Kg       ☆         ND       0.21       0.038       ug/Kg       ☆         ND       0.21       0.023       ug/Kg       ☆         ND       0.21       0.038       ug/Kg       ☆         ND       0.21       0.070       ug/Kg       ☆         ND       0.21       0.054       ug/Kg       ☆         ND       0.21       0.057       ug/Kg       ☆         ND       0.21       0.026       ug/Kg       ☆         0.047       J       0.53       0.21       ug/Kg       ☆         ND       2.1       0.41       ug/Kg       ☆         ND       2.1       0.41       ug/Kg       ☆         ND       0.21       0.028       ug/Kg       ☆         ND       0.21       0.028       ug/Kg       ☆         ND       0.21       0.023       ug/Kg       ☆         %Recovery       Qualiffer       Limits         62       50.150       66       50.150         69       50.150       66       50.150	ND         0.21         0.030         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.090         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.038         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.038         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.038         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.070         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.057         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.057         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.026         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.033         ug/Kg         ○ 07/12/21 19:00           ND         2.1         0.41         ug/Kg         ○ 07/12/21 19:00           ND         2.1         0.39         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.028         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.028         ug/Kg         ○ 07/12/21 19:00           ND         0.21         0.028	ND

07/14/21 15:42

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0.1

0.1 %

89.5

**Percent Solids** 

Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Client Sample ID: SS-19 Lab Sample ID: 320-76026-28

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	-13 RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20		ug/Kg	— <u>-</u>		07/17/21 00:27	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20		ug/Kg	 #		07/17/21 00:27	1
Perfluorooctanoic acid (PFOA)	ND		0.20		ug/Kg	₩		07/17/21 00:27	1
Perfluorononanoic acid (PFNA)	ND		0.20		ug/Kg			07/17/21 00:27	1
Perfluorodecanoic acid (PFDA)	ND		0.20		ug/Kg	 #		07/17/21 00:27	1
Perfluoroundecanoic acid (PFUnA)	ND		0.20		ug/Kg	÷		07/17/21 00:27	1
Perfluorododecanoic acid (PFDoA)	ND		0.20		ug/Kg			07/17/21 00:27	
Perfluorotridecanoic acid (PFTriA)	ND		0.20		ug/Kg	-ti-		07/17/21 00:27	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.20		ug/Kg	-ti-		07/17/21 00:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.20		ug/Kg			07/17/21 00:27	· 1
Perfluorohexanesulfonic acid (PFHxS)	0.053	J	0.20		ug/Kg			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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.38	ug/Kg		07/12/21 19:00	07/17/21 00:27	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	₩	07/12/21 19:00	07/17/21 00:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.20		ug/Kg			07/17/21 00:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25		ug/Kg			07/17/21 00:27	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.20		ug/Kg			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 <sub>-</sub> 150				07/12/21 19:00	07/17/21 00:27	1
1802 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					07/17/21 00:27	1
13C3 HFPO-DA	75		50 - 150					07/17/21 00:27	1
General Chemistry							_		
Analyte		Qualifier	RL		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

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## **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

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTD
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-15
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

Perce	nt Isotope	Dilution Re	ecovery (Ac	ceptance Limits)	
	DEGG	-101114500	JENIEEGO	LIEBODA	

		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)
20-76026-1	SB1-15.7-16.3	126	93	75	71	65	104
0-76026-1 MS	SB1-15.7-16.3	124	93	79	74	66	100
20-76026-1 MSD	SB1-15.7-16.3	110	88	77	63	51	95
20-76026-2	SB1-27.3-28.0	104	90	94	87	99	86
20-76026-3	SB2-31.7-32.3	85	71	82	67	78	85
0-76026-4	SB2-37.5-38.4	98	86	91	90	95	95
0-76026-5	SB3-0.0-0.8	171 *5+	99	57	56	43 *5-	118
20-76026-5 - DL	SB3-0.0-0.8			74			
20-76026-6	SB3-10.0-11.0	93	87	91	88	96	89

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## **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)							
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-76026-7	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

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Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

## Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample	ID: MB	320-505809/1-A
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**Matrix: Solid** 

**Analysis Batch: 506420** 

Client Sample ID: Method Blank

**Prep Type: Total/NA Prep Batch: 505809** 

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	MB	MB							
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 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/12/21 11:33	07/14/21 02:23	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MB	MB							

	MB	MR			
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared Analyzed	Dil Fac
13C2 PFHxA	90		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C4 PFHpA	93		50 <sub>-</sub> 150	07/12/21 11:33 07/14/21 02:2	1
13C4 PFOA	92		50 <sub>-</sub> 150	07/12/21 11:33 07/14/21 02:2	1
13C5 PFNA	91		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C2 PFDA	91		50 <sub>-</sub> 150	07/12/21 11:33 07/14/21 02:2	1
13C2 PFUnA	89		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C2 PFDoA	90		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C2 PFTeDA	94		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C3 PFBS	105		50 <sub>-</sub> 150	07/12/21 11:33 07/14/21 02:2	1
1802 PFHxS	87		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C4 PFOS	91		50 - 150	07/12/21 11:33 07/14/21 02:2	1
d3-NMeFOSAA	87		50 - 150	07/12/21 11:33 07/14/21 02:2	1
d5-NEtFOSAA	92		50 - 150	07/12/21 11:33 07/14/21 02:2	1
13C3 HFPO-DA	88		50 <sub>-</sub> 150	07/12/21 11:33 07/14/21 02:2	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** 

		Spike	LCS	LCS				%Rec.	
	Analyte	Added	Result	Qualifier	Unit	D	%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	
l	Perfluorooctanoic acid (PFOA)	2.00	1.95		ug/Kg		97	69 - 133	
ı	Perfluorononanoic acid (PFNA)	2.00	2.00		ug/Kg		100	72 - 129	

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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)

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
%Rec.
D %Rec Limits

7 maryolo Batom 600 i20	Spike	LCS	LCS		%Rec.
Analyte	Added	Result	Qualifier Unit	D %Rec	Limits
Perfluorodecanoic acid (PFDA)	2.00	2.02	ug/Kg		69 - 133
Perfluoroundecanoic acid	2.00	2.18	ug/Kg	109	64 - 136
(PFUnA)					
Perfluorododecanoic acid	2.00	2.04	ug/Kg	102	69 - 135
(PFDoA)					
Perfluorotridecanoic acid	2.00	2.00	ug/Kg	100	66 - 139
(PFTriA)					
Perfluorotetradecanoic acid	2.00	2.25	ug/Kg	112	69 - 133
(PFTeA)					
Perfluorobutanesulfonic acid	1.77	1.56	ug/Kg	88	72 - 128
(PFBS)					
Perfluorohexanesulfonic acid	1.82	1.88	ug/Kg	103	67 - 130
(PFHxS)					
Perfluorooctanesulfonic acid	1.86	1.90	ug/Kg	102	68 - 136
(PFOS)					
N-methylperfluorooctanesulfona	2.00	2.17	ug/Kg	108	63 - 144
midoacetic acid (NMeFOSAA)					
N-ethylperfluorooctanesulfonami	2.00	2.17	ug/Kg	108	61 - 139
doacetic acid (NEtFOSAA)					
9-Chlorohexadecafluoro-3-oxan	1.86	1.92	ug/Kg	103	75 - 135
onane-1-sulfonic acid					
Hexafluoropropylene Oxide	2.00	1.97	ug/Kg	99	77 - 137
Dimer Acid (HFPO-DA)	4.00	4.05		00	70. 400
11-Chloroeicosafluoro-3-oxaund	1.88	1.85	ug/Kg	98	76 - 136
ecane-1-sulfonic acid	4.00	4.04		400	70 400
4,8-Dioxa-3H-perfluorononanoic	1.88	1.91	ug/Kg	102	79 - 139
acid (ADONA)					

LCS LCS

Isotope Dilution	%Recovery Qu	ıalifier	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** 

**Client Sample ID: SB1-15.7-16.3** 

Prep Type: Total/NA Prep Batch: 505809

**Analysis Batch: 506420** Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Perfluorohexanoic acid (PFHxA) ND 2.60 2.50 96 70 - 132 ug/Kg 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 Ö

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Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-1 MS **Matrix: Solid** 

Client Sample ID: SB1-15.7-16.3

**Prep Type: Total/NA Analysis Batch: 506420** Prep Batch: 505809 Spike MS MS %Rec. Sample Sample

Analyte	•	Qualifier	Added		Qualifier	Unit	D	%Rec	‰Rec. Limits	
Perfluorononanoic acid (PFNA)	ND	Qualifier	2.60	2.55	Qualifier		— <del>-</del>	98	72 - 129	
						ug/Kg				
Perfluorodecanoic acid (PFDA)	ND		2.60	2.41		ug/Kg	₩	93	69 - 133	
Perfluoroundecanoic acid (PFUnA)	ND		2.60	3.24		ug/Kg	<b>☆</b>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.60	3.11		ug/Kg	☼	119	63 - 144	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND	F1	2.60	3.14		ug/Kg	₩	121	61 - 139	
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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	

MS MS

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%Recovery	Qualifier	Limits
118		50 - 150
89		50 <sub>-</sub> 150
94		50 - 150
70		50 - 150
89		50 - 150
82		50 - 150
67		50 - 150
76		50 <sub>-</sub> 150
124		50 <sub>-</sub> 150
93		50 - 150
79		50 - 150
74		50 <sub>-</sub> 150
66		50 - 150
100		50 - 150
	118 89 94 70 89 82 67 76 124 93 79 74	89 94 70 89 82 67 76 124 93 79 74

Lab Sample ID: 320-76026-1 MSD

Matrix: Solid

Matrix: Solid Analysis Batch: 506420									Prep Ty Prep Ba	•	
<b>,</b>	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	ND		2.54	2.41		ug/Kg	<del>*</del>	95	70 - 132	4	30
Perfluoroheptanoic acid (PFHpA)	ND		2.54	2.51		ug/Kg	₩	99	71 - 131	3	30

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Client Sample ID: SB1-15.7-16.3

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Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-1 MSD Client Sample ID: SB1-15.7-16.3

Matrix: Solid

Analysis Batch: 506420

Client Sample ID: SB1-15.7-16.3 Prep Type: Total/NA

Prep Type: Total/NA Prep Batch: 505809

Analysis Batch: 506420									Prep Ba	atch: 50	05809
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	ND		2.54	2.46		ug/Kg	<del>-</del>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.54	3.14		ug/Kg	₽	124	63 - 144	1	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND	F1	2.54	3.58	F1	ug/Kg	₽	141	61 - 139	13	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-1-sulfonic acid	ND		2.39	3.10		ug/Kg	₽	130	76 - 136	3	30
4,8-Dioxa-3H-perfluorononanoic	ND		2.39	2.77		ug/Kg	☼	116	79 - 139	8	30

MSD MSD

Isotope Dilution	%Recovery	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
1802 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** 

acid (ADONA)

**Analysis Batch: 507184** 

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 505990

 MB Analyte
 Result Perfluorohexanoic acid (PFHxA)
 ND
 Qualifier
 RL ND
 MDL ug/Kg
 Unit Ug/Kg
 D 07/12/21 19:00
 Analyzed Analyzed O7/16/21 01:22
 Dil Fa

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Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

мв мв

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	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/12/21 19:00	07/16/21 01:22	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MD	MD							

	MB	MB				
Isotope Dilution	%Recovery	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
1802 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 <sub>-</sub> 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** 

<b>Client Sample ID:</b>	<b>Lab Control Sample</b>
	<b>Prep Type: Total/NA</b>

Prep Batch: 505990

	<b>Spike</b>	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	
	Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA)	Perfluorohexanoic acid (PFHxA) 2.00 Perfluoroheptanoic acid (PFHpA) 2.00 Perfluorooctanoic acid (PFOA) 2.00 Perfluorononanoic acid (PFNA) 2.00	Perfluorohexanoic acid (PFHxA)         2.00         2.29           Perfluoroheptanoic acid (PFHpA)         2.00         2.19           Perfluorooctanoic acid (PFOA)         2.00         2.13           Perfluorononanoic acid (PFNA)         2.00         2.17	Perfluorohexanoic acid (PFHxA)         2.00         2.29           Perfluoroheptanoic acid (PFHpA)         2.00         2.19           Perfluoroctanoic acid (PFOA)         2.00         2.13           Perfluorononanoic acid (PFNA)         2.00         2.17	Perfluorohexanoic acid (PFHxA)         2.00         2.29         ug/Kg           Perfluoroheptanoic acid (PFHpA)         2.00         2.19         ug/Kg           Perfluorooctanoic acid (PFOA)         2.00         2.13         ug/Kg           Perfluorononanoic acid (PFNA)         2.00         2.17         ug/Kg	Perfluorohexanoic acid (PFHxA)         2.00         2.29         ug/Kg           Perfluoroheptanoic acid (PFHpA)         2.00         2.19         ug/Kg           Perfluorooctanoic acid (PFOA)         2.00         2.13         ug/Kg           Perfluorononanoic acid (PFNA)         2.00         2.17         ug/Kg	Perfluorohexanoic acid (PFHxA)         2.00         2.29         ug/Kg         114           Perfluoroheptanoic acid (PFHpA)         2.00         2.19         ug/Kg         110           Perfluorooctanoic acid (PFOA)         2.00         2.13         ug/Kg         107           Perfluorononanoic acid (PFNA)         2.00         2.17         ug/Kg         109	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

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Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham

### 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 Type: Total/NA Prep Batch: 505990

	Spike	LCS LCS			%Rec.	
Analyte	Added	Result Qual	ifier Unit	D %Rec	Limits	
Perfluoroundecanoic acid	2.00	2.15	ug/Kg		64 - 136	
(PFUnA)						
Perfluorododecanoic acid	2.00	2.21	ug/Kg	111	69 - 135	
(PFDoA)						
Perfluorotridecanoic acid	2.00	2.00	ug/Kg	100	66 - 139	
(PFTriA)						
Perfluorotetradecanoic acid	2.00	2.05	ug/Kg	102	69 - 133	
(PFTeA)						
Perfluorobutanesulfonic acid	1.77	1.70	ug/Kg	96	72 - 128	
(PFBS)						
Perfluorohexanesulfonic acid	1.82	1.92	ug/Kg	106	67 - 130	
(PFHxS)						
Perfluorooctanesulfonic acid	1.86	1.96	ug/Kg	106	68 - 136	
(PFOS)						
N-methylperfluorooctanesulfona	2.00	2.24	ug/Kg	112	63 - 144	
midoacetic acid (NMeFOSAA)	2.00	0.00	/1/	110	04 400	
N-ethylperfluorooctanesulfonami	2.00	2.38	ug/Kg	119	61 - 139	
doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan	1.86	2.04	ua/Ka	109	75 - 135	
onane-1-sulfonic acid	1.00	2.04	ug/Kg	109	75 - 135	
	2.00	2.30	ug/Kg	115	77 - 137	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.30	ug/Ng	113	11 - 131	
11-Chloroeicosafluoro-3-oxaund	1.88	2.09	ug/Kg	111	76 - 136	
ecane-1-sulfonic acid	1.00	2.09	ug/Ng	111	70 - 130	
4,8-Dioxa-3H-perfluorononanoic	1.88	2.22	ug/Kg	118	79 - 139	
4,0-Dioxa-3i i-periluorononanoid	1.00	2.22	ug/Ng	110	19-139	

LCS LCS

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Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	59		50 - 150
13C4 PFHpA	62		50 <sub>-</sub> 150
13C4 PFOA	63		50 <sub>-</sub> 150
13C5 PFNA	61		50 - 150
13C2 PFDA	62		50 <sub>-</sub> 150
13C2 PFUnA	65		50 - 150
13C2 PFDoA	65		50 - 150
13C2 PFTeDA	66		50 - 150
13C3 PFBS	68		50 <sub>-</sub> 150
1802 PFHxS	60		50 - 150
13C4 PFOS	57		50 <sub>-</sub> 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** 

acid (ADONA)

**Analysis Batch: 508826** 

Client Sample ID: SS-10
Prep Type: Total/NA
Prep Batch: 505990

-	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorohexanoic acid (PFHxA)	ND		2.03	2.05		ug/Kg	<del></del>	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

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Client: Shannon & Wilson, Inc Job ID: 320-76026-1

Project/Site: Dillingham Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-19 MS

**Matrix: Solid** 

**Client Sample ID: SS-10 Prep Type: Total/NA Analysis Batch: 508826 Prep Batch: 505990** MS MS %Rec. Spike Sample Sample

	Campie	Campie	Opine	1410	IVIO				/orteo.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorodecanoic acid (PFDA)	ND		2.03	2.08		ug/Kg	<u></u>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.03	2.51		ug/Kg	\$	124	63 - 144
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.03	2.42		ug/Kg	₩	119	61 - 139
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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

acid (ADONA)			
	MS	MS	
Isotope Dilution	%Recovery	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
1802 PFHxS	76		50 - 150
13C4 PFOS	99		50 - 150
d3-NMeFOSAA	57		50 - 150
d5-NEtFOSAA	54		50 - 150
13C3 HFPO-DA	73		50 <sub>-</sub> 150

Lab Sample ID: 320-76026-19 MSD

**Matrix: Solid** 

Analysis Batch: 508826									Prep Ba	itch: 50	05990
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	ND		2.07	2.19		ug/Kg	<u></u>	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

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**Client Sample ID: SS-10** 

**Prep Type: Total/NA** 

## **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76026-19 MSD

**Matrix: Solid** 

acid (ADONA)

**Analysis Batch: 508826** 

**Client Sample ID: SS-10** 

**Prep Type: Total/NA Prep Batch: 505990** 

inaly old Datelli Cocca											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorononanoic acid (PFNA)	ND		2.07	2.07		ug/Kg	<del>-</del>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.07	2.58		ug/Kg	₽	124	63 - 144	3	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.07	2.47		ug/Kg	≎	119	61 - 139	2	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-1-sulfonic acid	ND		1.95	1.54		ug/Kg	≎	79	76 - 136	1	30
4,8-Dioxa-3H-perfluorononanoic	ND	F1	1.95	1.52	F1	ug/Kg	☼	78	79 - 139	2	30

MSD MSD

	MISD	MISD	
Isotope Dilution	%Recovery	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
1802 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
=			

# **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76026-1 Project/Site: Dillingham

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76026-10 DU **Client Sample ID: SS-01 Prep Type: Total/NA** 

**Matrix: Solid** 

Analysis Batch: 506701

Analysis Datch. 300701								
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	6.3		5.3		%		 16	20
Percent Solids	93.8		94.7		%		1	20

# **QC Association Summary**

Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

### 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	<del></del>
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

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Client: Shannon & Wilson, Inc
Project/Site: Dillingham

Job ID: 320-76026-1

### **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	

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# **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	

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Job ID: 320-76026-1

Client: Shannon & Wilson, Inc Project/Site: Dillingham

**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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 06/29/21 10:45

Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-2 **Matrix: Solid** 

Lab Sample ID: 320-76026-2

Lab Sample ID: 320-76026-3

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 06/29/21 10:45

**Matrix: Solid** 

Date Received: 07/09/21 13:12 Percent Solids: 86.6

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/02/21 13:22

Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/02/21 13:22

Date Received: 07/09/21 13:12

Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216		1			506700	07/14/21 15:42	TCS	TAL SAC	
Client Sam	nle ID: SB2	2-31 7-32 3						ah Sample	ID: 320	-76026-3	

Percent Solids: 83.5 Ratch Batch Final Ratch Prepared

		Daton	Baton		<b>D</b>	militiai	a.	Daton	ricparca		
	Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
	Total/NA	Prep	SHAKE			5.15 g	10.0 mL	505809	07/12/21 11:33	OP	TAL SAC
Į	Total/NA	Analysis	EPA 537(Mod)		1			506420	07/14/21 03:19	K1S	TAL SAC

**Client Sample ID: SB2-37.5-38.4** 

Date Collected: 07/02/21 14:30

Date Received: 07/09/21 13:12

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506700	07/14/21 15:42	TCS	TAL SAC

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**Matrix: Solid** 

Matrix: Solid

Lab Sample ID: 320-76026-4

**Matrix: Solid** 

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/06/21 11:10 Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-5

Matrix: Solid

		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
l	Total/NA	Analysis	D 2216		1			506700	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SB3-0.0-0.8

Date Collected: 07/06/21 11:10

Lab Sample ID: 320-76026-5

**Matrix: Solid** 

Date Received: 07/09/21 13:12 Percent Solids: 67.3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/06/21 12:27 Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-6 **Matrix: Solid** 

ſ		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
l	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
L	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/06/21 12:17

Total/NA

Analysis

D 2216

Date Receive	a: 07/09/21	13:12									
	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	

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Lab Sample ID: 320-76026-7

07/14/21 15:42 TCS

506700

**Matrix: Solid** 

TAL SAC

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/06/21 12:38 Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-8

**Matrix: Solid** 

		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
L	Total/NA	Analysis	D 2216		1			506700	07/14/21 15:42	TCS	TAL SAC

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

Batch Batch Batch Dil Initial Final Prepared **Prep Type** Type Method Factor Amount Amount Number or Analyzed Analyst Run Lab Total/NA Prep SHAKE 505809 07/12/21 11:33 OP TAL SAC 5.25 g 10.0 mL Total/NA Analysis EPA 537(Mod) 506420 07/14/21 04:25 K1S TAL SAC

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/06/21 16:55

Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-9 Matrix: Solid

Lab Sample ID: 320-76026-10

Percent Solids: 82.5

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/07/21 10:40	Matrix: Solid
Date Received: 07/09/21 13:12	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Job ID: 320-76026-1

Client: Shannon & Wilson, Inc Project/Site: Dillingham

**Client Sample ID: SS-01** 

Date Collected: 07/07/21 10:40

Lab Sample ID: 320-76026-10

**Matrix: Solid** 

**Matrix: Solid** 

**Matrix: Solid** 

7/22/2021

Date Received: 07/09/21 13:12 Percent Solids: 93.8

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76026-11

Date Collected: 07/07/21 11:00 **Matrix: Solid** 

Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Lab Sample ID: 320-76026-11 Client Sample ID: SS-02

Date Collected: 07/07/21 11:00 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 94.1

Batch Batch Dil Initial Final **Batch Prepared** Method Factor **Amount** Number or Analyzed **Prep Type** Type Run Amount **Analyst** Lab Total/NA Prep SHAKE 505809 07/12/21 11:33 OP TAL SAC 5.15 g 10.0 mL Total/NA Analysis EPA 537(Mod) 1 506420 07/14/21 04:53 K1S TAL SAC

Client Sample ID: SS-03 Lab Sample ID: 320-76026-12

Date Collected: 07/07/21 11:15 Date Received: 07/09/21 13:12

Dil Batch Initial Final Batch Prepared Batch **Prep Type** Type Method Run **Factor** Amount Amount Number or Analyzed Analyst Lab 506701 Total/NA Analysis D 2216 07/14/21 15:42 TCS TAL SAC 1

Client Sample ID: SS-03 Lab Sample ID: 320-76026-12

Date Collected: 07/07/21 11:15 Matrix: Solid Date Received: 07/09/21 13:12 Percent Solids: 91.5

Batch Batch Dil Initial Final **Batch** Prepared **Prep Type** Type Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA SHAKE 505809 07/12/21 11:33 OP TAL SAC Prep 5.35 g 10.0 mL Total/NA Analysis 506420 07/14/21 05:03 K1S TAL SAC EPA 537(Mod) 1

Client Sample ID: SS-04 Lab Sample ID: 320-76026-13 Date Collected: 07/07/21 11:35

Date Received: 07/09/21 13:12

Dil Batch Batch Initial Final Batch **Prepared** Method **Factor** Amount Amount Number or Analyzed **Prep Type** Type Run Analyst Lab TAL SAC D 2216 506701 07/14/21 15:42 TCS Total/NA Analysis

Client Sample ID: SS-04

Date Received: 07/09/21 13:12

Lab Sample ID: 320-76026-13 Date Collected: 07/07/21 11:35

Matrix: Solid Percent Solids: 91.4

Dil Initial Batch Batch Batch Final Prepared Method **Factor** Number or Analyzed **Prep Type** Type Run **Amount** Amount Analyst Lab Total/NA SHAKE 505809 07/12/21 11:33 TAL SAC Prep 5.37 g 10.0 mL 07/14/21 05:12 K1S Total/NA Analysis EPA 537(Mod) 506420 TAL SAC 1

Lab Sample ID: 320-76026-14 Client Sample ID: SS-05

**Matrix: Solid** 

Date Collected: 07/07/21 11:40 Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Lab Sample ID: 320-76026-14 Client Sample ID: SS-05

Date Collected: 07/07/21 11:40 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 93.8

Batch Batch Dil Initial Final **Batch Prepared** Method Factor **Amount** Number or Analyzed **Prep Type** Type Run Amount **Analyst** Lab Prep Total/NA SHAKE 505809 07/12/21 11:33 OP TAL SAC 5.41 g 10.0 mL Total/NA Analysis EPA 537(Mod) 1 506420 07/14/21 05:22 K1S TAL SAC

Client Sample ID: SS-06 Lab Sample ID: 320-76026-15

Date Collected: 07/07/21 12:00 **Matrix: Solid** 

Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Lab Sample ID: 320-76026-15 Client Sample ID: SS-06

Date Collected: 07/07/21 12:00 Matrix: Solid Date Received: 07/09/21 13:12 Percent Solids: 93.6

Batch Batch Dil Initial Final **Batch Prepared** Amount **Prep Type** Type Method Run Factor Amount Number or Analyzed **Analyst** Lab Total/NA Prep SHAKE 505809 07/12/21 11:33 OP TAL SAC 5.39 g 10.0 mL Total/NA Analysis 506420 07/14/21 05:31 K1S TAL SAC EPA 537(Mod) 1

**Client Sample ID: SS-07** Lab Sample ID: 320-76026-16

Date Collected: 07/07/21 12:15 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

**Matrix: Solid** 

Job ID: 320-76026-1

Client: Shannon & Wilson, Inc Project/Site: Dillingham

Client Sample ID: SS-07

Lab Sample ID: 320-76026-16 Date Collected: 07/07/21 12:15

**Matrix: Solid** Percent Solids: 89.9

Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76026-17 Client Sample ID: SS-08

Date Collected: 07/07/21 12:35 Date Received: 07/09/21 13:12

**Matrix: Solid** 

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

**Client Sample ID: SS-08** Lab Sample ID: 320-76026-17

Date Collected: 07/07/21 12:35 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 90.2

Dil Batch Batch Batch Initial Final Prepared **Prep Type** Type Method **Factor** Amount Amount Number or Analyzed Analyst Lab Run Total/NA Prep SHAKE 10.0 mL 505809 07/12/21 11:33 OP TAL SAC 5.21 g Total/NA Analysis EPA 537(Mod) 1 506475 07/14/21 08:58 S1M TAL SAC

Client Sample ID: SS-09 Lab Sample ID: 320-76026-18

Date Collected: 07/07/21 14:15

Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

**Client Sample ID: SS-09** Lab Sample ID: 320-76026-18

Date Collected: 07/07/21 14:15 Matrix: Solid Date Received: 07/09/21 13:12 Percent Solids: 93.9

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** Lab Sample ID: 320-76026-19 **Matrix: Solid** 

Date Collected: 07/07/21 15:45 Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216					506701	07/14/21 15:42	TCS	TAL SAC

**Client Sample ID: SS-10** 

Date Collected: 07/07/21 15:45

Lab Sample ID: 320-76026-19

**Matrix: Solid** 

**Matrix: Solid** 

Date Received: 07/09/21 13:12 Percent Solids: 89.2

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76026-20 **Client Sample ID: SS-11 Matrix: Solid** 

Date Collected: 07/07/21 16:00 Date Received: 07/09/21 13:12

Γ		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
-	Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Lab Sample ID: 320-76026-20 Client Sample ID: SS-11

Date Received: 07/09/21 13:12

Date Collected: 07/07/21 16:00 **Matrix: Solid** Percent Solids: 86.2

Batch Batch Batch Dil Initial Final Prepared **Prep Type** Type Method Factor Amount Amount Number or Analyzed Analyst Lab Run Total/NA Prep SHAKE 505990 07/12/21 19:00 AM TAL SAC 5.53 g 10.0 mL 07/16/21 02:08 S1M Total/NA Analysis EPA 537(Mod) 1 507184 TAL SAC

Client Sample ID: SS-12 Lab Sample ID: 320-76026-21

Date Collected: 07/07/21 15:00 Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

**Client Sample ID: SS-12** Lab Sample ID: 320-76026-21

Date Collected: 07/07/21 15:00

**Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 82.0

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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** Lab Sample ID: 320-76026-22 **Matrix: Solid** 

Date Collected: 07/07/21 14:50 Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					506701	07/14/21 15:42	TCS	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** 

Percent Solids: 60.2

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76026-23 Client Sample ID: SS-14

Date Collected: 07/07/21 16:10 Date Received: 07/09/21 13:12

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-14 Lab Sample ID: 320-76026-23

Date Collected: 07/07/21 16:10 **Matrix: Solid** Date Received: 07/09/21 13:12 Percent Solids: 89.3

Dil Batch Batch Batch Initial Final **Prepared Prep Type** Type Method Factor **Amount** Amount Number or Analyzed Run Analyst Lab Total/NA Prep SHAKE 505990 07/12/21 19:00 AM TAL SAC 5.28 g 10.0 mL Total/NA Analysis EPA 537(Mod) 1 508826 07/21/21 14:31 D1R TAL SAC

Client Sample ID: SS-15 Lab Sample ID: 320-76026-24 **Matrix: Solid** 

Date Collected: 07/07/21 16:25 Date Received: 07/09/21 13:12

Dil Initial Batch Final Batch Prepared Batch Prep Type Type Method Run **Factor Amount** Amount Number or Analyzed Analyst Lab 506701 07/14/21 15:42 TCS Total/NA Analysis D 2216 1 TAL SAC

**Client Sample ID: SS-15** Lab Sample ID: 320-76026-24

Date Collected: 07/07/21 16:25 Matrix: Solid Date Received: 07/09/21 13:12 Percent Solids: 91.6

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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** Lab Sample ID: 320-76026-25 **Matrix: Solid** 

Date Collected: 07/08/21 09:10 Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					506701	07/14/21 15:42	TCS	TAL SAC	

**Client Sample ID: SS-16** 

Lab Sample ID: 320-76026-25

**Matrix: Solid** 

Percent Solids: 90.7

Date	Collected:	07/08/21	09:10
<b>Date</b>	Received:	07/09/21	13:12

**Client Sample ID: SS-17** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76026-26

**Matrix: Solid** 

Date Collected: 07/08/21 09:00 Date Received: 07/09/21 13:12

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

Client Sample ID: SS-17 Lab Sample ID: 320-76026-26 Date Collected: 07/08/21 09:00 **Matrix: Solid** 

Percent Solids: 91.7

Batch Batch Batch Dil Initial Final Prepared **Prep Type** Type Method **Factor Amount** Amount Number or Analyzed Analyst Run Lab Total/NA Prep SHAKE 10.0 mL 505990 07/12/21 19:00 AM TAL SAC 5.17 g

Client Sample ID: SS-18 Lab Sample ID: 320-76026-27

507184

1

**Matrix: Solid** 

TAL SAC

Date Collected: 07/08/21 09:15 Date Received: 07/09/21 13:12

Analysis

EPA 537(Mod)

Date Received: 07/09/21 13:12

Total/NA

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506701	07/14/21 15:42	TCS	TAL SAC

**Client Sample ID: SS-18** Lab Sample ID: 320-76026-27

Date Collected: 07/08/21 09:15 Date Received: 07/09/21 13:12

**Matrix: Solid** Percent Solids: 89.5

07/16/21 03:21 S1M

Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** Lab Sample ID: 320-76026-28 **Matrix: Solid** 

Date Collected: 07/08/21 09:35 Date Received: 07/09/21 13:12

ſ	<u> </u>											
ı		Batch	Batch		Dil	Initial	Final	Batch	Prepared			
	Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-76026-1

Project/Site: Dillingham

**Client Sample ID: SS-19** Lab Sample ID: 320-76026-28 Date Collected: 07/08/21 09:35

**Matrix: Solid** 

Date Received: 07/09/21 13:12 Percent Solids: 92.1

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-76026-1 Project/Site: Dillingham

### **Laboratory: Eurofins TestAmerica, Sacramento**

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

		ogram	Identification Number	Expiration Date 02-20-24	
		ate	17-020		
Tt f. II		.4. 14.41 1.1		TI. 1. P. A	
the agency does not o	•	ort, but the laboratory is r	not certified by the governing authority.	i nis list may include analytes t	or which
0 ,	•	ort, but the laboratory is r Matrix	Analyte	i nis list may include analytes i	or which
the agency does not o	offer certification.	•	, , ,	This list may include analytes	or which

### **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

- 5

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7

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10

12

# **Sample Summary**

Client: Shannon & Wilson, Inc

320-76026-28

SS-19

Project/Site: Dillingham

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

Solid

07/08/21 09:35 07/09/21 13:12

Job ID: 320-76026-1

CHAIN-OF-CUSTODY RECORD

7/22/2021

SHANNON & WILSON, INC.

BEOTECHNICAL AND ENVIRONMENTAL CONBULTANTB

2355 Hill Road

Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file















Laboratory



No.











No.

Client: Shannon & Wilson, Inc

Job Number: 320-76026-1

Login Number: 76026 List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Oropeza, Salvador

orcator. Oropeza, Garrador		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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	
ls 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. <u>Laboratory</u>
a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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)?
$Yes \boxtimes No \square N/A \square$ Comments:
b. Correct analyses requested?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
PFAS soil samples do not require preservation beyond the temperature requirements.

320-76026-1
Laboratory Report Date:
July 22, 2021
CS Site Name:
Dillingham DOT&PF
c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\boxtimes$ N/A $\square$ Comments:
No discrepancies were documented.
e. Data quality or usability affected?
Comments:
Data quality and/or usability are not affected; see above.
4. <u>Case Narrative</u>
a. Present and understandable?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:

	320-76026-1	
La	boratory Report Date:	
	July 22, 2021	
CS	Site Name:	
	Dillingham DOT&PF	
	b. Discrepancies, errors, or Q	C failures identified by the lab?
	$Yes \boxtimes No \square N/A \square$	Comments:

320-76026-1	

Laboratory Report Date:

CS Site Name:

Dill	lingha	ım D	OT&PF
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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.

	320-76026-1
La	boratory Report Date:
	July 22, 2021
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: <i>SS-10</i> , <i>SS-14</i> , (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 <i>SB31-10.0-11.0</i> (PFHxA) and <i>SS-13</i> (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?
	$Yes \boxtimes No \square N/A \square$ 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:

	320-76026-1
Lal	boratory Report Date:
	July 22, 2021
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
	ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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)
	<ul> <li>Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
	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?
$Yes \square No \square N/A \boxtimes Comments:$
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 $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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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<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> </ul>
Yes⊠ No□ N/A□ Comments:
<ul> <li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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 <i>SB1-15.7-16.3</i> .
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:

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v.	If %R or RPD is outside of acceptable limits, what samples are affected?  Comments:
therefore PFUnA	tFOSAA and 9Cl-PF3ONS analytes were not detected in the parent sample <i>SB1-15.7-16.3</i> ; e, the results are considered unaffected, and no qualifications are required.  was not detected in the parent sample <i>SS-10</i> ; therefore, the result is considered unaffected, qualifications are required.
	A was not detected in the parent sample <i>SS-10</i> ; therefore, the results are considered estimated 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
See abov	ve.
vii.	Data quality or usability affected? (Use comment box to explain.)  Comments:
The data	a quality/usability is not affected.
d. Surro	ogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only
	Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:

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J	aly 22, 2021
CS S	te Name:
	illingham DOT&PF
	<ul> <li>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)</li> <li>Yes□ No⋈ N/A□ Comments:</li> </ul>
	Percent recoveries in project sample <i>SB3-0.0-0.8</i> 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 <i>SS-08</i> 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?
	$Yes \boxtimes No \square N/A \square$ Comments:
	See above.
	iv. Data quality or usability affected?  Comments:
	The data quality/usability is affected; see above.
	e. Trip Blanks
	<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>
	$Yes \square No \square N/A \boxtimes Comments:$
	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)
	$Yes \square No \square N/A \boxtimes Comments:$
	See above

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iii. All results less than LOQ and project specified objectives?
$Yes \square No \square N/A \boxtimes Comments:$
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.
<ul> <li>f. Field Duplicate</li> <li>i. One field duplicate submitted per matrix, analysis and 10 project samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
ii. Submitted blind to lab?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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.

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g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?	1
Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:	
Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.	ſ
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>	
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?	
$Yes \square No \square N/A \boxtimes Comments:$	
No other data flags or qualifiers.	



# **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

Jamil atime

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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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

### **Qualifiers**

		N/I	C
ш	v	IVI	J

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
1	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)
MDI	Method Detection Limit

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 Positive / Present POS

PQL **Practical Quantitation Limit** 

**PRES** Presumptive QC **Quality Control** 

RER Relative Error Ratio (Radiochemistry)

RLReporting 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

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#### **Case Narrative**

Client: Shannon & Wilson, Inc

Project/Site: DLG

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 1.5° 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.

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Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

l ah	Samp	ا ما	D.	320	_761	13_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 Quali	fier 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		₩	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	JI	0.20	0.041	ug/Kg		⊅	EPA 537(Mod)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.037	JI	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.

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Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

Client Sample ID: SS-Grid-C	3					Lab Sample ID: 320-76143
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		ug/Kg	1 ☼ EPA 537(Mod) Total/NA
Perfluorododecanoic acid (PFDoA)	0.11	J	0.21		ug/Kg	1 ☼ EPA 537(Mod) Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.35		0.21		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
No Detections.						
Client Sample ID: SB4-15.5-	17.0					Lab Sample ID: 320-76143
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: 320-76143-1
No Detections.						
Client Sample ID: SB4-27.8-	28.5					Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SB5-35.0-	35.5					Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SB5-40.0-	41.5					Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SS-20						Lab Sample ID: 320-76143-1
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D Method Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.30	JI -	0.71	0.28	ug/Kg	1 🛱 EPA 537(Mod) Total/NA
Client Sample ID: SS-21						Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SS-22						Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SS-23						Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SS-24						Lab Sample ID: 320-76143-1
No Detections.						
Client Sample ID: SS-25						Lab Sample ID: 320-76143-1
Analyte		Qualifier	RL		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		1.1		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.

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### **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**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 Ty	ре
Perfluoroheptanoic acid (PFHpA)	0.32 JI	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 ua/Ka	1 ☆	EPA 537(Mod)	Total/NA

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Client Sample ID: SS-Grid-A1** Lab Sample ID: 320-76143-1

Date Collected: 07/08/21 18:55 **Matrix: Solid** Date Received: 07/13/21 15:45 Percent Solids: 93.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.084	J	0.21	0.044	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	₽	07/14/21 18:46	07/16/21 09:19	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	₩	07/14/21 18:46	07/16/21 09:19	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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		1

(ADONA)						
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
1802 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

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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: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

Client Sample ID: SS-Grid-A2 Lab Sample ID: 320-76143-2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.16	J	0.19	0.040	ug/Kg	— <u></u>	07/14/21 18:46	07/16/21 09:46	
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	
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	
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		ug/Kg	₽	07/14/21 18:46	07/16/21 09:46	
Perfluorotridecanoic acid (PFTriA)	ND		0.19		ug/Kg	₽	07/14/21 18:46	07/16/21 09:46	
Perfluorotetradecanoic acid (PFTeA)	ND		0.19		ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	
Perfluorobutanesulfonic acid	0.045		0.19	0.024	ug/Kg		07/14/21 18:46	07/16/21 09:46	1
(PFBS)					0 0				
Perfluorohexanesulfonic acid (PFHxS)	1.9		0.19	0.029	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	•
Perfluorooctanesulfonic acid (PFOS)	15		0.47	0.19	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.37	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.35	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.19	0.025	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24	0.10	ug/Kg	\$	07/14/21 18:46	07/16/21 09:46	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.19	0.021	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	•
4,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		0.19	0.017	ug/Kg	₩	07/14/21 18:46	07/16/21 09:46	•
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	73		50 - 150					07/16/21 09:46	
13C4 PFHpA	78		50 <sub>-</sub> 150					07/16/21 09:46	
13C4 PFOA	85		50 <sub>-</sub> 150					07/16/21 09:46	
13C5 PFNA	78		50 - 150					07/16/21 09:46	
13C2 PFDA	82		50 <sub>-</sub> 150					07/16/21 09:46	
13C2 PFUnA	80		50 - 150					07/16/21 09:46	
13C2 PFDoA	77		50 - 150					07/16/21 09:46	
13C2 PFTeDA	 75		50 - 150					07/16/21 09:46	
13C3 PFBS	66		50 - 150 50 - 150					07/16/21 09:46	
1802 PFHxS	64		50 - 150					07/16/21 09:46	
13C4 PFOS	65		50 - 150 50 - 150					07/16/21 09:46	
d3-NMeFOSAA	73		50 - 150 50 - 150					07/16/21 09:46	
15-NEtFOSAA			50 - 150 50 - 150					07/16/21 09:46	
13C3 HFPO-DA	75 72		50 - 150 50 - 150					07/16/21 09:46	
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	
rercent Moisture	V. <del>-</del>			0.1	, 0			0.7.0720.02	

07/15/21 10:52

0.1

0.1 %

94.6

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Client: Shannon & Wilson, Inc

Project/Site: DLG

**Percent Solids** 

Client Sample ID: SS-Grid-B2 Lab Sample ID: 320-76143-3

Date Collected: 07/08/21 19:20 Matrix: Solid
Date Received: 07/13/21 15:45 Percent Solids: 91.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.16	J	0.21	0.043	ug/Kg	— <u></u>	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		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	₩	07/14/21 18:46	07/16/21 09:55	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	₩	07/14/21 18:46	07/16/21 09:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.21		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-oxaundecan e-1-sulfonic acid	ND		0.21		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	,
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	
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 <sub>-</sub> 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	
13C2 PFTeDA	38	*5-	50 - 150				07/14/21 18:46	07/16/21 09:55	1
13C3 PFBS	47	*5-	50 <sub>-</sub> 150				07/14/21 18:46	07/16/21 09:55	1
1802 PFHxS		*5-	50 - 150					07/16/21 09:55	1
13C4 PFOS	46	*5-	50 - 150					07/16/21 09:55	1
d3-NMeFOSAA	36	*5-	50 - 150					07/16/21 09:55	1
d5-NEtFOSAA	35	*5-	50 - 150					07/16/21 09:55	
13C3 HFPO-DA		*5-	50 - 150					07/16/21 09:55	1
General Chemistry									
Analyte		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	9.0		0.1	0.1	%			07/15/21 10:52	1

Eurofins TestAmerica, Sacramento

07/15/21 10:52

0.1

0.1 %

91.0

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Job ID: 320-76143-1

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Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.35		0.20	0.042	ug/Kg	<u></u>	07/14/21 18:46	07/16/21 10:04	
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0		ug/Kg	₩	07/14/21 18:46	07/16/21 10:04	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	₽	07/14/21 18:46	07/16/21 10:04	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.20		ug/Kg		07/14/21 18:46		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.25		ug/Kg		07/14/21 18:46		1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.20		ug/Kg		07/14/21 18:46		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
1802 PFHxS	52		50 - 150				07/14/21 18:46	07/16/21 10:04	1
13C4 PFOS	61		50 - 150					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						_			<b></b> -
Analyte		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.4		0.1	0.1	%			07/15/21 10:52	1

0.1

0.1 %

93.6

07/15/21 10:52

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

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		ug/Kg	₩	07/14/21 18:46	07/16/21 10:14	1
Perfluorohexanesulfonic acid (PFHxS)	1.2		0.21		ug/Kg			07/16/21 10:14	1
Perfluorooctanesulfonic acid (PFOS)	12		0.52		ug/Kg			07/16/21 10:14	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1		ug/Kg			07/16/21 10:14	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1		ug/Kg			07/16/21 10:14	1
9-Chlorohexadecafluoro-3-oxanonan 9-1-sulfonic acid	ND		0.21		ug/Kg			07/16/21 10:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.26		ug/Kg			07/16/21 10:14	1
1-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.21		ug/Kg			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
1802 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					07/16/21 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		Qualifier	RL	MDL	-	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

Eurofins TestAmerica, Sacramento

7/23/2021

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Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

Perfluorodecanoic acid (PFDA)   ND   0.20   0.022   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoroundecanoic acid (PFDA)   ND   0.20   0.055   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluorotodecanoic acid (PFDA)   ND   0.20   0.056   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluorotodecanoic acid (PFDA)   ND   0.20   0.050   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluorotodecanoic acid (PFTA)   ND   0.20   0.053   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluorobutanesulfonic acid   0.037   J1   0.20   0.053   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluorobutanesulfonic acid   0.037   J1   0.20   0.030   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluorobutanesulfonic acid   0.44   0.20   0.30   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoroctanesulfonic acid   0.44   0.20   0.38   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoroctanesulfonic acid   ND   0.20   0.36   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoroctanesulfonic acid   ND   0.20   0.36   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoroctanesulfonic acid   ND   0.20   0.026   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.026   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.026   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.026   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   0.0000000000000000000000000000000000	Dil Fa	Analyzed	Prepared	D	Unit	MDL	RL	Qualifier	Result	Analyte
Perfluorootanoia acid (PFDA)   ND   0.20   0.084   ug/Kg   0.71/4/21 18.46   0.71/6/21 10:23   0.71/		07/16/21 10:23	07/14/21 18:46	<u></u>	ug/Kg	0.041	0.20	JI	0.12	Perfluorohexanoic acid (PFHxA)
Perfluoronoanoia caid (PFDA)		07/16/21 10:23	07/14/21 18:46	☼	ug/Kg	0.028	0.20		ND	Perfluoroheptanoic acid (PFHpA)
Perfluorodecanoic acid (PFDA)   ND   0.20   0.022   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluoroundecanoic acid (PFDA)   ND   0.20   0.055   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluoroundecanoic acid (PFDA)   ND   0.20   0.066   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorototidecanoic acid (PFTA)   ND   0.20   0.050   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorototidecanoic acid (PFTA)   ND   0.20   0.053   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorobutanesulfonic acid   0.037   J1   0.20   0.053   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorobutanesulfonic acid   0.037   J1   0.20   0.030   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorootanesulfonic acid   0.44   0.20   0.30   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorootanesulfonic acid   0.44   0.20   0.38   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorootanesulfonic acid   ND   0.20   0.36   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorootanesulfonic acid   ND   0.20   0.36   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorootanesulfonic acid   ND   0.20   0.026   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluorobexadecafluoro-3-oxanonan   ND   0.20   0.026   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.026   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.026   ug/Kg   0.7/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.028   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   Perfluoropropylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0.07/14/21 18:46   07/16/21 10:23   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0		07/16/21 10:23	07/14/21 18:46	☼	ug/Kg	0.084	0.20		ND	Perfluorooctanoic acid (PFOA)
Perfluoroundecanoic acid (PFUnA)   ND   0.20   0.035   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorotodecanoic acid (PFDoA)   ND   0.20   0.066   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorotodecanoic acid (PFTeA)   ND   0.20   0.050   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorototetradecanoic acid (PFTeA)   ND   0.20   0.053   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorototradecanoic acid (PFTeA)   ND   0.20   0.053   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorototradesulfonic acid   0.44   0.20   0.030   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorototradesulfonic acid   0.44   0.20   0.030   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonic acid   0.44   0.20   0.030   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonic acid   0.44   0.20   0.38   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonic acid   ND   0.20   0.38   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.36   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluorocta	· · · · · · · · ·	07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.035	0.20		ND	Perfluorononanoic acid (PFNA)
Perfluorododecanoic acid (PFDoA)   ND   0.20   0.066   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluorotridecanoic acid (PFTriA)   ND   0.20   0.055   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluorotridecanoic acid (PFTriA)   ND   0.20   0.053   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluorotridecanoic acid (PFTeA)   ND   0.20   0.030   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluorotridecanoic acid (PFTeA)   ND   0.20   0.030   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoroctanesulfonic acid   ND   0.20   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoroctanesulfonic acid   ND   2.0   0.38   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoroctanesulfonamidoa   ND   2.0   0.36   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoroctanesulfonamidoa   ND   0.20   0.36   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoropropylene Oxide Dimer   ND   0.24   0.11   ug/Kg   0   07/14/21   18.46   07/16/21   10.23   Perfluoropropylene Oxide Dimer   ND   0.20   0.022   ug/Kg   0   0   0   0   0   0   0   0   0	•	07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.022	0.20		ND	Perfluorodecanoic acid (PFDA)
Perfluorotridecanoic acid (PFTriA)   ND   0.20   0.050   ug/Kg   30 07/14/21 18:46   07/16/21 10:23	1	07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.035	0.20		ND	Perfluoroundecanoic acid (PFUnA)
Perfluorotetradecanoic acid (PFTeA)   ND   0.20   0.053   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluorotetradesulfonic acid   0.037   J1   0.20   0.024   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluorotexanesulfonic acid   0.44   0.20   0.030   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroctanesulfonic acid   0.44   0.20   0.030   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroctanesulfonic acid   0.44   0.20   0.38   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroctanesulfonamidoa   ND   2.0   0.38   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroctanesulfonamidoa   ND   2.0   0.36   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroctanesulfonamidoa   ND   0.20   0.026   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroptopylene Oxide Dimer   ND   0.20   0.026   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroptopylene Oxide Dimer   ND   0.20   0.022   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluorosafluoro3-oxaundecan   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perfluoronotanesulfonic acid   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.23     Perpluoroptopylene Oxide Dimer   ND   0.20   0.018   ug/Kg   0 07/14/21   18.46   07/16/21   10.2		07/16/21 10:23	07/14/21 18:46	₽	ug/Kg	0.066	0.20		ND	Perfluorododecanoic acid (PFDoA)
Perfluorobutanesulfonic acid   0.037		07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.050	0.20		ND	Perfluorotridecanoic acid (PFTriA)
Perfluorochexanesulfonic acid   0.44   0.20   0.030   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonic acid   0.44   0.20   0.030   ug/kg   0   07/14/21   18:46   07/16/21   10:23   Perfluoroctanesulfonamidoa   ND   2.0   0.38   ug/kg   0   07/14/21   18:46   07/16/21   10:23   07/14/21   18:46   07/16/21   1		07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.053	0.20		ND	Perfluorotetradecanoic acid (PFTeA)
(PFHxS)         Perfluoroctanesulfonic acid         3.7         0.49         0.20         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           Prefluoroctanesulfonamidoa cetic acid (NMeFOSAA)         ND         2.0         0.38         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           N-ethylperfluoroctanesulfonamidoac etic acid (NEIFOSAA)         ND         2.0         0.36         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           9-Chlorobexadecafluoro-3-oxanonan etic acid (NEIFOSAA)         ND         0.20         0.024         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           9-Chlorobexadecafluoro-3-oxanonan etic acid (HFPO-DA)         ND         0.24         0.11         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           4-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid 4,8-Dioxa-3H-perfluorononanoic acid 4,8-Dioxa-3H-perfluorononanoic acid (ABONA)         ND         0.20         0.018         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           13C2 PFHxA         51         50 - 150         0.018         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           13C2 PFHxA         51         50 - 150         0.018         ug/Kg         ⋄ 07/14/21 18:46         07/16/21 10:23           13C4 PFDA         58         50 - 150         0.018	1	07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.024	0.20	JI	0.037	Perfluorobutanesulfonic acid (PFBS)
N-methylperfluorooctanesulfonamidoa   ND   2.0   0.38   ug/Kg   0.7/14/21   18:46   07/16/21   10:23   cetic acid (MMeFOSAA)   N-ethylperfluorooctanesulfonamidoac   ND   2.0   0.36   ug/Kg   0.7/14/21   18:46   07/16/21   10:23   cetic acid (NEiFOSAA)   N-ethylperfluorooctanesulfonamidoac   ND   0.20   0.026   ug/Kg   0.7/14/21   18:46   07/16/21   10:23   cetic acid (NEiFOSAA)   ND   0.24   0.11   ug/Kg   0.7/14/21   18:46   07/16/21   10:23   cetic acid (HFPO-DA)   ND   0.20   0.022   ug/Kg   0.7/14/21   18:46   07/16/21   10:23   cetic acid (HFPO-DA)   ND   0.20   0.022   ug/Kg   0.7/14/21   18:46   07/16/21   10:23   cetic acid   0.7/16/21   10:23   cetic acid acid acid acid acid acid acid ac	1	07/16/21 10:23	07/14/21 18:46	≎	ug/Kg	0.030	0.20		0.44	
cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEFOSAA) 9-Chlorohexadecafluoro-3-oxanonan							0.49		3.7	(PFOS)
etic acid (NEIFOSAA) 9-1-sulfonic acid Hexafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) H-C-hloroeicosafluoro-3-oxanundecan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) H-C-hloroeicosafluoro-3-oxanundecan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) H-C-hloroeicosafluoro-3-oxanundecan e-1-sulfonic acid Al-B-Dioxa-3H-perfluorononanoic acid (AB-Dioxa-3H-perfluorononanoic acid (AB-Dioxa-3H-perfluorononanoic acid Al-B-Dioxa-3H-perfluorononanoic acid A	1									cetic acid (NMeFOSAA)
e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (A8-Dioxa-3H-perfluorononanoic acid (A8-Dioxa-3H-perfluorononanoic acid (A8-Dioxa-3H-perfluorononanoic acid (A9DNA)  Isotope Dilution %Recovery Qualifier Limits	•	07/16/21 10:23	07/14/21 18:46	☼						
Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution Stotope Dilu									ND	
e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)    Sotope Dilution   %Recovery   Qualifier   Limits   Prepared   Analyzed	•									
Sotope Dilution   Secovery   Qualifier   Limits   Prepared   Analyzed	,	07/16/21 10:23	07/14/21 18:46	☼			0.20		ND	
13C2 PFHxA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFHpA 58 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C5 PFNA 58 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFUnA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFUnA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDOA 48 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFTeDA 47 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 53 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 63-NMeFOSAA 52 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 HFPO-DA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 HFPO-DA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 HFPO-DA 52 50 - 150 07/14/21 18:46 07/16/21 10:23	,	07/16/21 10:23	07/14/21 18:46	₩	ug/Kg	0.018	0.20		ND	•
13C4 PFHpA 58 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C5 PFNA 58 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFUnA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFUnA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDOA 48 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFTeDA 47 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 53 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 53 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFDO-DA 59 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFDO-DA 49 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFPO-DA 49 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 P	Dil Fa	Analyzed	Prepared				Limits	Qualifier	%Recovery	Isotope Dilution
13C4 PFOA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C5 PFNA 58 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFUnA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDOA 48 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFTeDA 47 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 53 50 - 150 07/14/21 18:46 07/16/21 10:23 18O2 PFHxS 52 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 NMEFOSAA 52 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 NMEFOSAA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 NMEFOSAA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 NMEFOSAA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 NMEPO-DA 49 *5- 50 - 150		07/16/21 10:23	07/14/21 18:46				50 - 150		51	13C2 PFHxA
13C5 PFNA       58       50 - 150       07/14/21 18:46       07/16/21 10:23         13C2 PFDA       56       50 - 150       07/14/21 18:46       07/16/21 10:23         13C2 PFUnA       51       50 - 150       07/14/21 18:46       07/16/21 10:23         13C2 PFDOA       48       *5 -       50 - 150       07/14/21 18:46       07/16/21 10:23         13C2 PFTEDA       47       *5 -       50 - 150       07/14/21 18:46       07/16/21 10:23         13C3 PFBS       53       50 - 150       07/14/21 18:46       07/16/21 10:23         18O2 PFHxS       52       50 - 150       07/14/21 18:46       07/16/21 10:23         13C4 PFOS       50       50 - 150       07/14/21 18:46       07/16/21 10:23         d3-NMeFOSAA       52       50 - 150       07/14/21 18:46       07/16/21 10:23         d5-NEtFOSAA       51       50 - 150       07/14/21 18:46       07/16/21 10:23         13C3 HFPO-DA       49       *5 -       50 - 150       07/14/21 18:46       07/16/21 10:23     General Chemistry  Analyte  Result Qualifier  RL MDL Unit  D Prepared Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150		58	13C4 PFHpA
13C2 PFDA 56 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFUnA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFDoA 48 *5 - 50 - 150 07/14/21 18:46 07/16/21 10:23 13C2 PFTeDA 47 *5 - 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 PFBS 53 50 - 150 07/14/21 18:46 07/16/21 10:23 18O2 PFHxS 52 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOSAA 52 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 HFPO-DA 49 *5 - 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 HFPO-DA 49 *		07/16/21 10:23	07/14/21 18:46				50 - 150		56	13C4 PFOA
13C2 PFUnA       51       50 - 150       07/14/21 18:46       07/16/21 10:23         13C2 PFDoA       48 *5-       50 - 150       07/14/21 18:46       07/16/21 10:23         13C2 PFTeDA       47 *5-       50 - 150       07/14/21 18:46       07/16/21 10:23         13C3 PFBS       53       50 - 150       07/14/21 18:46       07/16/21 10:23         18O2 PFHxS       52       50 - 150       07/14/21 18:46       07/16/21 10:23         13C4 PFOS       50       50 - 150       07/14/21 18:46       07/16/21 10:23         d3-NMeFOSAA       52       50 - 150       07/14/21 18:46       07/16/21 10:23         d5-NEtFOSAA       51       50 - 150       07/14/21 18:46       07/16/21 10:23         13C3 HFPO-DA       49 *5-       50 - 150       07/14/21 18:46       07/16/21 10:23         General Chemistry         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed	1	07/16/21 10:23	07/14/21 18:46				50 - 150		58	13C5 PFNA
13C2 PFDoA       48 *5-       50 - 150       07/14/21 18:46 07/16/21 10:23         13C2 PFTeDA       47 *5-       50 - 150       07/14/21 18:46 07/16/21 10:23         13C3 PFBS       53       50 - 150       07/14/21 18:46 07/16/21 10:23         18O2 PFHxS       52       50 - 150       07/14/21 18:46 07/16/21 10:23         13C4 PFOS       50       50 - 150       07/14/21 18:46 07/16/21 10:23         d3-NMeFOSAA       52       50 - 150       07/14/21 18:46 07/16/21 10:23         d5-NEtFOSAA       51       50 - 150       07/14/21 18:46 07/16/21 10:23         13C3 HFPO-DA       49 *5-       50 - 150       07/14/21 18:46 07/16/21 10:23         General Chemistry         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed	1	07/16/21 10:23	07/14/21 18:46				50 - 150		56	13C2 PFDA
13C2 PFTeDA	1	07/16/21 10:23	07/14/21 18:46				50 - 150		51	13C2 PFUnA
13C3 PFBS 53 50 - 150 07/14/21 18:46 07/16/21 10:23 18O2 PFHxS 52 50 - 150 07/14/21 18:46 07/16/21 10:23 13C4 PFOS 50 50 - 150 07/14/21 18:46 07/16/21 10:23 d3-NMeFOSAA 52 50 - 150 07/14/21 18:46 07/16/21 10:23 d5-NEtFOSAA 51 50 - 150 07/14/21 18:46 07/16/21 10:23 13C3 HFPO-DA 49 *5- 50 - 150 07/14/21 18:46 07/16/21 10:23 O7/14/21 18:		07/16/21 10:23	07/14/21 18:46				50 - 150	*5-	48	13C2 PFDoA
1802 PFHxS     52     50 - 150     07/14/21 18:46 07/16/21 10:23       13C4 PFOS     50     50 - 150     07/14/21 18:46 07/16/21 10:23       d3-NMeFOSAA     52     50 - 150     07/14/21 18:46 07/16/21 10:23       d5-NEtFOSAA     51     50 - 150     07/14/21 18:46 07/16/21 10:23       13C3 HFPO-DA     49 *5-     50 - 150     07/14/21 18:46 07/16/21 10:23       General Chemistry       Analyte     Result Qualifier     RL MDL Unit     D Prepared Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150	*5-	47	13C2 PFTeDA
13C4 PFOS     50     50 - 150     07/14/21 18:46     07/16/21 10:23       d3-NMeFOSAA     52     50 - 150     07/14/21 18:46     07/16/21 10:23       d5-NEtFOSAA     51     50 - 150     07/14/21 18:46     07/16/21 10:23       13C3 HFPO-DA     49 *5-     50 - 150     07/14/21 18:46     07/16/21 10:23       General Chemistry       Analyte     Result Qualifier     RL     MDL Unit     D     Prepared     Analyzed							50 - 150		53	
d3-NMeFOSAA     52     50 - 150     07/14/21 18:46     07/16/21 10:23       d5-NEtFOSAA     51     50 - 150     07/14/21 18:46     07/16/21 10:23       13C3 HFPO-DA     49 *5-     50 - 150     07/14/21 18:46     07/16/21 10:23       General Chemistry       Analyte     Result Qualifier     RL     MDL Unit     D     Prepared     Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150		52	1802 PFHxS
d5-NEtFOSAA       51       50 - 150       07/14/21 18:46 07/16/21 10:23         13C3 HFPO-DA       49 *5-       50 - 150       07/14/21 18:46 07/16/21 10:23         General Chemistry         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150		50	13C4 PFOS
13C3 HFPO-DA       49 *5-       50 - 150       07/14/21 18:46 07/16/21 10:23         General Chemistry         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150		52	d3-NMeFOSAA
General Chemistry Analyte Result Qualifier RL MDL Unit D Prepared Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150		51	d5-NEtFOSAA
Analyte Result Qualifier RL MDL Unit D Prepared Analyzed		07/16/21 10:23	07/14/21 18:46				50 - 150	*5-	49	13C3 HFPO-DA
Percent Moisture 6.8 0.1 0.1 % 07/15/21 10:52	Dil Fac		Prepared	_ <b>D</b>				Qualifier		Analyte

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

Eurofins TestAmerica, Sacramento

7/23/2021

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

Client Sample ID: SS-Grid-C3 Lab Sample ID: 320-76143-7

Date Collected: 07/08/21 19:40 **Matrix: Solid** Percent Solids: 91.4 Date Received: 07/13/21 15:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.12	J	0.21	0.044	ug/Kg	<u></u>	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	0.087	J	0.21	0.038	ug/Kg	₩	07/14/21 18:46	07/16/21 10:51	1
(PFUnA)					0 0				
Perfluorododecanoic acid	0.11	J	0.21	0.070	ug/Kg	₩	07/14/21 18:46	07/16/21 10:51	1
(PFDoA)									
Perfluorotridecanoic acid (PFTriA)	ND		0.21		ug/Kg	≎		07/16/21 10:51	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.21		ug/Kg		07/14/21 18:46	07/16/21 10:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.21		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg		07/14/21 18:46	07/16/21 10:51	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	₽	07/14/21 18:46	07/16/21 10:51	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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					07/16/21 10:51	1
13C4 PFHpA	65		50 - 150					07/16/21 10:51	1
13C4 PFOA	65		50 <sub>-</sub> 150					07/16/21 10:51	1
13C5 PFNA	68		50 - 150					07/16/21 10:51	
13C2 PFDA	63		50 - 150					07/16/21 10:51	1
13C2 PFUnA	56		50 - 150					07/16/21 10:51	1
13C2 PFDoA	62		50 - 150					07/16/21 10:51	
			50 - 150 50 - 150						
13C2 PFTeDA	56		50 - 150 50 - 150					07/16/21 10:51 07/16/21 10:51	1 1
13C3 PFBS	64								
1802 PFHxS	55		50 - 150					07/16/21 10:51	1
13C4 PFOS	64		50 - 150					07/16/21 10:51	1
d3-NMeFOSAA	61		50 - 150					07/16/21 10:51	1
d5-NEtFOSAA	56		50 - 150					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	Danill.	Ovelië:	ы	BAD!	I I m i 4	_	Duanl	A mal:1	Dil 5
Analyte		Qualifier	RL		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

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Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.27	0.056	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa	ND		2.7	0.52	ug/Kg	₩	07/14/21 18:46	07/16/21 11:00	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.7		ug/Kg	₩	07/14/21 18:46	07/16/21 11:00	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.27		ug/Kg	₩	07/14/21 18:46	07/16/21 11:00	
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-oxaundecan e-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
1802 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	
13C3 HFPO-DA	41	*5-	50 - 150				07/14/21 18:46	07/16/21 11:00	1
General Chemistry									
Analyte		Qualifier	RL	MDL		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	

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12 12

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Client: Shannon & Wilson, Inc

Project/Site: DLG

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

Job ID: 320-76143-1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.045	J	0.21	0.043	ug/Kg	— <u></u>	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-methylperfluorooctanesulfonamidoa	ND		2.1		ug/Kg	₽	07/14/21 21:24	07/18/21 02:51	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1		ug/Kg	₩	07/14/21 21:24	07/18/21 02:51	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.6		0.1	0.1	%			07/15/21 10:52	1
reiteilt Moistule									

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

Analyte	Result	Qualifier	RL		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	•
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.41	ug/Kg	₩	07/14/21 21:24	07/18/21 03:00	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	₩	07/14/21 21:24	07/18/21 03:00	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL		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	0.7			07/15/21 10:52	1

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		0.23	0.047	ug/Kg	<u></u>	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.033	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.097	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.041	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.025	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.041	ug/Kg	≎	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.076	ug/Kg	≎	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.058	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.061	ug/Kg	≎	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.028	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.035	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.57	0.23	ug/Kg	≎	07/14/21 21:24	07/18/21 03:09	1
ND		2.3	0.44	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		2.3	0.42	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.031	ug/Kg	₽	07/14/21 21:24	07/18/21 03:09	1
ND		0.28	0.12	ug/Kg	₽	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.025	ug/Kg	₽	07/14/21 21:24	07/18/21 03:09	1
ND		0.23	0.020	ug/Kg	₩	07/14/21 21:24	07/18/21 03:09	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
87		50 - 150				07/14/21 21:24	07/18/21 03:09	1
88		50 - 150				07/14/21 21:24	07/18/21 03:09	1
90		50 - 150				07/14/21 21:24	07/18/21 03:09	1
99		50 - 150				07/14/21 21:24	07/18/21 03:09	1
94		50 - 150				07/14/21 21:24	07/18/21 03:09	1
87		50 - 150				07/14/21 21:24	07/18/21 03:09	1
90		50 - 150				07/14/21 21:24	07/18/21 03:09	1
91		50 - 150				07/14/21 21:24	07/18/21 03:09	1
93		50 - 150				07/14/21 21:24	07/18/21 03:09	1
87		50 - 150				07/14/21 21:24	07/18/21 03:09	1
95		50 - 150				07/14/21 21:24	07/18/21 03:09	1
92		50 - 150				07/14/21 21:24	07/18/21 03:09	1
97		50 - 150				07/14/21 21:24	07/18/21 03:09	1
81		50 - 150				07/14/21 21:24	07/18/21 03:09	1
	0			11	_	D	A	D:: =
Result 11.9	Qualifier	— RL 0.1	MDL 0.1		D	Prepared	Analyzed 07/15/21 10:52	Dil Fac
	Result	Result   Qualifier	ND         0.23           ND         0.23           ND         0.23           ND         0.23           ND         0.23           ND         0.23           ND         0.23           ND         0.23           ND         0.23           ND         0.57           ND         2.3           ND         0.23           PO         0.23           PO         0.25           88         50 - 150           99         50 - 150           90<	Result         Qualifier         RL         MDL           ND         0.23         0.047           ND         0.23         0.033           ND         0.23         0.097           ND         0.23         0.041           ND         0.23         0.041           ND         0.23         0.076           ND         0.23         0.058           ND         0.23         0.061           ND         0.23         0.035           ND         0.23         0.035           ND         0.57         0.23           ND         0.57         0.23           ND         0.23         0.031           ND         0.23         0.025           ND         0.23         0.025           ND         0.23         0.020           **Recovery         Qualifier         Limits           87         50 - 150           99         50 - 150           99         50 - 150           99         50 - 150           91         50 - 150           93         50 - 150           95         50 - 150           95         <	Result         Qualifier         RL         MDL         Unit           ND         0.23         0.047         ug/Kg           ND         0.23         0.033         ug/Kg           ND         0.23         0.097         ug/Kg           ND         0.23         0.041         ug/Kg           ND         0.23         0.041         ug/Kg           ND         0.23         0.076         ug/Kg           ND         0.23         0.058         ug/Kg           ND         0.23         0.058         ug/Kg           ND         0.23         0.061         ug/Kg           ND         0.23         0.028         ug/Kg           ND         0.23         0.035         ug/Kg           ND         0.57         0.23         ug/Kg           ND         2.3         0.42         ug/Kg           ND         0.23         0.031         ug/Kg           ND         0.23         0.025         ug/Kg           ND         0.23         0.025         ug/Kg           ND         0.23         0.025         ug/Kg           ND         0.23         0.020         ug/Kg <td>Result         Qualifier         RL         MDL         Unit         D           ND         0.23         0.047         ug/Kg         **           ND         0.23         0.033         ug/Kg         **           ND         0.23         0.041         ug/Kg         **           ND         0.23         0.058         ug/Kg         **           ND         0.23         0.061         ug/Kg         **           ND         0.23         0.035         ug/Kg         **           ND         0.57         0.23         ug/Kg         **           ND         0.23         0.042         ug/Kg         **           ND         0.23         0.031         ug/Kg         **           ND         0.23         0.021         ug/Kg         **           ND         0.23         0.020         ug/Kg         **<td>  Result   Qualifier   RL   MDL   Unit   D   Prepared    </td><td>  Result   Qualifier   RL   MDL   Unit   D   Prepared   Analyzed    </td></td>	Result         Qualifier         RL         MDL         Unit         D           ND         0.23         0.047         ug/Kg         **           ND         0.23         0.033         ug/Kg         **           ND         0.23         0.041         ug/Kg         **           ND         0.23         0.058         ug/Kg         **           ND         0.23         0.061         ug/Kg         **           ND         0.23         0.035         ug/Kg         **           ND         0.57         0.23         ug/Kg         **           ND         0.23         0.042         ug/Kg         **           ND         0.23         0.031         ug/Kg         **           ND         0.23         0.021         ug/Kg         **           ND         0.23         0.020         ug/Kg         ** <td>  Result   Qualifier   RL   MDL   Unit   D   Prepared    </td> <td>  Result   Qualifier   RL   MDL   Unit   D   Prepared   Analyzed    </td>	Result   Qualifier   RL   MDL   Unit   D   Prepared	Result   Qualifier   RL   MDL   Unit   D   Prepared   Analyzed

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.048	ug/Kg	— <u></u>	07/14/21 21:24	07/18/21 03:18	
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.033	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorooctanoic acid (PFOA)	ND		0.23	0.099	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorononanoic acid (PFNA)	ND		0.23	0.041	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorodecanoic acid (PFDA)	ND		0.23	0.025	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.041	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.077	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	,
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.059	ug/Kg	₽	07/14/21 21:24	07/18/21 03:18	•
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.062	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorohexanesulfonic acid (PFHxS)	ND		0.23	0.036	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	≎	07/14/21 21:24	07/18/21 03:18	•
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg		07/14/21 21:24	07/18/21 03:18	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	,
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.23	0.031	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	,
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	₽	07/14/21 21:24	07/18/21 03:18	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.23	0.025	ug/Kg	₽	07/14/21 21:24	07/18/21 03:18	,
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	₩	07/14/21 21:24	07/18/21 03:18	,
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	74		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C4 PFHpA	81		50 - 150				07/14/21 21:24	07/18/21 03:18	
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	
13C2 PFDA	83		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C2 PFUnA	83		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C2 PFDoA	86		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C2 PFTeDA	90		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C3 PFBS	81		50 - 150				07/14/21 21:24	07/18/21 03:18	
18O2 PFHxS	79		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C4 PFOS	85		50 - 150				07/14/21 21:24	07/18/21 03:18	
d3-NMeFOSAA	84		50 - 150				07/14/21 21:24	07/18/21 03:18	
d5-NEtFOSAA	94		50 - 150				07/14/21 21:24	07/18/21 03:18	
13C3 HFPO-DA	75		50 - 150				07/14/21 21:24	07/18/21 03:18	•
General Chemistry									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	20.8		0.1	0.1	%			07/15/21 10:52	•

0.1

0.1 %

79.2

07/15/21 10:52

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

Analyte	Result	Qualifier	RL		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	
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		ug/Kg	₽	07/14/21 21:24	07/18/21 03:27	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1		ug/Kg		07/14/21 21:24	07/18/21 03:27	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.39	ug/Kg	₩	07/14/21 21:24	07/18/21 03:27	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				07/14/21 21:24	07/18/21 03:27	1
13C3 PFBS	94		50 <sub>-</sub> 150				07/14/21 21:24	07/18/21 03:27	1
1802 PFHxS	87		50 <sub>-</sub> 150				07/14/21 21:24	07/18/21 03:27	1
13C4 PFOS	93		50 <sub>-</sub> 150				07/14/21 21:24	07/18/21 03:27	1
d3-NMeFOSAA	99		50 <sub>-</sub> 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					07/18/21 03:27	1
General Chemistry									
Analyte		Qualifier	RL		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	0.1			07/15/21 10:52	1

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.28	0.060	ug/Kg	<u></u>	07/14/21 21:24	07/18/21 03:36	
Perfluoroheptanoic acid (PFHpA)	ND		0.28	0.041	ug/Kg	₽	07/14/21 21:24	07/18/21 03:36	•
Perfluorooctanoic acid (PFOA)	ND		0.28	0.12	ug/Kg	₩	07/14/21 21:24	07/18/21 03:36	•
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	•
Perfluoroundecanoic acid (PFUnA)	ND		0.28	0.051	ug/Kg	₩	07/14/21 21:24	07/18/21 03:36	
Perfluorododecanoic acid (PFDoA)	ND		0.28	0.095	ug/Kg	₩	07/14/21 21:24	07/18/21 03:36	,
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	JI	0.71	0.28	ug/Kg	₩	07/14/21 21:24	07/18/21 03:36	•
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.8	0.55	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.8	0.53	ug/Kg	₩	07/14/21 21:24	07/18/21 03:36	•
9-Chlorohexadecafluoro-3-oxanonan 9-1-sulfonic acid	ND		0.28		ug/Kg		07/14/21 21:24	07/18/21 03:36	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.35		ug/Kg		07/14/21 21:24		•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.28		ug/Kg	₩			•
1,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		0.28	0.026	ug/Kg	☼	07/14/21 21:24	07/18/21 03:36	•
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	74		50 - 150				07/14/21 21:24	07/18/21 03:36	7
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	
13C5 PFNA	81		50 - 150				07/14/21 21:24	07/18/21 03:36	
13C2 PFDA	79		50 - 150				07/14/21 21:24	07/18/21 03:36	
13C2 PFUnA	76		50 - 150				07/14/21 21:24	07/18/21 03:36	-
13C2 PFDoA	73		50 - 150				07/14/21 21:24	07/18/21 03:36	
13C2 PFTeDA	78		50 - 150				07/14/21 21:24	07/18/21 03:36	-
13C3 PFBS	85		50 - 150				07/14/21 21:24	07/18/21 03:36	
1802 PFHxS	75		50 - 150				07/14/21 21:24	07/18/21 03:36	
13C4 PFOS	80		50 - 150				07/14/21 21:24	07/18/21 03:36	
d3-NMeFOSAA	69		50 - 150				07/14/21 21:24	07/18/21 03:36	
d5-NEtFOSAA	73		50 - 150				07/14/21 21:24	07/18/21 03:36	
13C3 HFPO-DA	72		50 - 150				07/14/21 21:24	07/18/21 03:36	
General Chemistry						_			
Analyte		Qualifier	RL _	MDL		<u>D</u>	Prepared	Analyzed	Dil Fac
Percent Moisture	37.5		0.1	0.1	%			07/15/21 10:52	1

Eurofins TestAmerica, Sacramento

07/15/21 10:52

0.1

62.5

0.1 %

2

5

7

9

11

14

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.043	ug/Kg	— <del>-</del>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.40	ug/Kg	₩	07/14/21 21:24	07/18/21 03:45	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.38	ug/Kg	₩	07/14/21 21:24	07/18/21 03:45	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
4000 UEDO DA	83		50 - 150				07/14/21 21:24	07/18/21 03:45	1
13C3 HFPO-DA									
General Chemistry		O Uff		,	1124	_	B	A	D.: -
	Result 8.5	Qualifier	RL 0.1	<b>MDL</b> 0.1	Unit	D	Prepared	Analyzed 07/15/21 10:52	Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

**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

Result (	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
ND		0.21	0.044	ug/Kg	☼	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.031	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.091	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.038	ug/Kg	≎	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.023	ug/Kg	≎	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.038	ug/Kg	≎	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.071	ug/Kg	₽	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.054	ug/Kg	≎	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.057	ug/Kg	≎	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.026	ug/Kg	₽	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.033	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		0.53	0.21	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		2.1	0.41	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		2.1		0 0	₩	07/14/21 21:24	07/18/21 03:55	•
ND		0.21	0.029	ug/Kg		07/14/21 21:24	07/18/21 03:55	
ND		0.26	0.12	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.023	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	
ND		0.21	0.019	ug/Kg	₩	07/14/21 21:24	07/18/21 03:55	•
%Recovery (	Qualifier	Limits				Prepared	Analyzed	Dil Fa
71		50 - 150				07/14/21 21:24	07/18/21 03:55	-
90		50 - 150				07/14/21 21:24	07/18/21 03:55	
88		50 - 150				07/14/21 21:24	07/18/21 03:55	
97		50 - 150				07/14/21 21:24	07/18/21 03:55	
96		50 - 150				07/14/21 21:24	07/18/21 03:55	
89		50 - 150				07/14/21 21:24	07/18/21 03:55	
88		50 - 150				07/14/21 21:24	07/18/21 03:55	
89		50 - 150				07/14/21 21:24	07/18/21 03:55	
80		50 - 150				07/14/21 21:24	07/18/21 03:55	
84		50 - 150				07/14/21 21:24	07/18/21 03:55	
79		50 - 150				07/14/21 21:24	07/18/21 03:55	
94		50 - 150				07/14/21 21:24	07/18/21 03:55	
97		50 - 150				07/14/21 21:24	07/18/21 03:55	
67		50 - 150				07/14/21 21:24	07/18/21 03:55	
Danie 1	)	DI	BAD!	I I m i 4		Duam	A mal:	D:: -
	<b>L</b> ualitier				— D	Prepared		Dil Fa
6.7		0.1	0.1	70			07/15/21 10:52	•
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND         0.21           MR         50 - 150           88         50 - 150           89	ND	ND         0.21         0.044         ug/Kg           ND         0.21         0.031         ug/Kg           ND         0.21         0.091         ug/Kg           ND         0.21         0.038         ug/Kg           ND         0.21         0.023         ug/Kg           ND         0.21         0.071         ug/Kg           ND         0.21         0.054         ug/Kg           ND         0.21         0.057         ug/Kg           ND         0.21         0.057         ug/Kg           ND         0.21         0.057         ug/Kg           ND         0.21         0.026         ug/Kg           ND         0.21         0.026         ug/Kg           ND         0.21         0.33         ug/Kg           ND         0.21         0.029         ug/Kg           ND         0.21         0.029         ug/Kg           ND         0.21         0.029         ug/Kg           ND         0.21         0.023         ug/Kg           ND         0.21         0.023         ug/Kg           ND         0.21         0.023         ug/Kg	ND	ND	ND

07/15/21 10:52

0.1

0.1 %

93.3

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

Client Sample ID: SS-23 Lab Sample ID: 320-76143-17

Date Collected: 07/11/21 13:55 **Matrix: Solid** Percent Solids: 92.8 Date Received: 07/13/21 15:45

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	
Perfluoroheptanoic acid (PFHpA)	ND		0.22	0.031	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
Perfluorooctanoic acid (PFOA)	ND		0.22	0.092	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
Perfluorononanoic acid (PFNA)	ND		0.22	0.039	ug/Kg	≎	07/14/21 21:24	07/18/21 04:22	
Perfluorodecanoic acid (PFDA)	ND		0.22	0.024	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
Perfluoroundecanoic acid (PFUnA)	ND		0.22	0.039	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
Perfluorododecanoic acid (PFDoA)	ND		0.22	0.072	ug/Kg	₽	07/14/21 21:24	07/18/21 04:22	
Perfluorotridecanoic acid (PFTriA)	ND		0.22	0.055	ug/Kg	≎	07/14/21 21:24	07/18/21 04:22	•
Perfluorotetradecanoic acid (PFTeA)	ND		0.22	0.058	ug/Kg	≎	07/14/21 21:24	07/18/21 04:22	•
Perfluorobutanesulfonic acid (PFBS)	ND		0.22	0.027	ug/Kg	₽	07/14/21 21:24	07/18/21 04:22	
Perfluorohexanesulfonic acid (PFHxS)	ND		0.22	0.033	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	
Perfluorooctanesulfonic acid (PFOS)	ND		0.54	0.22	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.2	0.42	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.2		ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.22	0.029	ug/Kg		07/14/21 21:24	07/18/21 04:22	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27	0.12	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	,
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.22	0.024	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.22	0.019	ug/Kg	₩	07/14/21 21:24	07/18/21 04:22	•
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	79		50 - 150				07/14/21 21:24	07/18/21 04:22	•
13C4 PFHpA	89		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C4 PFOA	86		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C5 PFNA	90		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C2 PFDA	91		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C2 PFUnA	89		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C2 PFDoA	99		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C2 PFTeDA	99		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C3 PFBS	79		50 - 150				07/14/21 21:24	07/18/21 04:22	
1802 PFHxS	80		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C4 PFOS	91		50 - 150				07/14/21 21:24	07/18/21 04:22	
d3-NMeFOSAA	94		50 - 150				07/14/21 21:24	07/18/21 04:22	
d5-NEtFOSAA	99		50 - 150				07/14/21 21:24	07/18/21 04:22	
13C3 HFPO-DA	76		50 - 150				07/14/21 21:24	07/18/21 04:22	
General Chemistry	P M	0	<b>5</b> .		1114	-	Duan	Analysis	D:: =
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	7.2		0.1	0.1				07/15/21 10:52	•
B	00.0		A 4	Λ 4	0/			07/45/04 40:50	

0.1

0.1 %

92.8

Eurofins TestAmerica, Sacramento

07/15/21 10:52

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	<del>-</del>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg	₩	07/14/21 21:24	07/18/21 04:31	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	₩	07/14/21 21:24	07/18/21 04:31	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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
	73		50 - 150				07/14/21 21:24	07/18/21 04:31	1
13C3 HFPO-DA	73								
13C3 HFPO-DA  General Chemistry		0			11-24	_	<b>D</b>	Accel	<b>5</b>
13C3 HFPO-DA		Qualifier	RL	MDL 0.1	Unit	<u>D</u>	Prepared	Analyzed 07/15/21 10:52	Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

Client Sample ID: SS-25 Lab Sample ID: 320-76143-19

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.1	0.23	ug/Kg	<u></u>	07/14/21 21:24	07/18/21 04:40	
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		11	2.1	ug/Kg	₩	07/14/21 21:24	07/18/21 04:40	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		11	2.0	ug/Kg	₩	07/14/21 21:24	07/18/21 04:40	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.1		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			07/18/21 04:40	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.1		ug/Kg			07/18/21 04:40	•
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	
13C4 PFHpA	61		50 - 150				07/14/21 21:24	07/18/21 04:40	7
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	•
General Chemistry		0			1124	_	<b>D</b>	A	D.: -
Analyte		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	82.2		0.1	0.1	%			07/15/21 10:52	1

Eurofins TestAmerica, Sacramento

07/15/21 10:52

0.1

17.8

0.1 %

3

4

7

9

11 12

11

4 5

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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

Matrix: Solid

Percent Solids: 11.6

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		1.5	0.32	ug/Kg	— <u></u>	07/14/21 21:24	07/18/21 04:49	
Perfluoroheptanoic acid (PFHpA)	ND		1.5	0.22	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorooctanoic acid (PFOA)	ND		1.5	0.66	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorononanoic acid (PFNA)	ND		1.5	0.28	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorodecanoic acid (PFDA)	ND		1.5	0.17	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluoroundecanoic acid (PFUnA)	ND		1.5	0.28	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorododecanoic acid (PFDoA)	ND		1.5	0.51	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorotridecanoic acid (PFTriA)	ND		1.5	0.39	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorotetradecanoic acid (PFTeA)	ND		1.5	0.41	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorobutanesulfonic acid (PFBS)	ND		1.5	0.19	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorohexanesulfonic acid (PFHxS)	ND		1.5	0.24	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
Perfluorooctanesulfonic acid (PFOS)	ND		3.8	1.5	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
N-methylperfluorooctanesulfonamidoa	ND		15	3.0	ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		15		ug/Kg	₩	07/14/21 21:24	07/18/21 04:49	
9-Chlorohexadecafluoro-3-oxanonan	ND		1.5	0.21	ug/Kg	≎	07/14/21 21:24	07/18/21 04:49	
e-1-sulfonic acid									
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		1.9		ug/Kg			07/18/21 04:49	
11-Chloroeicosafluoro-3-oxaundecan	ND		1.5	0.17	ug/Kg	≎	07/14/21 21:24	07/18/21 04:49	
e-1-sulfonic acid	ND		1.5	0.14	ug/Kg	**	07/14/21 21:24	07/19/21 04:40	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			1.5	0.14	ug/Ng	1 <sub>4</sub> c	07/14/21 21.24	07/10/21 04.49	
Isotope Dilution	%Recovery		Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	44	*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
13C4 PFHpA	46	*5-	50 - 150					07/18/21 04:49	
13C4 PFOA	49	*5-	50 - 150					07/18/21 04:49	
13C5 PFNA	45	*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
13C2 PFDA	49	*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
13C2 PFUnA	41	*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
13C2 PFDoA		*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
13C2 PFTeDA		*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
13C3 PFBS	53		50 - 150				07/14/21 21:24	07/18/21 04:49	
1802 PFHxS	51		50 - 150				07/14/21 21:24	07/18/21 04:49	
13C4 PFOS	50		50 - 150				07/14/21 21:24	07/18/21 04:49	
d3-NMeFOSAA	42	*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
d5-NEtFOSAA		*5-	50 - 150					07/18/21 04:49	
13C3 HFPO-DA	44	*5-	50 - 150				07/14/21 21:24	07/18/21 04:49	
General Chemistry									
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Percent Moisture	88.4		0.1	0.1				07/15/21 10:52	
Percent Solids	11.6		0.1	0.1	0/			07/15/21 10:52	

2

3

6

8

11

13

15

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

**Percent Solids** 

**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** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		2.1	0.44	ug/Kg	<u></u>	07/14/21 21:24	07/18/21 04:58	1
Perfluoroheptanoic acid (PFHpA)	0.32	JI	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		21	4.1	ug/Kg	₩	07/14/21 21:24	07/18/21 04:58	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		21	3.9	ug/Kg	₩	07/14/21 21:24	07/18/21 04:58	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Percent Moisture	91.5		0.1	0.1	%			07/15/21 10:52	1

0.1

0.1 %

8.5

07/15/21 10:52

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

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 Percent Solids: 95.1

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19		ug/Kg		07/14/21 21:24		1
Perfluoroheptanoic acid (PFHpA)	ND		0.19		ug/Kg	₩	07/14/21 21:24	07/18/21 05:08	1
Perfluorooctanoic acid (PFOA)	ND		0.19		ug/Kg			07/18/21 05:08	1
Perfluorononanoic acid (PFNA)	ND		0.19		ug/Kg		07/14/21 21:24	07/18/21 05:08	1
Perfluorodecanoic acid (PFDA)	ND		0.19		ug/Kg	₩		07/18/21 05:08	1
Perfluoroundecanoic acid (PFUnA)	ND		0.19		ug/Kg			07/18/21 05:08	1
Perfluorododecanoic acid (PFDoA)	ND		0.19		ug/Kg			07/18/21 05:08	1
Perfluorotridecanoic acid (PFTriA)	ND		0.19		ug/Kg			07/18/21 05:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.19		ug/Kg	₩	07/14/21 21:24	07/18/21 05:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.19		ug/Kg			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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9		ug/Kg	.₩	07/14/21 21:24	07/18/21 05:08	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9		ug/Kg			07/18/21 05:08	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.19		ug/Kg			07/18/21 05:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24		ug/Kg			07/18/21 05:08	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.19		ug/Kg			07/18/21 05:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.19	0.017	ug/Kg	Đ.	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
1802 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		o				_			B
Analyte		Qualifier	RL	MDL		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

Eurofins TestAmerica, Sacramento

# **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc

Project/Site: DLG

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Solid Prep Type: Total/NA

				ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTD
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-15
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
	Method Blank	47 5- 74	79	82	79	71	71	78	
MB 320-506776/1-A	Wethod Blank	74							85
				-	Dilution Re		-	imits)	
		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		
			75	80	69	73			

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Job ID: 320-76143-1

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### **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 Lin							
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-76143-15	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		
20-76143-22 MSD	SS-Grid-A3	87	90	97	100	104	72		
CS 320-506768/2-A	Lab Control Sample	85	81	87	82	88	77		
CS 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

Project/Site: DLG

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Lab Sample ID: MB 320-506768/1-A Client Sample ID: Method Blank **Matrix: Solid** Prep Type: Total/NA Prep Batch: 506768

**Analysis Batch: 507207** 

Client: Shannon & Wilson, Inc

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Analyte 0.042 ug/Kg Perfluorohexanoic acid (PFHxA) ND 0.20 07/14/21 18:46 07/16/21 09:01 Perfluoroheptanoic acid (PFHpA) ND 0.20 0.029 ug/Kg 07/14/21 18:46 07/16/21 09:01 Perfluorooctanoic acid (PFOA) ND 0.086 ug/Kg 0.20 07/14/21 18:46 07/16/21 09:01 Perfluorononanoic acid (PFNA) 0.036 ug/Kg ND 0.20 07/14/21 18:46 07/16/21 09:01 Perfluorodecanoic acid (PFDA) ND 0.20 0.022 ug/Kg 07/14/21 18:46 07/16/21 09:01 Perfluoroundecanoic acid (PFUnA) ND 0.20 0.036 ug/Kg 07/14/21 18:46 07/16/21 09:01 Perfluorododecanoic acid (PFDoA) ND 0.067 ug/Kg 07/14/21 18:46 07/16/21 09:01 0.20 Perfluorotridecanoic acid (PFTriA) ND 0.20 0.051 ug/Kg 07/14/21 18:46 07/16/21 09:01 07/14/21 18:46 07/16/21 09:01 Perfluorotetradecanoic acid (PFTeA) ND 0.20 0.054 ug/Kg Perfluorobutanesulfonic acid (PFBS) ND 0.20 0.025 ug/Kg 07/14/21 18:46 07/16/21 09:01 Perfluorohexanesulfonic acid (PFHxS) ND 0.031 ug/Kg 07/14/21 18:46 07/16/21 09:01 0.20 0.20 ug/Kg Perfluorooctanesulfonic acid (PFOS) ND 0.50 07/14/21 18:46 07/16/21 09:01 N-methylperfluorooctanesulfonamidoa ND 2.0 0.39 ug/Kg 07/14/21 18:46 07/16/21 09:01 cetic acid (NMeFOSAA) ND 2.0 0.37 ug/Kg 07/14/21 18:46 07/16/21 09:01 N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 07/14/21 18:46 07/16/21 09:01 9-Chlorohexadecafluoro-3-oxanonan ND 0.20 0.027 ug/Kg e-1-sulfonic acid ND 0.25 0.11 ug/Kg 07/14/21 18:46 07/16/21 09:01 Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) ND 0.20 0.022 ug/Kg 07/14/21 18:46 07/16/21 09:01 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid ND 0.20 0.018 ug/Kg 07/14/21 18:46 07/16/21 09:01 (ADONA)

MB I	ИВ
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	IVID	IVID				
Isotope Dilution	%Recovery	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
1802 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	

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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Client: Shannon & Wilson, Inc

Project/Site: DLG

Job ID: 320-76143-1

### 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** %Rec.

Analysis Baton: 007700	Spike	LCS L	.cs		%Rec.
Analyte	Added	Result C	Qualifier Unit	D %Rec	Limits
Perfluorodecanoic acid (PFDA)	2.00	1.81	ug/Kg	91	69 - 133
Perfluoroundecanoic acid	2.00	2.08	ug/Kg	104	64 - 136
(PFUnA)					
Perfluorododecanoic acid	2.00	2.08	ug/Kg	104	69 - 135
(PFDoA)					
Perfluorotridecanoic acid	2.00	2.08	ug/Kg	104	66 - 139
(PFTriA)					
Perfluorotetradecanoic acid	2.00	2.04	ug/Kg	102	69 - 133
(PFTeA)					
Perfluorobutanesulfonic acid	1.77	1.76	ug/Kg	99	72 - 128
(PFBS)					
Perfluorohexanesulfonic acid	1.82	1.94	ug/Kg	107	67 - 130
(PFHxS)					
Perfluorooctanesulfonic acid	1.86	1.92	ug/Kg	103	68 - 136
(PFOS)					
N-methylperfluorooctanesulfona	2.00	2.12	ug/Kg	106	63 - 144
midoacetic acid (NMeFOSAA)	0.00	0.47		400	04 400
N-ethylperfluorooctanesulfonami	2.00	2.17	ug/Kg	108	61 - 139
doacetic acid (NEtFOSAA)	4.00	4 77		0.5	75 405
9-Chlorohexadecafluoro-3-oxan	1.86	1.77	ug/Kg	95	75 - 135
onane-1-sulfonic acid					77 407
Hexafluoropropylene Oxide	2.00	2.28	ug/Kg	114	77 - 137
Dimer Acid (HFPO-DA)	4.00	4.04		07	70 400
11-Chloroeicosafluoro-3-oxaund	1.88	1.64	ug/Kg	87	76 - 136
ecane-1-sulfonic acid	4.00	1.04	ualVa	00	70 120
4,8-Dioxa-3H-perfluorononanoic	1.88	1.84	ug/Kg	98	79 - 139
acid (ADONA)					

LCS LCS

		00				
Isotope Dilution	%Recovery	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			
1802 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

•	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	0.084	J	2.12	2.61		ug/Kg	<u></u>	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	

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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)

Lab Sample ID: 320-76143-1 MS Client Sample ID: SS-Grid-A1 **Matrix: Solid Prep Type: Total/NA Analysis Batch: 507207 Prep Batch: 506768** 

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorononanoic acid (PFNA)	ND		2.12	2.23		ug/Kg	<del>-</del>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.12	2.59		ug/Kg	₽	122	63 - 144	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.12	2.60		ug/Kg	☼	123	61 - 139	
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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	

MS MS

IVIS	IVIS			
%Recovery	Qualifier	Limits		
58		50 - 150		
70		50 - 150		
60		50 - 150		
67		50 - 150		
65		50 - 150		
66		50 - 150		
60		50 - 150		
54		50 - 150		
64		50 - 150		
54		50 - 150		
59		50 - 150		
55		50 - 150		
52		50 - 150		
61		50 - 150		
	%Recovery 58 70 60 67 65 66 60 54 64 59 55 52	%Recovery Qualifier  58  70  60  67  65  66  60  54  64  54  59  55  52		

Lab Sample ID: 320-76143-1 MSD

Matrix: Solid									<b>Prep Ty</b>	pe: Tot	al/NA
Analysis Batch: 507207									Prep Ba	atch: 50	06768
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	0.084	J	2.06	2.31		ug/Kg	<u></u>	108	70 - 132	12	30
Perfluoroheptanoic acid (PFHpA)	ND		2.06	2.09		ug/Kg	☼	101	71 - 131	5	30

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Client Sample ID: SS-Grid-A1

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Job ID: 320-76143-1

Client: Shannon & Wilson, Inc Project/Site: DLG

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143-1 MSD Client Sample ID: SS-Grid-A1 **Matrix: Solid Prep Type: Total/NA Analysis Batch: 507207 Prep Batch: 506768** 

Alialysis balcii. 507207							Freb Do	Prep Batch. 5			
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	ND		2.06	2.26		ug/Kg	<del>-</del>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.06	2.56		ug/Kg	₽	124	63 - 144	1	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.06	2.59		ug/Kg	₩	126	61 - 139	0	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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
' - /											

MSD	MSD

Isotope Dilution	%Recovery	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 <sub>-</sub> 150
13C2 PFDoA	57		50 - 150
13C2 PFTeDA	52		50 - 150
13C3 PFBS	65		50 <sub>-</sub> 150
1802 PFHxS	56		50 - 150
13C4 PFOS	57		50 - 150
d3-NMeFOSAA	51		50 <sub>-</sub> 150
d5-NEtFOSAA	49	*5-	50 - 150
13C3 HFPO-DA	65		50 <sub>-</sub> 150

Lab Sample ID: MB 320-506776/1-A

**Matrix: Solid** 

Analysis Batch: 507715								Prep Batch:	
	MB	MB							
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 02:32	1

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**Client Sample ID: Method Blank** 

**Prep Type: Total/NA** 

Job ID: 320-76143-1

Client: Shannon & Wilson, Inc Project/Site: DLG

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: MB 320-506776/1-A Client Sample ID: Method Blank **Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 507715** Prep Batch: 506776 MB MB

	IVID	IVID							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/14/21 21:24	07/18/21 02:32	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MB	MB							

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
,	MB	MB					
Isotope Dilution	%Recovery	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
1802 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** 

Analyte

**Analysis Batch: 507715** 

Perfluorohexanoic acid (PFHxA)

Perfluoroheptanoic acid (PFHpA)

Perfluorooctanoic acid (PFOA)

Perfluorononanoic acid (PFNA)

Perfluorodecanoic acid (PFDA)

			Prep Type: Total/NA Prep Batch: 506776 %Rec.	
Unit	D	%Rec	Limits	
ug/Kg		98	70 - 132	
ug/Kg		101	71 - 131	
ug/Kg		106	69 _ 133	

100

95

**Client Sample ID: Lab Control Sample** 

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72 - 129

69 - 133

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Spike

Added

2.00

2.00

2.00

2.00

2.00

LCS LCS

1.97

2.03

2.11

2.00

1.90

Result Qualifier

ug/Kg

ug/Kg

Client: Shannon & Wilson, Inc

Project/Site: DLG

Job ID: 320-76143-1

## 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 Type: Total/NA Prep Batch: 506776

	Spike	LCS L	cs		%Rec.	
Analyte	Added	Result Q	ualifier Unit	D %Rec	Limits	
Perfluoroundecanoic acid	2.00	1.92	ug/Kg	96	64 - 136	
(PFUnA)						
Perfluorododecanoic acid	2.00	1.90	ug/Kg	95	69 - 135	
(PFDoA)						
Perfluorotridecanoic acid	2.00	1.87	ug/Kg	94	66 - 139	
(PFTriA)						
Perfluorotetradecanoic acid	2.00	2.27	ug/Kg	114	69 - 133	
(PFTeA)						
Perfluorobutanesulfonic acid	1.77	1.67	ug/Kg	94	72 - 128	
(PFBS)						
Perfluorohexanesulfonic acid	1.82	1.95	ug/Kg	107	67 - 130	
(PFHxS)						
Perfluorooctanesulfonic acid	1.86	1.72	ug/Kg	93	68 - 136	
(PFOS)						
N-methylperfluorooctanesulfona	2.00	2.22	ug/Kg	111	63 - 144	
midoacetic acid (NMeFOSAA)						
N-ethylperfluorooctanesulfonami	2.00	2.14	ug/Kg	107	61 - 139	
doacetic acid (NEtFOSAA)						
9-Chlorohexadecafluoro-3-oxan	1.86	1.71	ug/Kg	92	75 - 135	
onane-1-sulfonic acid						
Hexafluoropropylene Oxide	2.00	2.13	ug/Kg	106	77 - 137	
Dimer Acid (HFPO-DA)						
11-Chloroeicosafluoro-3-oxaund	1.88	1.66	ug/Kg	88	76 - 136	
ecane-1-sulfonic acid						
4,8-Dioxa-3H-perfluorononanoic	1.88	1.88	ug/Kg	100	79 - 139	

LCS LCS

	LUS	LUJ	
Isotope Dilution	%Recovery	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
1802 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** 

acid (ADONA)

**Analysis Batch: 507715** 

Client Sample ID: SS-Grid-A3
Prep Type: Total/NA
<b>Prep Batch: 506776</b>

•	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	ND		2.10	2.18		ug/Kg	— <u></u>	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	

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Client: Shannon & Wilson, Inc

Project/Site: DLG

Job ID: 320-76143-1

## Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143-22 MS Client Sample ID: SS-Grid-A3 Matrix: Solid Prep Type: Total/NA **Prep Batch: 506776** 

**Analysis Batch: 507715** 

	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluorodecanoic acid (PFDA)	ND		2.10	1.97		ug/Kg	<u></u>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.10	2.39		ug/Kg	₩	114	63 - 144
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.10	2.17		ug/Kg	₩	103	61 - 139
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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

acid (ADONA)			
	MS	MS	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	79		50 - 150
13C4 PFHpA	91		50 <sub>-</sub> 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 <sub>-</sub> 150
13C3 PFBS	86		50 <sub>-</sub> 150
1802 PFHxS	82		50 - 150
13C4 PFOS	94		50 - 150
d3-NMeFOSAA	108		50 <sub>-</sub> 150
d5-NEtFOSAA	108		50 - 150
13C3 HFPO-DA	73		50 <sub>-</sub> 150

Lab Sample ID: 320-76143-22 MSD

Matrix: Solid

Analysis Batch: 507715									Prep Ba	atch: 50	06776
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	ND		2.03	2.18		ug/Kg	<u></u>	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

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Client Sample ID: SS-Grid-A3

Prep Type: Total/NA

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# **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

13C3 HFPO-DA

## Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76143 Matrix: Solid Analysis Batch: 507715	-22 MSD						C	lient S	ample ID Prep Ty Prep Ba	pe: Tot	al/NA
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorononanoic acid (PFNA)	ND		2.03	2.12		ug/Kg	<del>-</del>	105	72 - 129	6	30

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorononanoic acid (PFNA)	ND		2.03	2.12		ug/Kg	<del>-</del>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.03	2.42		ug/Kg	₽	119	63 - 144	1	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.03	2.21		ug/Kg	☼	109	61 - 139	2	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-1-sulfonic acid	ND		1.91	1.57		ug/Kg	₽	82	76 - 136	9	30
4,8-Dioxa-3H-perfluorononanoic	ND		1.91	1.83		ug/Kg	₩	96	79 - 139	3	30

acid (ADONA)			
	MSD	MSD	
Isotope Dilution	%Recovery	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
1802 PFHxS	90		50 - 150
13C4 PFOS	97		50 - 150
d3-NMeFOSAA	100		50 - 150
d5-NEtFOSAA	104		50 - 150

72

7/23/2021

50 - 150

# **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

### Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76143-8 DU	Client Sample ID: SB4-0.5-1.2
Matrix: Solid	Prep Type: Total/NA
Analysis Batch: 506863	

	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	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

Client Sample ID: SB5-35.0-35.5

Matrix: Solid

Prep Type: Total/NA

Analysis Batch: 506864

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	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	20.8		19.7		%		 5	20
Percent Solids	79.2		80.3		%		1	20

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# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

### 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**

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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

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Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

## **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

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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	

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# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76143-1

Project/Site: DLG

## **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	

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Job ID: 320-76143-1

Project/Site: DLG

Client Sample ID: SS-Grid-A1

Date Collected: 07/08/21 18:55 Date Received: 07/13/21 15:45

Client: Shannon & Wilson, Inc

Lab Sample ID: 320-76143-1

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	- <del></del>		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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Matrix: Solid

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Eab cample ib. of to 140 c	Lab Sample ID: 320-76	143-3	
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Lab Sample ID: 320-76143-3

Matrix: Solid Percent Solids: 91.0

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506863	07/15/21 10:52	KDB	TAL SAC

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Lab Sample ID: 320-76143-4

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**Matrix: Solid** 

Project/Site: DLG

Client Sample ID: SS-Grid-B3

Date Collected: 07/08/21 19:25 Date Received: 07/13/21 15:45

Client: Shannon & Wilson, Inc

Lab Sample ID: 320-76143-4

**Matrix: Solid** 

Percent Solids: 93.6

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/08/21 19:30 Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-5

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506863	07/15/21 10:52	KDB	TAL SAC

Lab Sample ID: 320-76143-5 Client Sample ID: SS-Grid-C1

Date Collected: 07/08/21 19:30

**Matrix: Solid** 

Date Received: 07/13/21 15:45 Percent Solids: 91.5

Batch Batch Dil Initial Final Batch **Prepared Prep Type** Type Method **Factor Amount** Amount Number or Analyzed Analyst Run Lab Prep Total/NA SHAKE 506768 07/14/21 18:46 AM TAL SAC 5.27 g 10.0 mL 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** 

**Matrix: Solid** 

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Date Received: 07/13/21 15:45

**Matrix: Solid** Percent Solids: 93.2

Batch Batch Dil Initial Final Batch **Prepared Prep Type** Type Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Prep SHAKE 506768 07/14/21 18:46 AM TAL SAC 5.48 g 10.0 mL Total/NA Analysis 507207 07/16/21 10:23 D1R TAL SAC EPA 537(Mod) 1

Client Sample ID: SS-Grid-C3 Lab Sample ID: 320-76143-7

Date Collected: 07/08/21 19:40 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					506863	07/15/21 10:52	KDB	TAL SAC	

Project/Site: DLG

Client Sample ID: SS-Grid-C3

Date Collected: 07/08/21 19:40 Date Received: 07/13/21 15:45

Client: Shannon & Wilson, Inc

Lab Sample ID: 320-76143-7

Matrix: Solid

Percent Solids: 91.4

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/08/21 17:38 Date Received: 07/13/21 15:45

Lab Sample ID: 320-76143-8

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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

Batch Batch Dil Initial Final Batch **Prepared Prep Type** Method Factor **Amount** Amount Number or Analyzed Type Run Analyst Lab Total/NA Prep SHAKE 506768 07/14/21 18:46 AM TAL SAC 5.02 g 10.0 mL Total/NA Analysis EPA 537(Mod) 507207 07/16/21 11:00 D1R TAL SAC

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** 

Dil Batch Initial Final Batch Prepared Batch Prep Type Type Method **Factor** Amount Amount Number or Analyzed Run Analyst Lab 506863 Total/NA Analysis D 2216 07/15/21 10:52 KDB TAL SAC

**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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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: SR4-20 0-21 5

Date Received: 07/13/21 15:45

Client Sample ID: SB4-20.0-21.5	Lab Sample ID: 320-76143-10
Date Collected: 07/08/21 18:10	Matrix: Solid
Data Bassivad: 07/12/21 15:45	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506863	07/15/21 10:52	KDB	TAL SAC

Job ID: 320-76143-1

Client: Shannon & Wilson, Inc Project/Site: DLG

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/08/21 18:31 Date Received: 07/13/21 15:45 Lab Sample ID: 320-76143-11

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/08/21 18:31 Date Received: 07/13/21 15:45 Lab Sample ID: 320-76143-11 **Matrix: Solid** 

Lab Sample ID: 320-76143-12

Lab Sample ID: 320-76143-13

Percent Solids: 88.1

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/10/21 18:33

Date Collected: 07/10/21 18:33									
Date Receiv	ed: 07/13/21 1	15:45							
	Batch	Batch	Dil	Initial	Final	Batch	Prepared		

**Prep Type** Type Method **Factor Amount** Amount Number or Analyzed Analyst Run 506864 07/15/21 10:52 KDB Total/NA Analysis D 2216 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

Γ	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/10/21 19:08

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216			-		506864	07/15/21 10:52	KDB	TAL SAC

Eurofins TestAmerica, Sacramento

**Matrix: Solid** 

Client Sample ID: SB5-40.0-41.5

Date Collected: 07/10/21 19:08 Date Received: 07/13/21 15:45

Client: Shannon & Wilson, Inc

Lab Sample ID: 320-76143-13

**Matrix: Solid** 

Percent Solids: 90.7

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76143-14 **Client Sample ID: SS-20** 

Date Collected: 07/11/21 13:30 Matrix: Solid

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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	Kuii	-actor	5.64 q	10.0 mL	506776	07/14/21 21:24		TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1	0.019	10.0 1112	507715	07/18/21 03:36		TAL SAC

**Client Sample ID: SS-21** Lab Sample ID: 320-76143-15 **Matrix: Solid** 

Date Collected: 07/11/21 13:42 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506864	07/15/21 10:52	KDB	TAL SAC

**Lab Sample ID: 320-76143-15** Client Sample ID: SS-21

Date Collected: 07/11/21 13:42

Date Received: 07/13/21 15:45 Percent Solids: 91.5

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 **Matrix: Solid** 

Date Collected: 07/11/21 13:37 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					506864	07/15/21 10:52	KDB	TAL SAC	

Matrix: Solid

Project/Site: DLG

Client Sample ID: SS-22

Client: Shannon & Wilson, Inc

Lab Sample ID: 320-76143-16 Date Collected: 07/11/21 13:37

**Matrix: Solid** Percent Solids: 93.3

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76143-17 Client Sample ID: SS-23

Date Collected: 07/11/21 13:55 **Matrix: Solid** 

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Dil Batch Batch Batch Initial Final Prepared **Prep Type** Type Method Factor Amount Amount Number or Analyzed Analyst Lab Run Total/NA Prep SHAKE 10.0 mL 506776 07/14/21 21:24 FX TAL SAC 5.01 g 07/18/21 04:22 RS1 Total/NA Analysis EPA 537(Mod) 1 507715 TAL SAC

Client Sample ID: SS-24 Lab Sample ID: 320-76143-18 **Matrix: Solid** 

Date Collected: 07/11/21 13:45

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216					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

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
Prep Type	туре	Wethou	Kuii	Factor	Alliount	Amount	Number	or Analyzeu	AllalySt	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 **Matrix: Solid** 

Date Collected: 07/11/21 16:00 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					506864	07/15/21 10:52	KDB	TAL SAC	

**Matrix: Solid** 

Percent Solids: 93.6

Percent Solids: 11.6

**Matrix: Solid** 

**Percent Solids: 8.5** 

Client: Shannon & Wilson, Inc

Project/Site: DLG

**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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76143-20 **Client Sample ID: SS-26 Matrix: Solid** 

Date Collected: 07/11/21 16:07 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			506864	07/15/21 10:52	KDB	TAL SAC

Lab Sample ID: 320-76143-20 Client Sample ID: SS-26 Date Collected: 07/11/21 16:07 **Matrix: Solid** 

Date Received: 07/13/21 15:45

Dil Batch Batch Batch Initial Final Prepared **Prep Type** Type Method Factor Amount Amount Number or Analyzed Analyst Lab Run Total/NA Prep SHAKE 10.0 mL 506776 07/14/21 21:24 FX TAL SAC 5.63 g 07/18/21 04:49 RS1 Total/NA Analysis EPA 537(Mod) 1 507715 TAL SAC

Client Sample ID: SS-27 Lab Sample ID: 320-76143-21 **Matrix: Solid** 

Date Collected: 07/11/21 16:15 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216					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 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 **Matrix: Solid** 

Date Collected: 07/08/21 19:05 Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-76143-1

Project/Site: DLG

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

Percent Solids: 95.1

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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	Pro	ogram	Identification Number	Expiration Date
Alaska (UST)	Sta	ate	17-020	02-20-24
The following analyte	are included in this rene	ut but the leberatemile		This list was a local and but a factor
the agency does not	•	ort, but the laboratory is r	not certified by the governing authority.	This list may include analytes for v
	•	Matrix	Analyte	This list may include analytes for v
the agency does not o	offer certification.	•	, , ,	This list may include analytes for v

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# **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 Job ID: 320-76143-1

Project/Site: DLG

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

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SHANNON & WILSON SHANNON & WILSON & STATE OF THE PROPERTY OF T	ON, INC. CHAIR	N-OF-CUSTODY	Ā	aboratory Test America ttn: David Acchieker
(907) 479-0600 www.shannonwilson.cor	m		Analytical Methods (include presen	
Turn Around Time:	Quote No:			
Normal Rush	MSA Number: TBD	100/		Remarks/Matrix Composition/Grab? Sample Containers
Please Specify	J-Flags: Yes No	ate npled		Remarks/Matrix
Sample Identity		ate npled		Composition/Grab? Sample Containers
SS-GAD-A1		3/21 ×		1 soil
SS-Grid-A2	1900	X		1
55-Grid-B2	1920	X		1
SS-Grid-B3	1925	X		1
SS-Gnd-C1	1930	×	name and a state of the state o	1
55-6nd-C2	1935	×		1
55-Grid-C3	1940			1
584-0.5-1.2	1738	X 320-76143 Chair	n of Custody	
584-15.5-17.0	1751	320-76143 61151		7
SB4 - 20.0-21.5	1810	V X		
Project Information	Sample Receipt	Reliquished By: 1.	Reliquished By: 2.	Policyished Pyr 2
		Reliquished By: 1. Signature: Time:	- All	Reliquished By: 3.
Number: 102581-003	Total No. of Containers:  COC Seals/Intact? Y/N/NA	Signature.	Z Signature.	Signature: Time:
Contact: HDN	Received Good Cond./Cold	Printed Name: Date: 44/1	Printed Name: Date:	Printed Name: Date:
Ongoing Project? Yes ☑ No ☐	Temp:	Veselgna Jakimong		
Sampler D.HF. HON	Delivery Method: Qoldstrent	Company:	Company:	Company:
	tes:	Shannon & Wilson		
NO	165.	Received By: 1.	Received By. 2.	Received By: 3.
		Signature: Time:	Signature: Time:	Signature: Time:
		Printed Name: Date 3/4	Printed Name: Date:	Printed Name: Date:
Distribution: White - w/shipment - returne Yellow - w/shipment - for cor Pink - Shannon & Wilson - jo		Company:	Company:	Company:
		isc		No.













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SHANNON & WILSO QEOTECHNICAL AND ENVIRONMENTAL ( 2355 HUIR ROAD Fairbanks, AK 99709 (907) 479-0600	ON, INC.	IN-OF-CUSTO	OY RECORD  Analytical Methods (include)	Laboratory Test America  Attn: David Ackiefer
www.shannonwilson.com	n		Analytical Methods (include	
Turn Around Time:	Quote No:	7 /		
Normal Rush	MSA Number: 7BD			Remarks/Matrix Composition/Grab? Sample Containers
Please Specify	J-Flags: Yes	No st		Munde
Sample Identity	Lab No. Time	No Date Sampled		Remarks/Matrix Composition/Grab? Sample Containers
5B4 - 27.8-28.5	The state of the s	418/21 X-		1 sac
585-35.0-35.5		740121 Y		1 30
585-40.0-41.5		Hay X		1
55-20		7/1/21 X		1 /saturated
55-21	1342	X		1
55-22	1337	×		1
55-23	1355	X		1
55-24	1345	X		1
55-25	1600	Х		1 lorganies
55-26	1607	V		1 V lorganies
Project Information	Sample Receipt	Reliquished By: 1	Reliquished By:	2. Reliquished By: 3.
Number: 402581-009	Total No. of Containers: 21	Signature: Time:	Signature: Time	Signature: Time:
Name DLG	COC Seals/Intact? Y/N/NA		11/19.	
Contact: Hares Nadel Ongoing Project? Yes No	Received Good Cond./Cold	Printed Name: Date: 7		e: Printed Name: Date:
Ongoing Project? Yes No	Temp: Delivery Method: Coldste		Company	Company:
	LISEA SIVE	Shannon & Will	on	
Not	les:	Received By: 1.	Received By:	Received By: 3.
		Signature: Time:	Signature: Time	Signature: Time:
		Davidler	Printed Name: Date	Printed Name: Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for con- Pink - Shannon & Wilson - job	signee files	Company:	Company:	Company.
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No.

7/23/2021

Extra sample 10:55-Grid-13, Date 7/8/11 Ame 1905 SO 7/13/21











No.

Client: Shannon & Wilson, Inc

Job Number: 320-76143-1

Login Number: 76143 List Source: Eurofins TestAmerica, Sacramento

List Number: 1 Creator: Her, David A

Creator. Her, David A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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. <u>Laboratory</u>
a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
PFAS soil samples do not require preservation beyond the temperature requirements.

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320-70143-1
Laboratory Report Date:
July 23, 2021
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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 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. <u>Case Narrative</u>
a. Present and understandable?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:

320-76143-1
Laboratory Report Date:
July 23, 2021
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Dillingham DOT&PF
b. Discrepancies, errors, or QC failures identified by the lab?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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: <i>SS-Grid-A1</i> , <i>SS-Grid-B2</i> , <i>SS-Grid-B3</i> , <i>SS-Grid-C1</i> , <i>SS-Grid-C2</i> , <i>SB4-0.5-1.2</i> , (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: <i>SS-Grid-A1</i> , <i>SS-Grid-B3</i> , <i>SS-Grid-C2</i> , (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: <i>SS-25</i> and <i>SS-26</i> . 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 $\square$ No $\boxtimes$ N/A $\square$ Comments:
Corrective actions were not documented.

320-76143-1
aboratory Report Date:
July 23, 2021
S 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. 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.
Samples Results
a. Correct analyses performed/reported as requested on COC?
Yes⊠ No□ N/A□ Comments:
b. All applicable holding times met?
$Yes \boxtimes No \square N/A \square$ 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.

320-76143-1
Laboratory Report Date:
July 23, 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
<ul> <li>ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
Tese Not NAT 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?
$Yes \square No \square N/A \boxtimes Comments:$
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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
$Yes \square No \boxtimes N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

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Laboratory Report Date:
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<ul> <li>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)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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 $\square$ No $\square$ N/A $\boxtimes$ 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?
$Yes \boxtimes No \square N/A \square$ Comments:

320-76143-1
Laboratory Report Date:
July 23, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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.
<ul> <li>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)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
v. If %R or RPD is outside of acceptable limits, what samples are affected?  Comments:
PFOS was detected in the parent sample <i>SS-Grid-A1</i> 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 $\boxtimes$ No $\square$ N/A $\square$ 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
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
Yes⊠ No□ N/A□ Comments:
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	320-76143-1		
La	boratory Report Date:		
	July 23, 2021		
CS	Site Name:		
	Dillingham DOT&PF		
	· · ·	at recoveries (%R) reported and within method or laboratives, if applicable? (AK Petroleum methods 50-150 % atory report pages)	•

Comments:

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 $Yes \square No \boxtimes N/A \square$ 

	320-76143-1
La	boratory Report Date:

July 23, 2021

CS Site Name:

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.

	320-76143-1		
Lal	boratory Report Date:		
	July 23, 2021		
CS	Site Name:		
	Dillingham DOT&PF		
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?		
	$Yes \boxtimes No \square N/A \square$ Comments:		
	See above.		
	iv. Data quality or usability affected?  Comments:		
	The data quality/usability is affected; see above.		
	e. Trip Blanks		
	<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>		
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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)		
	$Yes \square No \square N/A \boxtimes Comments:$		
	See above.		
	iii. All results less than LOQ and project specified objectives?		
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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.		

320-76143-1
Laboratory Report Date:
July 23, 2021
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 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 $\boxtimes$ No $\square$ N/A $\square$ 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

320-76143-1	
Laboratory Report Date:	
July 23, 2021	
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 $\square$ No $\square$ N/A $\boxtimes$ Comments:	
No other data flags or qualifiers.	

# **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

Jamin Oltima

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

#### **Qualifiers**

		N/I	C
ш	U	IVI	J

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.

# Clossary

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
LC	Decision Level Concentration (Radiochemistry)
DL	Estimated Detection Limit (Dioxin)
OD	Limit of Detection (DoD/DOE)
.OQ	Limit of Quantitation (DoD/DOE)
<b>ICL</b>	EPA recommended "Maximum Contaminant Level"
1DA	Minimum Detectable Activity (Radiochemistry)
1DC	Minimum Detectable Concentration (Radiochemistry)
1DL	Method Detection Limit
1L	Minimum Level (Dioxin)
ИPN	Most Probable Number

MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NO	Net Celeviete d

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)

RLReporting Limit or Requested Limit (Radiochemistry)

**RPD** Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin) TEF Toxicity Equivalent Quotient (Dioxin) TEQ

TNTC Too Numerous To Count

Eurofins TestAmerica, Sacramento

#### **Case Narrative**

Client: Shannon & Wilson, Inc

Project/Site: DLG

Job ID: 320-76144-1

#### 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 1.5° 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.

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Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

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		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	O Method	Prep Type
Perfluorohexanoic acid (PFHxA)	3.8		1.8	0.46	ng/L		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.

Eurofins TestAmerica, Sacramento

7/29/2021 (Rev. 1)

# **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

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)	39		1.9	0.47	na/L	1		537.1 DW	Total/NA

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Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

Lab Sample ID: 320-76144-1 **Client Sample ID: EB-Grid** Date Collected: 07/08/21 20:00 **Matrix: Water** 

Date Received: 07/13/21 15:45

Analyte	Result C	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/15/21 04:30	07/17/21 15:31	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/15/21 04:30	07/17/21 15:31	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 C	Qualifier Limit	s				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C4 PFHpA	95	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C4 PFOA	103	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C5 PFNA	97	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C2 PFDA	103	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C2 PFUnA	98	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C2 PFDoA	97	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C2 PFTeDA	101	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C3 PFBS	99	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
1802 PFHxS	97	50 - 1	50				07/15/21 04:30	07/17/21 15:31	1
13C4 PFOS	99	50 - 1						07/17/21 15:31	1
d3-NMeFOSAA	92	50 - 1						07/17/21 15:31	1
d5-NEtFOSAA	104	50 - 1						07/17/21 15:31	
13C3 HFPO-DA	85	50 <sub>-</sub> 1						07/17/21 15:31	. 1

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

Lab Sample ID: 320-76144-2 Client Sample ID: 191750

Date Collected: 07/09/21 12:22 **Matrix: Water** Date Received: 07/13/21 15:45

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.46	ng/L		07/15/21 12:46	07/16/21 15:10	1
11-Chloroeicosafluoro-3-oxaundecan e-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

Surrogate	%Recovery Qualifier	Limits	Prepared Analyze	ed Dil Fac
13C2 PFHxA	88	70 - 130	07/15/21 12:46 07/16/21 1	15:10 1
13C2 PFDA	83	70 - 130	07/15/21 12:46 07/16/21 1	15:10 1
d5-NEtFOSAA	81	70 - 130	07/15/21 12:46 07/16/21 1	15:10 1
13C3 HFPO-DA	85	70 - 130	07/15/21 12:46 07/16/21 1	15:10 1

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

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

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.47	ng/L		07/16/21 12:55	07/20/21 12:43	1
11-Chloroeicosafluoro-3-oxaundecan e-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

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: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

d5-NEtFOSAA

13C3 HFPO-DA

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

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:17	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-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

70 - 130

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07/15/21 12:46 07/16/21 15:17

07/15/21 12:46 07/16/21 15:17

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

Lab Sample ID: 320-76144-5 Client Sample ID: 191300

Date Collected: 07/09/21 14:27 **Matrix: Water** Date Received: 07/13/21 15:45

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	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	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			07/20/21 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.48				07/20/21 12:51	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.48	-		07/16/21 12:55	07/20/21 12:51	1
9-Chlorohexadecafluoro-3-oxanonan 9-1-sulfonic acid (9CI-PF3O	ND		1.9	0.48	ng/L		07/16/21 12:55	07/20/21 12:51	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF	ND		1.9	0.48	Ü		07/16/21 12:55	07/20/21 12:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	*3	1.9	0.48	-		07/16/21 12:55	07/20/21 12:51	1
1,8-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: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

d5-NEtFOSAA

13C3 HFPO-DA

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

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.8	0.46	ng/L		07/15/21 12:46	07/16/21 15:25	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-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

70 - 130

70 - 130

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07/15/21 12:46 07/16/21 15:25

07/15/21 12:46 07/16/21 15:25

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

13C2 PFDA

d5-NEtFOSAA

13C3 HFPO-DA

Client Sample ID: 200440 Lab Sample ID: 320-76144-7

Date Collected: 07/09/21 11:39 **Matrix: Water** Date Received: 07/13/21 15:45

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.47	ng/L		07/15/21 12:46	07/16/21 15:33	1
11-Chloroeicosafluoro-3-oxaundecan e-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

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70 - 130

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07/15/21 12:46 07/16/21 15:33

07/15/21 12:46 07/16/21 15:33

07/15/21 12:46 07/16/21 15:33

### **Surrogate Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

**Prep Type: Total/NA** 

			Р	ercent Surro	ogate Rec
		PFHxA	PFDA	d5NEFOS	HFPODA
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(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 Job ID: 320-76144-1

Project/Site: DLG

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water Prep Type: Total/NA

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)			
		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)		
320-76144-1	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)									
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA				
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)				
320-76144-1	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

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Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

# Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-506939/1-A	Client Sample ID: Method Blank
Matrix: Water	Prep Type: Total/NA
Analysis Batch: 507396	Prep Batch: 506939
MR MR	

	IVID	IVID							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		2.0	0.50	ng/L		07/15/21 12:46	07/16/21 14:47	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-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

	MB MB				
Surrogate	%Recovery 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 **Client Sample ID: Lab Control Sample Matrix: Water Analysis Batch: 507396** 

Allalysis Datcii. 307330							r rep Daten. 300333
	Spike	LLCS	LLCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%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

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Prep Type: Total/NA Prep Batch: 506939

........

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

### 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** 

	Spike	LLCS	LLCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanesulfonic acid	3.64	2.53		ng/L		70	50 - 150	
(PFHxS)								
Perfluorooctanesulfonic acid	3.71	2.55		ng/L		69	50 - 150	
(PFOS)								
N-methylperfluorooctanesulfona	4.00	2.88		ng/L		72	50 - 150	
midoacetic acid (NMeFOSAA)								
N-ethylperfluorooctanesulfonami	4.00	2.91		ng/L		73	50 - 150	
doacetic acid (NEtFOSAA)								
9-Chlorohexadecafluoro-3-oxan	3.73	2.59		ng/L		69	50 - 150	
onane-1-sulfonic acid (9Cl-PF3O								
11-Chloroeicosafluoro-3-oxaund	3.77	2.46		ng/L		65	50 - 150	
ecane-1-sulfonic acid (11CI-PF								
Hexafluoropropylene Oxide	4.00	2.81		ng/L		70	50 - 150	
Dimer Acid (HFPO-DA)								
4,8-Dioxa-3H-perfluorononanoic	3.77	3.10		ng/L		82	50 - 150	
acid (ADONA)								

LLCS LLCS

Surrogate	%Recovery	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** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analysis Batch: 507396 Prep Batch: 506939 **RPD** Spike LLCSD LLCSD %Rec. Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit Perfluorohexanoic acid (PFHxA) 4.00 3.08 50 - 150 5 50 ng/L 77 Perfluoroheptanoic acid (PFHpA) 4.00 3.47 87 50 - 150 7 50 ng/L 4.00 Perfluorooctanoic acid (PFOA) 3.43 86 50 - 150 50 ng/L 2 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 4.00 3.15 ng/L 79 50 - 150 0.5 50 (PFUnA) 4.00 Perfluorododecanoic acid 3.02 ng/L 76 50 - 150 0.07 50 (PFDoA) 4.00 2.90 72 5 Perfluorotridecanoic acid 50 - 150 50 ng/L (PFTriA) Perfluorotetradecanoic acid 4.00 2.81 ng/L 70 50 - 150 2 50 (PFTeA) 3.54 2.06 Perfluorobutanesulfonic acid ng/L 50 - 150 50 (PFBS) Perfluorohexanesulfonic acid 3.64 2.59 ng/L 71 50 - 150 50 (PFHxS) 3.71 Perfluorooctanesulfonic acid 2.46 ng/L 66 50 - 150 50 (PFOS) N-methylperfluorooctanesulfona 4.00 2.76 ng/L 69 50 - 150 50 midoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonami 4.00 2.73 ng/L 68 50 - 150 6 50 doacetic acid (NEtFOSAA) 3.73 2.43 50 9-Chlorohexadecafluoro-3-oxan ng/L 50 - 150 onane-1-sulfonic acid (9CI-PF3O

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7/29/2021 (Rev. 1)

Client: Shannon & Wilson, Inc Project/Site: DLG

Lab Sample ID: LLCSD 320-506939/3-A

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

**Matrix: Water** 

Analysis Batch: 507396

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA Prep Batch: 506939

	Spike	LLCSD	LLCSD				%Rec.		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
11-Chloroeicosafluoro-3-oxaund ecane-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	

LLCSD LLCSD

Surrogate	%Recovery	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** 

(ADONA)

**Analysis Batch: 507696** 

Client Sample ID: Method Blank **Prep Type: Total/NA** 

**Prep Batch: 507405** 

	MB	МВ						•	
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-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	ND		2.0	0.50	ng/L		07/16/21 12:55	07/17/21 13:34	1

MB MB

Surrogate	%Recovery	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

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### **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

### 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

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	80.0	83.6		ng/L		105	70 - 130	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	80.0	83.7		ng/L		105	70 - 130	
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid (9Cl-PF3O	74.6	87.7		ng/L		118	70 - 130	
11-Chloroeicosafluoro-3-oxaund ecane-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	

LCS LCS

Surrogate	%Recovery	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

Perfluorohexanoic acid (PFHxA)

Perfluoroheptanoic acid (PFHpA)

Perfluorooctanoic acid (PFOA)

Perfluorononanoic acid (PFNA)

Perfluorodecanoic acid (PFDA)

Perfluoroundecanoic acid

Perfluorododecanoic acid

Client Sample ID: La	b Control Sample Dup
	Prep Type: Total/NA
	Prep Batch: 507405

%Rec. **RPD** D %Rec Limits RPD Limit 113 70 - 130 30 126 70 - 130 30 0 124 70 - 130 5 30 115 70 - 130 30 117 70 - 130 30

(PFDoA)

(PFUnA)

Analyte

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70 - 130

70 - 130

111

113

Spike

Added

80.0

80.0

80.0

80.0

80.0

80.0

80.0

LCSD LCSD

90.7

101

99.3

92.3

93.8

88.88

90.7

Result Qualifier

Unit

ng/L

ng/L

ng/L

ng/L

ng/L

ng/L

ng/L

30

30

3

4

6

8

10

12

14

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

### 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** 

112

127

Prep Type: Total/NA Prep Batch: 507405

Spike LCSD LCSD **RPD** %Rec. Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Perfluorotridecanoic acid 80.0 95.9 ng/L 120 70 - 130 30 (PFTriA) Perfluorotetradecanoic acid 80.0 98.3 123 70 - 130 3 30 ng/L (PFTeA) Perfluorobutanesulfonic acid 70.7 71.5 ng/L 101 70 - 130 30 (PFBS) Perfluorohexanesulfonic acid 72.8 76.5 105 70 - 130 2 30 ng/L (PFHxS) 74.2 72.8 98 70 - 130 8 Perfluorooctanesulfonic acid ng/L 30 (PFOS) 80.0 82.6 103 70 - 130 N-methylperfluorooctanesulfona 30 ng/L midoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonami 80.0 84.8 ng/L 106 70 - 130 30 doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan 74.6 78.2 ng/L 105 70 - 130 11 30 onane-1-sulfonic acid (9CI-PF3O 11-Chloroeicosafluoro-3-oxaund 75.4 77.0 ng/L 102 70 - 130 30

80.0

75.4

89.7

95.7

ng/L

ng/L

LCSD LCSD

 Surrogate
 %Recovery
 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** 

ecane-1-sulfonic acid (11CI-PF

4,8-Dioxa-3H-perfluorononanoic

Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)

acid (ADONA)

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 506784

70 - 130

70 - 130

	MB	MB						•	
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/15/21 04:30	07/17/21 14:34	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/15/21 04:30	07/17/21 14:34	1

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2

4

6

10

12

14

7

2

30

15

Job ID: 320-76144-1

**Client Sample ID: Method Blank** 

**Prep Type: Total/NA** 

**Prep Batch: 506784** 

Client: Shannon & Wilson, Inc Project/Site: DLG

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** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MD	MD							

(	MB I	MB			
Isotope Dilution	%Recovery (	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	
13C4 PFOA	100	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C5 PFNA	97	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C2 PFDA	105	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C2 PFUnA	100	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C2 PFDoA	100	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C2 PFTeDA	104	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C3 PFBS	108	50 - 150	07/15/21 04:30	07/17/21 14:34	
18O2 PFHxS	97	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C4 PFOS	101	50 - 150	07/15/21 04:30	07/17/21 14:34	
d3-NMeFOSAA	102	50 - 150	07/15/21 04:30	07/17/21 14:34	
d5-NEtFOSAA	104	50 - 150	07/15/21 04:30	07/17/21 14:34	
13C3 HFPO-DA	94	50 - 150	07/15/21 04:30	07/17/21 14:34	

Lab Sample ID: LCS 320-506	784/2-A
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Lab Sample ID: LCS 320-506784/2-A Matrix: Water				Clie	nt Sample I	D: Lab Control Sample Prep Type: Total/NA
Analysis Batch: 507628						Prep Batch: 506784
	Spike	LCS	LCS			%Rec.
Analyte	Added	Result	Qualifier	Unit	D %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	40.0	42.1		ng/L	105	69 - 133
(PFUnA)				Ü		
Perfluorododecanoic acid	40.0	39.3		ng/L	98	72 - 134
(PFDoA)						
Perfluorotridecanoic acid	40.0	39.3		ng/L	98	65 - 144
(PFTriA)						
Perfluorotetradecanoic acid	40.0	36.6		ng/L	91	71 - 132
(PFTeA)				/1		
Perfluorobutanesulfonic acid	35.4	28.8		ng/L	81	72 - 130
(PFBS) Perfluorohexanesulfonic acid	36.4	32.3		ng/L	89	68 - 131
(PFHxS)	30.4	32.3		⊓g/L	09	00-131
Perfluorooctanesulfonic acid	37.1	36.0		ng/L	97	65 - 140
(PFOS)	• • • • • • • • • • • • • • • • • • • •	00.0			0.	
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	39.3		ng/L	98	65 - 136

Eurofins TestAmerica, Sacramento

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7/29/2021 (Rev. 1)

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-506784/2-A **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** Prep Batch: 506784

**Analysis Batch: 507628** 

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	39.4		ng/L		99	61 - 135	
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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	

LCS LCS

LUS	LUS	
%Recovery	Qualifier	Limits
91		50 - 150
93		50 - 150
100		50 - 150
96		50 - 150
98		50 - 150
91		50 - 150
92		50 - 150
95		50 - 150
107		50 - 150
100		50 - 150
97		50 - 150
92		50 - 150
95		50 - 150
93		50 - 150
	%Recovery 91 93 100 96 98 91 92 95 107 100 97 92	93 100 96 98 91 92 95 107 100 97 92

Lab Sample ID: LCSD 320-506784/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 507628							Prep Ba	atch: 50	06784
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

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### **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 3	20-506784/3-A
-----------------------	---------------

**Matrix: Water** 

**Analysis Batch: 507628** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA Prep Batch: 506784

•							
C.	%Rec.			LCSD	LCSD	Spike	
its RPD	Limits	%Rec	Unit D	Qualifier	Result	Added	Analyte
136 6	65 - 136	105	ng/L		41.9	40.0	N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)
135 5	61 - 135	94	ng/L		37.6	40.0	N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)
137 0	77 - 137	91	ng/L		33.8	37.3	9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid
132 10	72 - 132	94	ng/L		37.4	40.0	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)
136 2	76 - 136	98	ng/L		37.1	37.7	11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid
141 0	81 - 141	94	ng/L		35.3	37.7	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
	77 - 72 - 76 -	91 94 98	ng/L ng/L		33.8 37.4 37.1	37.3 40.0 37.7	doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic

	LCSD	LCSD	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	85		50 - 150
13C4 PFHpA	93		50 - 150
13C4 PFOA	93		50 <sub>-</sub> 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
1802 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

# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76144-1

Project/Site: DLG

### 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 Sa 320-76	ample ID 6144-1	Client Sample ID EB-Grid	Prep Type Total/NA	Matrix Water	Method EPA 537(Mod)	Prep Batch 506784
MB 32	0-506784/1-A	Method Blank	Total/NA	Water	EPA 537(Mod)	506784
LCS 32	20-506784/2-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**

<b>Lab Sample ID</b> 320-76144-3	Client Sample ID 191700	Prep Type Total/NA	Matrix Water	Method 537.1 DW	Prep Batch 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

Eurofins TestAmerica, Sacramento

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Job ID: 320-76144-1

Client: Shannon & Wilson, Inc

Project/Site: DLG

Client Sample ID: EB-Grid Lab Sample ID: 320-76144-1

Date Collected: 07/08/21 20:00 Date Received: 07/13/21 15:45

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76144-2 Client Sample ID: 191750

Date Collected: 07/09/21 12:22 **Matrix: Water** 

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Received: 07/13/21 15:45

**Matrix: Water** 

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method Factor Amount Amount Number or Analyzed Analyst Type Run Lab Total/NA 537.1 DW 506939 07/15/21 12:46 EH Prep 273.5 mL 1.0 mL 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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-76144-1

Project/Site: DLG

Client Sample ID: 200440 Lab Sample ID: 320-76144-7

Date Collected: 07/09/21 11:39 Matrix: Water

Date Received: 07/13/21 15:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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# **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.

uthority		Program	Identification Number	Expiration Date
aska (UST)		State	17-020	02-20-24
The following analytes the agency does not do		report, but the laboratory is r	not certified by the governing authority.	This list may include analytes for which
Analysis Method	Prep Method	Matrix	Analyte	
537.1 DW	537.1 DW	Water	11-Chloroeicosafluoro-3-oxa ulfonic acid (11Cl-PF	undecane-1-s
537.1 DW	537.1 DW	Water	4,8-Dioxa-3H-perfluorononal (ADONA)	noic acid
537.1 DW	537.1 DW	Water	9-Chlorohexadecafluoro-3-o ulfonic acid (9CI-PF3O	xanonane-1-s
537.1 DW	537.1 DW	Water	Hexafluoropropylene Oxide (HFPO-DA)	Dimer Acid
537.1 DW	537.1 DW	Water	N-ethylperfluorooctanesulfor acid (NEtFOSAA)	namidoacetic
537.1 DW	537.1 DW	Water	N-methylperfluorooctanesulf acid (NMeFOSAA)	fonamidoacetic
537.1 DW	537.1 DW	Water	Perfluorobutanesulfonic acid	i (PFBS)
537.1 DW	537.1 DW	Water	Perfluorodecanoic acid (PFD	DA)
537.1 DW	537.1 DW	Water	Perfluorododecanoic acid (P	PFDoA)
537.1 DW	537.1 DW	Water	Perfluoroheptanoic acid (PF	HpA)
537.1 DW	537.1 DW	Water	Perfluorohexanesulfonic acid	d (PFHxS)
537.1 DW	537.1 DW	Water	Perfluorohexanoic acid (PFF	HxA)
537.1 DW	537.1 DW	Water	Perfluorononanoic acid (PFN	NA)
537.1 DW	537.1 DW	Water	Perfluorooctanesulfonic acid	I (PFOS)
537.1 DW	537.1 DW	Water	Perfluorooctanoic acid (PFO	0A)
537.1 DW	537.1 DW	Water	Perfluorotetradecanoic acid	(PFTeA)
537.1 DW	537.1 DW	Water	Perfluorotridecanoic acid (Pf	FTriA)
537.1 DW	537.1 DW	Water	Perfluoroundecanoic acid (P	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

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# **Sample Summary**

Client: Shannon & Wilson, Inc

Project/Site: DLG

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

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Job ID: 320-76144-1

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SHANNON & WILSON, INC.  2355 Hill Road Fairbanks, AK 99709			AIN-C	OF-C	USTODY	RECO	RD	Labor Attn:		Page 1 of 1 Huenca Aectucker
(907) 479-0600 www.shannonwilson.com	n					Analytical Met	hods (include pre	eservative	if used)	7
Turn Around Time:	Quote No:								Saturned of Contains	*
Normal Rush	MSA Number:	TBD			700				A COLIN	
Please Specify	J-Flags:	Yes	No	/3	otil /				Hund R	emarks/Matrix
Sample Identity	Lab No.	Time	Date Sampled	18				/<	Cor Sar	nposition/Grab? nple Containers
EB-Grd		2000	418121	X				Q	water	
191750		1222		-				2		+Trizma
191700		1806	1	×				2	1	
200320		1702		X				2		
191300		1427		X				2		
200 340		1149		×				2		
200 440		1133	V	×				2	1	V
					320-76144 Chair	of Custody			_	
Project Information	Sample	Receipt	7	Reliquis	shed By: 1.	Reliqui	ished By:	2.	Reliquis	hed By: 3.
Number: 102581-607 Name: DLG	Total No. of Containe		Sign	ature:	Time: <u>183</u> 0	Signature:	Time:_		Signature	Time:
Contact: Marcy Nadel	Received Good Cond	d./Cold	- 11	ed Name:	Date: H//	Printed Name:	Date _		Printed Name:	Date:
Ongoing Project? Yes No	Temp:			esecon	a Jakimoir	<u> </u>				
Sampler	Delivery Method:	oldstre		pany:	n & Wilson	Company:		ľ	Company:	
Not	tes:		i mas		ved'By: 1.	Recei	ved By: 2.	1 40 A 1 1 A	Receiv	ed By: 3.
			Sign	ature: Mr	Time: US	Signature:	Time:_		Signature:	Time:
			Print	ed Name:   +	Date	Printed Name:	Date:_		Printed Name:	Date:
Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file			report Com	pany:	~	Company:		(	Company:	





No.















Client: Shannon & Wilson, Inc Job Number: 320-76144-1

Login Number: 76144 List Source: Eurofins TestAmerica, Sacramento

List Number: 1 Creator: Her, David A

oreator. Her, David A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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 1	Ву:
Veselina	ı Yakimova
Title:	
Geologi	st
Date:	
July 29,	2021
Consultant l	Firm:
Shannoi	a & Wilson, Inc.
Laboratory	Name:
Eurofins	TestAmerica, Sacramento
Laboratory	Report Number:
320-761	44-1 Rev1
Laboratory	Report Date:
July 29,	2021
CS Site Nar	ne:
Dillingh	am DOT&PF PFAS
ADEC File	Number:
2540.38	.023
Hazard Iden	tification 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. <u>Laboratory</u>
<ul> <li>a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
<ul> <li>a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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	
<ul> <li>c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>	
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.?	
$Yes \square No \square N/A \boxtimes Comments:$	
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. <u>Case Narrative</u>	
a. Present and understandable?	
$Yes \boxtimes No \square N/A \square$ Comments:	

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b. Discrepancies, errors, or QC failures identified by the lab?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
Internal standard (ISTD) response for sample 191300 was outside control limits. The sample was reextracted 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?
$Yes \square No \boxtimes N/A \square$ Comments:
Sample <i>EB-Grid</i> was logged incorrectly upon receipt as <i>EB-Grind</i> . 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.

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5. <u>Samples Results</u>
a. Correct analyses performed/reported as requested on COC?
$Yes \boxtimes No \square N/A \square$ Comments:
b. All applicable holding times met?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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.

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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 $\square$ No $\square$ N/A $\boxtimes$ 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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
Yes⊠ No□ N/A□ Comments:
ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
$Yes \square No \square N/A \boxtimes Comments:$
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:
	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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	See above.
	vii. Data quality or usability affected? (Use comment box to explain.)  Comments:
	The data quality and/or usability are not affected.
	<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> <li>Yes \( \triangle \text{ No} \( \triangle \text{ N/A} \triangle \text{ Comments:} \)</li> </ul>
	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.
	<ul><li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li><li>Yes□ No□ N/A⊠ Comments:</li></ul>
	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.
	$Yes \square No \square N/A \boxtimes Comments:$
	See section 6.b.iv for assessment of method precision.

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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 $\square$ No $\square$ N/A $\boxtimes$ 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
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
$Yes \boxtimes No \square N/A \square$ 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)
$Yes \square No \boxtimes N/A \square$ 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?
$Yes \boxtimes No \square N/A \square$ 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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D	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.
	<ul><li>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)</li></ul>
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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.
	<ul> <li>f. Field Duplicate</li> <li>i. One field duplicate submitted per matrix, analysis and 10 project samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
	100 100 1071 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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Laboratory Report Date:
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Dillingham DOT&PF PFAS
iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil) $ \begin{array}{c} \text{RPD (\%) = Absolute value of:} & \underline{(R_1 \text{-}R_2)} \\ \underline{((R_1 \text{+}R_2)/2)} \end{array} \text{ x 100} \\ \\ \text{Where } & R_1 = \text{Sample Concentration} \\ & R_2 = \text{Field Duplicate Concentration} \end{array} $
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.
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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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- 7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
  - a. Defined and appropriate?

Yes⊠ No⊔	N/A 🗆	Commer	its:				
PFHxA. PFHpA.	PFOA. PFNA	A. PFDA.	PFUnA.	PFDoA.	PFTriA.	PFTeA	HFPO-DA

A, and ADONA results are flagged "J" due to an internal standard response outside of the laboratory control

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# **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:

eurofins 🔅

Shannon & Wilson, Inc 2355 Hill Rd. Fairbanks, Alaska 99709-5244

Attn: Marcy Nadel

Vani altimo

Authorized for release by: 8/2/2021 2:42:29 PM

David Alltucker, Project Manager I (916)374-4383

David.Alltucker@Eurofinset.com

.....LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

### **Qualifiers**

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
Н	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)

Reporting Limit or Requested Limit (Radiochemistry) RL

Relative Percent Difference, a measure of the relative difference between two points RPD

TEF Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

**TNTC** Too Numerous To Count

Eurofins TestAmerica, Sacramento

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#### **Case Narrative**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1
Project/Site: DLG PFAS

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 2.2° 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.

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#### **Case Narrative**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

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.

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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	JH	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanoic acid (PFOA) - RE	0.89	JН	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorobutanesulfonic acid (PFBS) - RE	0.91	JH	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - RE	18	Н	1.8	0.46	ng/L	1		537.1 DW	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	29	Н	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		_	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) -	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.

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

Client Sample ID: SW-03 (Continued)	Lab Sample ID: 320-76363-5
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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

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

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**

No Detections.

### Client Sample ID: SW-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	O Method	Prep Type
Perfluorohexanoic acid (PFHxA)	7.1		1.8	0.51	ng/L		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**

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.

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Lab Sample ID: 320-76363-6

Lab Sample ID: 320-76363-7

Lab Sample ID: 320-76363-8

Lab Sample ID: 320-76363-9

Lab Sample ID: 320-76363-10

# **Detection Summary**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

Client Sample ID: SW-08

Lah 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		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 JI	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.

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# **Client Sample Results**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76363-1

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

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9		ng/L		07/20/21 13:03	07/23/21 20:52	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		1.9	0.47	ng/L		07/20/21 13:03	07/23/21 20:52	1
11-Chloroeicosafluoro-3-oxaundecan e-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
4000 DELL-A	404	04:	70 400				07/00/04 40:00	07/00/04 00:50	

١	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
١	13C3 HFPO-DA	123		70 - 130	07/20/21 13:03	07/23/21 20:52	1

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	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorooctanoic acid (PFOA)	0.89	JH	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorononanoic acid (PFNA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorodecanoic acid (PFDA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluoroundecanoic acid (PFUnA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorododecanoic acid (PFDoA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorotridecanoic acid (PFTriA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorotetradecanoic acid (PFTeA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorobutanesulfonic acid (PFBS)	0.91	JH	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorohexanesulfonic acid (PFHxS)	18	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Perfluorooctanesulfonic acid (PFOS)	29	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1

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# **Client Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF	ND	Н	1.8	0.46	ng/L		07/27/21 13:06	08/01/21 16:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	Н	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	Н	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

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

**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

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 18:28	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 18:28	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:28	1
13C5 PFNA	28	*5-	50 - 150					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 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:28	1
13C2 PFDoA	35	*5-	50 - 150					07/20/21 18:28	1
13C2 PFTeDA	23	*5-	50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:28	1
13C3 PFBS			50 <sub>-</sub> 150					07/20/21 18:28	1
1802 PFHxS	29	*5-	50 - 150				07/19/21 13:06	07/20/21 18:28	1
13C4 PFOS	34	*5-	50 <sub>-</sub> 150					07/20/21 18:28	1
d3-NMeFOSAA		*5-	50 - 150					07/20/21 18:28	1
d5-NEtFOSAA		*5-	50 <sub>-</sub> 150					07/20/21 18:28	
13C3 HFPO-DA		*5-	50 <sub>-</sub> 150					07/20/21 18:28	1

Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

13C4 PFOS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	41		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluoroheptanoic acid (PFHpA)	20		1.8		ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluorooctanoic acid (PFOA)	35		1.8	0.76	ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluorononanoic acid (PFNA)	5.4		1.8		ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluorodecanoic acid (PFDA)	5.0		1.8		ng/L			07/20/21 18:38	
Perfluoroundecanoic acid	1.0	1	1.8		ng/L			07/20/21 18:38	
(PFUnA)	1.0	3	1.0	0.55	iig/L		07/13/21 15:00	07720721 10.00	
Perfluorododecanoic acid	3.1		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 18:38	
(PFDoA)					3				
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluorotetradecanoic acid (PFTeA)	0.85	J	1.8	0.65	ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluorobutanesulfonic acid (PFBS)	13		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 18:38	
Perfluorohexanesulfonic acid (PFHxS)	160		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 18:38	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5		ng/L		07/19/21 13:06	07/20/21 18:38	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 18:38	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8		ng/L			07/20/21 18:38	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6		ng/L			07/20/21 18:38	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8		ng/L			07/20/21 18:38	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 18:38	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	105	-	50 - 150				07/19/21 13:06	07/20/21 18:38	
13C4 PFHpA	73		50 - 150				07/19/21 13:06	07/20/21 18:38	
13C4 PFOA	97		50 - 150				07/19/21 13:06	07/20/21 18:38	
13C5 PFNA	82		50 - 150				07/19/21 13:06	07/20/21 18:38	
13C2 PFDA	138		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:38	
13C2 PFUnA	121		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:38	
13C2 PFDoA	119		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:38	
13C2 PFTeDA	112		50 <sub>-</sub> 150					07/20/21 18:38	
13C3 PFBS	80		50 - 150					07/20/21 18:38	
1802 PFHxS	93		50 - 150					07/20/21 18:38	
13C4 PFOS	112		50 - 150 50 - 150					07/20/21 18:38	
d3-NMeFOSAA	90		50 - 150 50 - 150					07/20/21 18:38	
d5-NEtFOSAA	103		50 - 150 50 - 150					07/20/21 18:38	
13C3 HFPO-DA	85		50 - 150 50 - 150					07/20/21 18:38	
1303 TILF 0-DA	05		30 - 130				01/19/21 13.00	07/20/21 10.30	
Method: EPA 537(Mod) - PFAS Analyte		.3, Table B Qualifier	-15 - DL RL	MDI	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorooctanesulfonic acid	380	<u> </u>	9.0		ng/L	=	•	07/21/21 12:19	Dii Fa
(PFOS) Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
130tope Dilution	/orver y	Quantitei	Liiiilo				Prepared	Allalyzeu	ם ווע

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<u>07/19/21 13:06</u> <u>07/21/21 12:19</u>

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

13C4 PFOS

**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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	43		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 18:47	
Perfluoroheptanoic acid (PFHpA)	20		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 18:47	•
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5		ng/L		07/19/21 13:06	07/20/21 18:47	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5		ng/L			07/20/21 18:47	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	-			07/20/21 18:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6		ng/L			07/20/21 18:47	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8		ng/L			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
lsotope 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	
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
1802 PFHxS	96		50 - 150				07/19/21 13:06	07/20/21 18:47	1
13C4 PFOS	114		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:47	1
d3-NMeFOSAA	92		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 18:47	1
d5-NEtFOSAA	101		50 - 150					07/20/21 18:47	
13C3 HFPO-DA	90		50 - 150					07/20/21 18:47	1
Method: EPA 537(Mod) - PFAS	for QSM 5	.3, Table B	-15 - DL						
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	380		8.9	2.4	ng/L		07/19/21 13:06	07/21/21 12:29	5
(PFOS)									
(PFOS) Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

<u>07/19/21 13:06</u> <u>07/21/21 12:29</u>

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50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

Client Sample ID: SW-03

Date Received: 07/16/21 11:30

Perfluorooctanesulfonic acid

(PFOS)

Isotope Dilution

13C4 PFOS

Lab Sample ID: 320-76363-5 Date Collected: 07/13/21 18:30

**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 1.8 0.53 ng/L 07/19/21 13:06 07/20/21 18:57 Perfluorohexanoic acid (PFHxA) 20 Perfluoroheptanoic acid (PFHpA) 3.8 1.8 0.23 ng/L 07/19/21 13:06 07/20/21 18:57 Perfluorooctanoic acid (PFOA) 4.6 1.8 0.78 ng/L 07/19/21 13:06 07/20/21 18:57 ND 07/19/21 13:06 07/20/21 18:57 Perfluorononanoic acid (PFNA) 1.8 0.25 ng/L Perfluorodecanoic acid (PFDA) ND 0.28 ng/L 07/19/21 13:06 07/20/21 18:57 1.8 Perfluoroundecanoic acid (PFUnA) NΠ 18 1.0 ng/L 07/19/21 13:06 07/20/21 18:57 Perfluorododecanoic acid (PFDoA) ND 1.8 0.51 ng/L 07/19/21 13:06 07/20/21 18:57 Perfluorotridecanoic acid (PFTriA) ND 1.8 07/19/21 13:06 07/20/21 18:57 1.2 ng/L Perfluorotetradecanoic acid (PFTeA) ND 1.8 0.67 ng/L 07/19/21 13:06 07/20/21 18:57 Perfluorobutanesulfonic acid 1.8 0.18 ng/L 07/19/21 13:06 07/20/21 18:57 16 (PFBS) 07/19/21 13:06 07/20/21 18:57 Perfluorohexanesulfonic acid 140 1.8 0.52 ng/L (PFHxS) N-methylperfluorooctanesulfonamidoa ND 4.6 1.1 ng/L 07/19/21 13:06 07/20/21 18:57 cetic acid (NMeFOSAA) ND 07/19/21 13:06 07/20/21 18:57 N-ethylperfluorooctanesulfonamidoac 4.6 1.2 ng/L etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 0.22 ng/L 07/19/21 13:06 07/20/21 18:57 1.8 e-1-sulfonic acid ND 3.7 07/19/21 13:06 07/20/21 18:57 Hexafluoropropylene Oxide Dimer 1.4 ng/L Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 1.8 0.29 ng/L 07/19/21 13:06 07/20/21 18:57 e-1-sulfonic acid ND 0.37 ng/L 07/19/21 13:06 07/20/21 18:57 4,8-Dioxa-3H-perfluorononanoic acid 1.8 (ADONA) Isotope Dilution Dil Fac %Recovery Qualifier Limits Prepared Analyzed 13C2 PFHxA 64 50 - 150 07/19/21 13:06 07/20/21 18:57 13C4 PFHpA 44 \*5-50 - 150 07/19/21 13:06 07/20/21 18:57 13C4 PFOA 60 50 - 150 07/19/21 13:06 07/20/21 18:57 07/19/21 13:06 07/20/21 18:57 13C5 PFNA 50 50 - 150 13C2 PFDA 78 50 - 150 07/19/21 13:06 07/20/21 18:57 13C2 PFUnA 70 50 - 150 07/19/21 13:06 07/20/21 18:57 13C2 PFDoA 66 50 - 150 07/19/21 13:06 07/20/21 18:57 07/19/21 13:06 07/20/21 18:57 13C2 PFTeDA 38 50 - 150 13C3 PFBS 51 50 - 150 07/19/21 13:06 07/20/21 18:57 07/19/21 13:06 07/20/21 18:57 1802 PFHxS 58 50 - 150 13C4 PFOS 69 50 - 150 07/19/21 13:06 07/20/21 18:57 50 - 150 07/19/21 13:06 07/20/21 18:57 d3-NMeFOSAA 54 d5-NEtFOSAA 60 50 - 150 07/19/21 13:06 07/20/21 18:57 13C3 HFPO-DA 53 50 - 150 07/19/21 13:06 07/20/21 18:57 Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - DL Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac

Eurofins TestAmerica, Sacramento

Analyzed

07/19/21 13:06 07/21/21 12:38

07/19/21 13:06 07/21/21 12:38

Prepared

9.2

Limits

50 - 150

25 ng/L

450

61

Qualifier

%Recovery

6

5

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

Date Received: 07/16/21 11:30

Client Sample ID: SW-04 Lab Sample ID: 320-76363-6 Date Collected: 07/14/21 09:00

**Matrix: Water** 

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	1.8		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 19:06	1
(PFHxS)									
Perfluorooctanesulfonic acid (PFOS)	12		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 19:06	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/19/21 13:06	07/20/21 19:06	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/19/21 13:06	07/20/21 19:06	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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					07/20/21 19:06	1
13C4 PFOA	93		50 <sub>-</sub> 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 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:06	1
13C2 PFUnA	142		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:06	1
13C2 PFDoA	136		50 <sub>-</sub> 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
1802 PFHxS	124		50 <sub>-</sub> 150					07/20/21 19:06	1
13C4 PFOS	133		50 - 150					07/20/21 19:06	
d3-NMeFOSAA	110		50 - 150					07/20/21 19:06	1
d5-NEtFOSAA	134		50 - 150					07/20/21 19:06	
13C3 HFPO-DA	118		50 - 150					07/20/21 19:06	

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

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

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

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	86		1.8	0.22	Ū		07/19/21 13:06	07/20/21 19:15	
Perfluorooctanoic acid (PFOA)	15		1.8	0.76	•		07/19/21 13:06	07/20/21 19:15	
Perfluorononanoic acid (PFNA)	3.0		1.8	0.24	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorodecanoic acid (PFDA)	1.0	J	1.8	0.28	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.8	0.51	ng/L		07/19/21 13:06	07/20/21 19:15	
Perfluorooctanesulfonic acid (PFOS)	13		1.8	0.48	Ü			07/20/21 19:15	,
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5		ng/L			07/20/21 19:15	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 19:15	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	-			07/20/21 19:15	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6	1.3	ng/L		07/19/21 13:06	07/20/21 19:15	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 19:15	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/19/21 13:06	07/20/21 19:15	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C4 PFHpA	60		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C4 PFOA	59		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C5 PFNA	62		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C2 PFDA	83		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C2 PFUnA	74		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C2 PFDoA	72		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C2 PFTeDA	72		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C3 PFBS	70		50 - 150				07/19/21 13:06	07/20/21 19:15	
1802 PFHxS	77		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:15	
13C4 PFOS	84		50 - 150				07/19/21 13:06	07/20/21 19:15	
d3-NMeFOSAA	62		50 - 150				07/19/21 13:06	07/20/21 19:15	
d5-NEtFOSAA	67		50 - 150				07/19/21 13:06	07/20/21 19:15	
13C3 HFPO-DA	75		50 - 150				07/19/21 13:06	07/20/21 19:15	

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

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

**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

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 19:25	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 19:25	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:25	1
13C3 PFBS	89		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:25	1
1802 PFHxS	101		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:25	1
13C4 PFOS	110		50 - 150					07/20/21 19:25	1
d3-NMeFOSAA	88		50 - 150					07/20/21 19:25	1
d5-NEtFOSAA	100		50 - 150					07/20/21 19:25	1
13C3 HFPO-DA	92		50 - 150					07/20/21 19:25	1

Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

**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

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	-
Perfluoroheptanoic acid (PFHpA)	4.0		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 19:53	•
Perfluorooctanoic acid (PFOA)	4.0		1.8	0.75	ng/L		07/19/21 13:06	07/20/21 19:53	•
Perfluorononanoic acid (PFNA)	1.5	J	1.8	0.24	ng/L		07/19/21 13:06	07/20/21 19:53	
Perfluorodecanoic acid (PFDA)	0.96	J	1.8	0.27	ng/L		07/19/21 13:06	07/20/21 19:53	•
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.97	ng/L		07/19/21 13:06	07/20/21 19:53	•
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 19:53	
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.1	ng/L		07/19/21 13:06	07/20/21 19:53	•
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.64	ng/L		07/19/21 13:06	07/20/21 19:53	•
Perfluorobutanesulfonic acid (PFBS)	1.3	J	1.8	0.18	ng/L		07/19/21 13:06	07/20/21 19:53	
Perfluorohexanesulfonic acid (PFHxS)	12		1.8	0.50	ng/L		07/19/21 13:06	07/20/21 19:53	,
Perfluorooctanesulfonic acid (PFOS)	15		1.8	0.48	ng/L		07/19/21 13:06	07/20/21 19:53	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		07/19/21 13:06	07/20/21 19:53	•
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4		ng/L		07/19/21 13:06	07/20/21 19:53	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.21	ng/L			07/20/21 19:53	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		07/19/21 13:06	07/20/21 19:53	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.28	ng/L		07/19/21 13:06	07/20/21 19:53	,
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.35	ng/L		07/19/21 13:06	07/20/21 19:53	•
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	99		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C4 PFHpA	59		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C4 PFOA	95		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:53	7
13C5 PFNA	80		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C2 PFDA	121		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C2 PFUnA	111		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C2 PFDoA	114		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C2 PFTeDA	97		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C3 PFBS	78		50 - 150				07/19/21 13:06	07/20/21 19:53	
18O2 PFHxS	86		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C4 PFOS	108		50 - 150				07/19/21 13:06	07/20/21 19:53	
d3-NMeFOSAA	76		50 - 150				07/19/21 13:06	07/20/21 19:53	
d5-NEtFOSAA	95		50 - 150				07/19/21 13:06	07/20/21 19:53	
13C3 HFPO-DA	83		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 19:53	

Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

Client Sample ID: SW-07 Lab Sample ID: 320-76363-10

Date Collected: 07/14/21 13:45

Date Received: 07/16/21 11:30

Matrix: Water

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	10		1.8	0.18	ng/L		07/19/21 13:06	07/20/21 20:02	1
(PFBS)									
Perfluorohexanesulfonic acid	110		1.8	0.52	ng/L		07/19/21 13:06	07/20/21 20:02	1
(PFHxS)	ND		4.0	4.4	/I		07/40/04 40:00	07/00/04 00:00	4
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/19/21 13:06	07/20/21 20:02	1
N-ethylperfluorooctanesulfonamidoac	ND		4.6	12	ng/L		07/19/21 13:06	07/20/21 20:02	1
etic acid (NEtFOSAA)	.15			1.2	·· <i>9</i> · =		277.0721 10.00	- / · LO. OZ	
9-Chlorohexadecafluoro-3-oxanonan	ND		1.8	0.22	ng/L		07/19/21 13:06	07/20/21 20:02	1
e-1-sulfonic acid					•				
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-oxaundecan	ND		1.8	0.29	ng/L		07/19/21 13:06	07/20/21 20:02	1
e-1-sulfonic acid									
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
1802 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	S for QSM 5	.3, Table B	-15 - DL						
Analyte	Result	Qualifier	RL		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
			50 - 150					07/21/21 13:06	

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

Date Received: 07/16/21 11:30

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

**Client Sample ID: SW-08** Lab Sample ID: 320-76363-11 Date Collected: 07/14/21 16:30

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		07/19/21 13:06	07/20/21 20:12	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4	1.2	ng/L		07/19/21 13:06	07/20/21 20:12	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/19/21 13:06	07/20/21 20:12	1
1802 PFHxS	33	*5-	50 - 150				07/19/21 13:06	07/20/21 20:12	1

07/19/21 13:06 07/20/21 20:12

07/19/21 13:06 07/20/21 20:12

07/19/21 13:06 07/20/21 20:12

07/19/21 13:06 07/20/21 20:12

50 - 150

50 - 150

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50 - 150

41 \*5-

30 \*5-

33 \*5-

32 \*5-

Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

Date Received: 07/16/21 11:30

**Client Sample ID: SW-09** Lab Sample ID: 320-76363-12 Date Collected: 07/14/21 18:00

**Matrix: Water** 

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 Analyte Result Qualifier RL **MDL** Unit Dil Fac Prepared Analyzed Perfluorohexanoic acid (PFHxA) 1.8 0.52 ng/L 07/19/21 13:06 07/20/21 20:21 24 07/19/21 13:06 07/20/21 20:21 Perfluoroheptanoic acid (PFHpA) 9.2 1.8 0.22 ng/L Perfluorooctanoic acid (PFOA) 9.7 1.8 0.76 ng/L 07/19/21 13:06 07/20/21 20:21 Perfluorononanoic acid (PFNA) 0.24 ng/L 07/19/21 13:06 07/20/21 20:21 1.6 JI 1.8 Perfluorodecanoic acid (PFDA) ND 1.8 0.28 ng/L 07/19/21 13:06 07/20/21 20:21 Perfluoroundecanoic acid (PFUnA) ND 1.8 0.98 ng/L 07/19/21 13:06 07/20/21 20:21 Perfluorododecanoic acid (PFDoA) ND 1.8 0.49 ng/L 07/19/21 13:06 07/20/21 20:21 Perfluorotridecanoic acid (PFTriA) ND 1.8 07/19/21 13:06 07/20/21 20:21 1.2 ng/L Perfluorotetradecanoic acid (PFTeA) ND 1.8 0.65 ng/L 07/19/21 13:06 07/20/21 20:21 Perfluorobutanesulfonic acid 1.8 0.18 ng/L 07/19/21 13:06 07/20/21 20:21 4.4 (PFBS) 1.8 07/19/21 13:06 07/20/21 20:21 Perfluorohexanesulfonic acid 24 0.51 ng/L (PFHxS) Perfluorooctanesulfonic acid 23 1.8 0.48 ng/L 07/19/21 13:06 07/20/21 20:21 (PFOS) ND 4.5 1.1 ng/L 07/19/21 13:06 07/20/21 20:21 N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac ND 4.5 1.2 ng/L 07/19/21 13:06 07/20/21 20:21 etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 07/19/21 13:06 07/20/21 20:21 1.8 0.21 ng/L e-1-sulfonic acid Hexafluoropropylene Oxide Dimer ND 3.6 1.3 ng/L 07/19/21 13:06 07/20/21 20:21 Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 1.8 0.29 ng/L 07/19/21 13:06 07/20/21 20:21 e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid ND 1.8 0.36 ng/L 07/19/21 13:06 07/20/21 20:21  $(\Lambda D \cap N \Lambda)$ 

(ADONA)					
Isotope Dilution	%Recovery Qua	lifier 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 <sub>-</sub> 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
1802 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 <sub>-</sub> 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 Job ID: 320-76363-1 Project/Site: DLG PFAS

**Client Sample ID: EB-SED** 

Date Received: 07/16/21 11:30

13C3 HFPO-DA

Lab Sample ID: 320-76363-13 Date Collected: 07/14/21 20:00

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/19/21 13:06	07/20/21 20:31	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/19/21 13:06	07/20/21 20:31	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				07/19/21 13:06	07/20/21 20:31	1
13C3 PFBS	106		50 <sub>-</sub> 150				07/19/21 13:06	07/20/21 20:31	1
1802 PFHxS	121		50 - 150				07/19/21 13:06	07/20/21 20:31	1
13C4 PFOS	132		50 <sub>-</sub> 150					07/20/21 20:31	1
d3-NMeFOSAA	108		50 <sub>-</sub> 150					07/20/21 20:31	1
									-

07/19/21 13:06 07/20/21 20:31

50 - 150

### **Surrogate Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

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

		Percent Surrogate Re					
		PFHxA	PFDA	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)	(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		

PFHxA = 13C2 PFHxA PFDA = 13C2 PFDA d5NEFOS = d5-NEtFOSAA HFPODA = 13C3 HFPO-DA

## **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

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

		PFHxA	Percent Isotope Dilution Recovery (Acceptance Limits) C4PFHA PFOA PFNA PFDA PFUNA PFDOA							
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(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	100	70	01	02	100	121	110	112	
320-76363-4	SW-102	106	71	105	89	120	122	120	115	
320-76363-4 - DL	SW-102	100	, ,	100	03	120	122	120	110	
320-76363-5	SW-03	64	44 *5-	60	50	78	70	66	38 *5-	
320-76363-5 - DL	SW-03								30 3-	
320-76363-6	SW-04		102	93	96	152 *5+	142	136	125	
	SW-04	104	102	93	90	132 37	142	130	123	
320-76363-6 - DL		104					74	70	70	
320-76363-7	SW-104		60	59	62	83	74	72	72	
320-76363-7 - DL	SW-104	57	00	400	00	445	440	400	07	
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	
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)		
		C3PFBS	PFHxS	PFOS		d5NEFOS	•	,		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(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	00	00	94	00	100	00			
320-76363-4	SW-102	84	96	114	92	101	90			
320-76363-4 - DL	SW-102	04	30	88	32	101	30			
320-76363-5	SW-03	E4	E0	69	ΕA	60	E2			
		51	58		54	60	53			
320-76363-5 - DL	SW-03	44.4	404	61	440	404	440			
320-76363-6	SW-04	114	124	133	110	134	118			
320-76363-6 - DL	SW-04	<u></u>	<u></u>				<u></u>			
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			
020 70000 10	Lab Control Sample	93	104	108	90	96	107			
LCS 320-508071/2-A	Lab Control Sample Dup	93	102	108	85	102	97			
LCS 320-508071/2-A LCSD 320-508071/3-A MB 320-508071/1-A		93 99	102 102	108 108	85 83	102 99	97 94			

PFHxA = 13C2 PFHxA C4PFHA = 13C4 PFHpA PFOA = 13C4 PFOA

### **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

PFNA = 13C5 PFNA

PFDA = 13C2 PFDA

PFUnA = 13C2 PFUnA

PFDoA = 13C2 PFDoA

PFTDA = 13C2 PFTeDA

C3PFBS = 13C3 PFBS

PFHxS = 1802 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

Job ID: 320-76363-1

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

## Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-508443/1-A	Client Sample ID: Method Blank
Matrix: Water	Prep Type: Total/NA
Analysis Batch: 509259	Prep Batch: 508443

	MB	MB							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3O	ND		2.0	0.50	ng/L		07/20/21 13:03	07/22/21 15:19	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-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

	MB MB				
Surrogate	%Recovery 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

13C3 HFPO-DA	114	70 - 130	07/20/21 13:03 07/22/21 15:19 1			
Lab Sample ID: LLCS 32	0-508443/2-A	Client Sample ID: Lab Control Sample				
Matrix: Water			Prep Type: Total/NA			
Analysis Batch: 512117			Prep Batch: 508443			

Analysis Batch: 512117	Spike	LLCS	LLCS				Prep Batch: 508443 %Rec.
Analyte	Added	Result	Qualifier	Unit	D	%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

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

### 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** 

	Spike	LLCS	LLCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanesulfonic acid	3.64	4.48		ng/L		123	50 - 150	
(PFHxS)								
Perfluorooctanesulfonic acid	3.71	4.53		ng/L		122	50 - 150	
(PFOS)								
N-methylperfluorooctanesulfona	4.00	4.58		ng/L		114	50 - 150	
midoacetic acid (NMeFOSAA)								
N-ethylperfluorooctanesulfonami	4.00	4.57		ng/L		114	50 - 150	
doacetic acid (NEtFOSAA)								
9-Chlorohexadecafluoro-3-oxan	3.73	4.45		ng/L		119	50 - 150	
onane-1-sulfonic acid (9Cl-PF3O								
11-Chloroeicosafluoro-3-oxaund	3.77	4.61		ng/L		122	50 - 150	
ecane-1-sulfonic acid (11CI-PF								
Hexafluoropropylene Oxide	4.00	4.15		ng/L		104	50 - 150	
Dimer Acid (HFPO-DA)								
4,8-Dioxa-3H-perfluorononanoic	3.77	4.39		ng/L		116	50 - 150	
acid (ADONA)								

LLCS LLCS

Surrogate	%Recovery	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

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 508443

**Matrix: Water Analysis Batch: 512117** Spike LLCSD LLCSD **RPD** %Rec. Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit Perfluorohexanoic acid (PFHxA) 4.00 0.1 4.44 50 - 150 50 ng/L 111 Perfluoroheptanoic acid (PFHpA) 4.00 4.50 ng/L 50 - 150 4 50 112 4.00 0.1 Perfluorooctanoic acid (PFOA) 5.19 ng/L 130 50 - 150 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 4.00 4.85 ng/L 121 50 - 150 0.7 50 (PFUnA) 4.00 Perfluorododecanoic acid 4.81 ng/L 120 50 - 150 50 (PFDoA) 4.00 4.58 114 3 Perfluorotridecanoic acid 50 - 150 50 ng/L (PFTriA) Perfluorotetradecanoic acid 4.00 4.15 ng/L 104 50 - 150 50 (PFTeA) Perfluorobutanesulfonic acid 3.54 3.86 109 ng/L 50 - 150 (PFBS) Perfluorohexanesulfonic acid 3.64 4.63 ng/L 127 50 - 150 50 (PFHxS) 3.71 4.42 Perfluorooctanesulfonic acid ng/L 119 50 - 150 50 (PFOS) N-methylperfluorooctanesulfona 4.00 4.70 ng/L 118 50 - 150 3 50 midoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonami 4.00 4.61 0.7 ng/L 115 50 - 150 50 doacetic acid (NEtFOSAA) 3.73 4.44 50 9-Chlorohexadecafluoro-3-oxan ng/L 119 50 - 150 0.1 onane-1-sulfonic acid (9CI-PF3O

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: LLCSD 320-508443/3-A

**Matrix: Water** 

**Analysis Batch: 512117** 

<b>Client Sample</b>	ID:	Lab	<b>Control</b>	<b>Sample</b>	Dup

**Prep Type: Total/NA** Prep Batch: 508443

	Spike LLCSD LLCSD %R						%Rec.	%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
11-Chloroeicosafluoro-3-oxaund ecane-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

LLCSD LLCSD

Surrogate	%Recovery	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** 

Client Sample ID: Method Blank **Prep Type: Total/NA** 

Prep Batch: 510711 Analysis Batch: 512119

Analysis Batch: 512119								Prep Batch:	510/11
		МВ							
Analyte		Qualifier	RL	MDL		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		ng/L			08/01/21 15:42	1
Perfluorotridecanoic acid (PFTriA) - RE	ND		2.0		ng/L			08/01/21 15:42	1
Perfluorotetradecanoic acid (PFTeA) - RE	ND		2.0		ng/L		07/27/21 13:06	08/01/21 15:42	1
Perfluorobutanesulfonic acid (PFBS) - RE	ND		2.0		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) - RE	ND		2.0	0.50	ng/L		07/27/21 13:06	08/01/21 15:42	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

## 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** 

	MB	MB				
Surrogate	%Recovery	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

Analysis Batch: 512119	Spike	LLCS	LLCS		Prep Batch: 51071 %Rec.
Analyte	Added	Result	Qualifier Unit	D %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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA) - RE	4.00	4.30	ng/L	108	50 - 150
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA) - RE	4.00	4.25	ng/L	106	50 - 150
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid (9Cl-PF3O - RE	3.73	4.22	ng/L	113	50 - 150
11-Chloroeicosafluoro-3-oxaund ecane-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
LLCS	LLCS				

Surrogate	%Recovery Qualif	ier Limits
13C2 PFHxA - RE	110	70 - 130
13C2 PFDA - RE	110	70 - 130

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

Method: 537.1 DW - Perfluorinated Alkyl Acids (LC/MS) - RE (Continued)

Lab Sample ID: LLCS 320-510711/2-A

**Matrix: Water** 

**Analysis Batch: 512119** 

onane-1-sulfonic acid (9CI-PF3O

11-Chloroeicosafluoro-3-oxaund

ecane-1-sulfonic acid (11CI-PF -

4,8-Dioxa-3H-perfluorononanoic

Hexafluoropropylene Oxide

Dimer Acid (HFPO-DA) - RE

acid (ADONA) - RE

- RE

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

**Prep Batch: 510711** 

LLCS LLCS

%Recovery Qualifier Limits Surrogate d5-NEtFOSAA - RE 111 70 - 130 13C3 HFPO-DA - RE 109 70 - 130

**Client Sample ID: Lab Control Sample Dup** Lab Sample ID: LLCSD 320-510711/3-A **Matrix: Water** Prep Type: Total/NA **Analysis Batch: 512119 Prep Batch: 510711** LLCSD LLCSD %Rec. **RPD** Spike Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Perfluorohexanoic acid (PFHxA) 4.00 4.47 ng/L 112 50 - 150 2 50 Perfluoroheptanoic acid (PFHpA) 4.00 4.49 112 50 - 150 3 50 ng/L - RE Perfluorooctanoic acid (PFOA) -4.00 4.58 ng/L 115 50 - 150 50 Perfluorononanoic acid (PFNA) -4.00 4.41 ng/L 110 50 - 150 8.0 50 Perfluorodecanoic acid (PFDA) -4.00 4.41 ng/L 110 50 - 150 50 1 4.00 4.37 109 50 Perfluoroundecanoic acid ng/L 50 - 150 (PFUnA) - RE Perfluorododecanoic acid 4.00 4.22 ng/L 106 50 - 150 (PFDoA) - RE Perfluorotridecanoic acid 4.00 3.96 99 50 - 150 3 50 ng/L (PFTriA) - RE Perfluorotetradecanoic acid 4.00 3.95 ng/L 99 50 - 150 4 50 (PFTeA) - RE Perfluorobutanesulfonic acid 3.54 4.04 114 50 - 150 50 ng/L (PFBS) - RE Perfluorohexanesulfonic acid 3.64 4.27 ng/L 117 50 - 150 50 (PFHxS) - RE Perfluorooctanesulfonic acid 3.71 4.02 108 50 - 15050 ng/L (PFOS) - RE N-methylperfluorooctanesulfona 4.00 4.13 ng/L 103 50 - 150 midoacetic acid (NMeFOSAA) -4.00 4.41 N-ethylperfluorooctanesulfonami ng/L 110 50 - 150 50 doacetic acid (NEtFOSAA) - RE 3.73 4.34 50 9-Chlorohexadecafluoro-3-oxan ng/L 116 50 - 150

LLCSD LLCSD

Surrogate	%Recovery	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

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50 - 150

50 - 150

50 - 150

113

115

109

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3.77

4.00

3 77

4.25

4.58

4.09

ng/L

ng/L

ng/L

50

50

50

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

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

Amaryolo Batolii ococco								Trop Batom 60007		
	MB	MB								
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/19/21 13:06	07/20/21 18:00	1	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/19/21 13:06	07/20/21 18:00	1	
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
	MB	MB								

	IVIB IVIB			
Isotope Dilution	%Recovery 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

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1

Project/Site: DLG PFAS

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

Analysis Baton. 500000	Spike	LCS L	.cs		%Rec.
Analyte	Added	Result C	Qualifier Unit	D %Rec	Limits
Perfluorodecanoic acid (PFDA)	40.0	36.8	ng/L	92	71 - 129
Perfluoroundecanoic acid	40.0	38.3	ng/L	96	69 - 133
(PFUnA)					
Perfluorododecanoic acid	40.0	36.6	ng/L	92	72 - 134
(PFDoA)					
Perfluorotridecanoic acid	40.0	36.9	ng/L	92	65 - 144
(PFTriA)					
Perfluorotetradecanoic acid	40.0	38.5	ng/L	96	71 - 132
(PFTeA)					
Perfluorobutanesulfonic acid	35.4	36.1	ng/L	102	72 - 130
(PFBS)					
Perfluorohexanesulfonic acid	36.4	34.9	ng/L	96	68 - 131
(PFHxS)	07.4	07.0		400	05 440
Perfluorooctanesulfonic acid	37.1	37.2	ng/L	100	65 - 140
(PFOS)	40.0	45.7		114	GE 426
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	45.7	ng/L	114	65 - 136
N-ethylperfluorooctanesulfonami	40.0	40.9	ng/L	102	61 - 135
doacetic acid (NEtFOSAA)	40.0	40.9	rig/L	102	01-133
9-Chlorohexadecafluoro-3-oxan	37.3	36.2	ng/L	97	77 - 137
onane-1-sulfonic acid	07.0	00.2	ng/L	01	77 - 107
Hexafluoropropylene Oxide	40.0	35.3	ng/L	88	72 - 132
Dimer Acid (HFPO-DA)					
11-Chloroeicosafluoro-3-oxaund	37.7	39.8	ng/L	106	76 - 136
ecane-1-sulfonic acid			· ·		
4,8-Dioxa-3H-perfluorononanoic	37.7	35.2	ng/L	93	81 - 141
acid (ADONA)			Ü		
·					

LCS LCS

	LUU	L03	
Isotope Dilution	%Recovery	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
1802 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
13C3 HFPO-DA	107		50 - 1

Lab Sample ID: LCSD 320-508071/3-A

**Matrix: Water** 

Analysis Batch: 508595

Prep Type: Total/NA
Prep Batch: 508071
%Rec. RPD
limit D %Rec Limits RPD Limit

**Client Sample ID: Lab Control Sample Dup** 

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

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Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-508071/3-A

**Analysis Batch: 508595** 

**Matrix: Water** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA **Prep Batch: 508071** 

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	46.4		ng/L		116	65 - 136	2	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	38.7		ng/L		97	61 - 135	5	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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

LCSD LCSD

2002	_005	
%Recovery	Qualifier	Limits
108		50 - 150
102		50 - 150
112		50 - 150
100		50 - 150
105		50 - 150
110		50 - 150
111		50 - 150
105		50 - 150
93		50 - 150
102		50 - 150
108		50 - 150
85		50 - 150
102		50 - 150
97		50 - 150
	108 102 112 100 105 110 111 105 93 102 108 85	102 112 100 105 110 111 105 93 102 108 85

# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

### 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 320-76363-1	Client Sample ID 200140	Prep Type Total/NA	Matrix Water	Method 537.1 DW	Prep Batch
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

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## **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS 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 SW-04 320-76363-6 - DL Total/NA Water EPA 537(Mod) 508071 Total/NA 320-76363-7 - DL SW-104 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 Method Blank MB 320-510711/1-A - RE 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 Method **Prep Batch** Client Sample ID **Prep Type** Matrix

Analysis B	Batch: 512119
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Lab Control Sample

Client Sample ID

Lab Control Sample Dup

LLCS 320-508443/2-A

Lab Sample ID

LLCSD 320-508443/3-A

<u> </u>	<u> </u>				<u> </u>
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	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-76363-1 - RE	200140	Total/NA	Water	537.1 DW	510711

Total/NA

Total/NA

**Prep Type** 

Water

Water

Matrix

537.1 DW

537.1 DW

Method

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508443

508443

**Prep Batch** 

### **Lab Chronicle**

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

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

Batch Dil Initial Batch Final Prepared **Prep Type** Method **Factor Amount** Number or Analyzed Analyst Type Run Amount Lab Total/NA 537.1 DW 268.6 mL 508443 07/20/21 13:03 EH TAL SAC Prep 1.0 mL Total/NA Analysis 537.1 DW 509779 07/23/21 20:52 D1R TAL SAC 1 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 512121 08/01/21 16:29 D1R TAL SAC 537.1 DW RE 1

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

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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Job ID: 320-76363-1

### **Lab Chronicle**

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

Lab Sample ID: 320-76363-6

Matrix: Water

Job ID: 320-76363-1

Client Sample ID: SW-04
Date Collected: 07/14/21 09:00
Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/14/21 09:10

Lab Sample ID: 320-76363-7

Matrix: Water

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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
Date Collected: 07/14/21 10:50
Lab Sample ID: 320-76363-8
Matrix: Water

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/14/21 11:50

Lab Sample ID: 320-76363-9

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
			– Kuii	Factor						
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 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 Total/NA	Prep Analysis	3535 EPA 537(Mod)		1	271.7 mL	10.0 mL	508071 508595	07/19/21 13:06 07/20/21 20:02		TAL SAC TAL SAC
Total/NA Total/NA	Prep Analvsis	3535 EPA 537(Mod)	DL DL	5	271.7 mL	10.0 mL	508071 508826	07/19/21 13:06 07/21/21 13:06		TAL SAC

Eurofins TestAmerica, Sacramento

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8/2/2021

### **Lab Chronicle**

Client: Shannon & Wilson, Inc

Job ID: 320-76363-1

Project/Site: DLG PFAS

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/14/21 18:00

Lab Sample ID: 320-76363-12

Matrix: Water

Date Collected: 07/14/21 18:00 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/14/21 20:00

Lab Sample ID: 320-76363-13

Matrix: Water

Date Collected: 07/14/21 20:00 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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# **Accreditation/Certification Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76363-1 Project/Site: DLG PFAS

**Laboratory: Eurofins TestAmerica, Sacramento** 

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

ıthority		Program	Identification Number Expiration Date
aska (UST)		State	17-020 02-20-24
The following analyte the agency does not o		eport, but the laboratory is i	not certified by the governing authority. This list may include analytes for w
Analysis Method	Prep Method	Matrix	Analyte
537.1 DW	537.1 DW	Water	11-Chloroeicosafluoro-3-oxaundecane-1-s ulfonic 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-s ulfonic 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

8/2/2021

# **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

07/14/21 20:00 07/16/21 11:30

Water

320-76363-13

EB-SED

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SW-02	1630	<b>N</b>					
	1/1/0	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				_	
SW-102	1640	X					
5w-03	1830 V	<u> </u>					
SW-04	0900 711	4/21 X					
SW-104	0910	X					
SW-05	1050	×					
SW-06	1150	X					
SW-07	1345	, '×					
		Delimiehed	D 4	Delimiek			15
Project Information	Sample Receipt	Reliquished		Reliquishe	ed By: 2.	Reliquish	ed By: 3.
10000	al No. of Containers: 26	Signature:	Time: 4500	Signature:	Time:	_ Signature:	Time:
Name: DLC PFAS COO	C Seals/Intact? Y/N/NA						
1 -54 0 10 -5 - 5	eived Good Cond./Cold	Printed Name:	Date: <u>1/15/1</u>	Printed Name:	Date:	_ Printed Name:	Date:
Ongoing Project? Ses No Tem	np:	Veselova.	Jakimova				
Sampler: VTY Deliv	very Method: goldstreak	Sugnnon (	1110	Company:		Company:	
Notes:	Ú .	PROPERTY AND ADDRESS OF THE PARTY OF THE PAR					TO BE A PRODUCTION OF THE PARTY
		Received E	By: 1.	Received	l By: 2.	Receive	d By: 3.
Surface water sou plant matter.	uptes contain	Signature:	Time:11-30	Signature:	Time:	Signature:	Time:
plant matter		1/2-1/~					
pan maria.		Printed Name:	Date: 1/16/21	Printed Name:	Date:	_ Printed Name:	Date:
		Connie Var	5				
Distribution: White - w/shipment - returned to Sh				Company:		Company:	
Yellow - w/shipment - for consigned Pink - Shannon & Wilson - job file	e files	ETA SAC					
,							

**CHAIN-OF-CUSTODY RECORD** 

JUICINI (DI)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

2355 Hill Road Fairbanks, AK 99709 (907) 479-0600

www.shannonwilson.com

Rush

Quote No:

J-Flags:

Lab No.

MSA Number:

TBD

Time

No

Date

Sampled

Yes Yes

**Turn Around Time:** 

Please Specify

Sample Identity

Normal

No.













Analytical Methods (include preservative if used)









Laboratory Test America

Remarks/Matrix Composition/Grab?
Sample Containers



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	SHANNON & WILSO GEOTECHNICAL AND ENVIRONMENTAL 2355 Hill RO94 Fairbanks, AK 99709 (907) 479-0600 www.shannonwilson.com		СН	AIN	-OF-	CUST	ΓOD\		CORE		7	David Acchu	of 2 veries
	Turn Around Time:  Normal Rush	Quote No:				190			/			Remarks/Ma Composition/G Sample Conta	
1	Sample Identity  SW-08  SW-09  EB-SEED	Lab No.	Time 1630 1800 2000	Date Samp	121 X 21 X	ax to					222	Remarks/Ma Composition/G Sample Conta water (surface water (surface water	irab? iners
	Project Information  Number: 102581-009  Name: DLG PFAS	Sample Total No. of Contain COC Seals/Intact?			Signature:	uished By	Time: <u>/50</u> 0	2 Signature:		By: 2		Reliquished By:	3.
Contact: Harey Made C Ongoing Project? Yes X No Delivery Method: goldstrenk  Notes:		39k		0.	Limov V. Cson 1.	Company:	Received E			Received By:	3.		
	Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - jot	d to Shannon & Wilson		F		Van Van	Time: 11 - 31	Signature: Printed Na Company:	ame:	Time:			)ate:

Sample shows discoloration. NC 7-16-21

No.















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Client: Shannon & Wilson, Inc

Job Number: 320-76363-1

Login Number: 76363 List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Cahill, Nicholas P

Creator: Canili, Nicholas P		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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	

May 2020 Page 1

	320-76363-1
Lab	poratory 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 <u>perform</u> 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?
	$Yes \square No \square N/A \boxtimes Comments:$
	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 $\boxtimes$ No $\square$ N/A $\square$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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.

May 2020 Page 2

320-76363-1
Laboratory Report Date:
August 2, 2021
CS Site Name:
Dillingham DOT&PF PFAS
<ul> <li>c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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 $\square$ No $\square$ N/A $\boxtimes$ 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. <u>Case Narrative</u>
a. Present and understandable?
Yes⊠ No□ N/A□ Comments:

	320-76363-1					
La	boratory Report Date:					
	August 2, 2021					
CS	CS Site Name:					
	Dillingham DOT&PF PFAS					

b. Discrepancies, errors, or QC failures identified by the lab?

Yes⊠ No[	$\square$ N/A $\square$	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 perfluoronananoic 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 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 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.

	320-76363-1
Lab	oratory Report Date:
	August 2, 2021
CS :	Site Name:
	Dillingham DOT&PF PFAS
	c. Were all corrective actions documented?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	The sample 200140 was re-analyzed following elevated recovery of the IDA 13C2 PFHxA.
	Samples <i>SW-02</i> , <i>SW-102</i> , <i>SW-03</i> , <i>SW-04</i> , <i>SW-104</i> and <i>SW-07</i> 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 $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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).
	125 and 15 junior 101 permatico eminerationic acia (1100) and permatico acia (110A).

	32	0-76363-1
Lal	ora	atory Report Date:
	Αι	ngust 2, 2021
CS	Sit	re Name:
	Di	llingham DOT&PF PFAS
		e. Data quality or usability affected?
		The data quality and/or usability are not affected.
6.	Q	<u>C Samples</u>
		a. Method Blank
		i. One method blank reported per matrix, analysis and 20 samples?
		Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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)
		<ul> <li>Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
		$Yes \boxtimes No \square N/A \square$ Comments:

320-76363-1
Laboratory Report Date:
August 2, 2021
CS Site Name:
Dillingham DOT&PF PFAS
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 $\square$ No $\square$ N/A $\boxtimes$ 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:
August 2, 2021
CS Site Name:
Dillingham DOT&PF PFAS
c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)  Note: Leave blank if not required for project
<ul> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> <li>Sufficient volume was not available to complete an MS/MSD for the project sample set. Method</li> </ul>
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 $\square$ No $\square$ N/A $\boxtimes$ 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.
$Yes \square No \square N/A \boxtimes Comments:$
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.

320-76363-1
aboratory Report Date:
August 2, 2021
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
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
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 $\square$ No $\boxtimes$ N/A $\square$ Comments:  The recovery of the 13C2 PFHxA surrogate in sample 200140 exceeds laboratory control limits.
The recoveries of all IDA in the samples <i>SW-01</i> and <i>SW-08</i> are below the laboratory's lower control limits.
The recoveries of the IDAs 13C2 PFTeDA and 13C4 PFHpA in sample <i>SW-03</i> 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 <i>SW-04</i> 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
Lab	oratory Report Date:
	August 2, 2021
CS	Site Name:
	Dillingham DOT&PF PFAS
	e. Trip Blanks
	<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>
	$Yes \square No \square N/A \boxtimes Comments:$
	PFAS are not considered volatile compounds; therefore, a trip blank is not required.
	<ul><li>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)</li></ul>
	$Yes \square No \square N/A \boxtimes Comments:$
	iii. All results less than LOQ and project specified objectives?
	Yes $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
	ii. Submitted blind to lab?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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)
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.
<ul> <li>g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
These samples were not collected with reusable equipment; therefore, there is no practical potential for equipment based cross-contamination.
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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.

3	320-76363-1	
aboratory Report Date:		
	August 2, 2021	
CS	Site Name:	
	Dillingham DOT&PF PFAS	
<b>'</b> .	Other Data Flags/Qualifiers (ACO	E, AFCEE, Lab Specific, etc.)
	a. Defined and appropriate?	

The PFNA result of sample SW-09 is flagged "J" due to a transition mass ratio failure.



# **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

Jamil Ottima

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS Laboratory Job ID: 320-76365-1

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#### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

#### **Qualifiers**

	_	_	_
	•	N	ıc
_	L	IV	100

Qualifier	Qualifier Description
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
Н	Sample was prepped or analyzed beyond the specified holding time
1	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
Н	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.
n	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)

MDC	William Detectable Conce
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit

NC Not Calculated

Not Detected at the reporting limit (or MDL or EDL if shown) ND

Negative / Absent NEG POS Positive / Present PQL Practical Quantitation Limit

**PRES** Presumptive

**Quality Control** QC

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

Relative Percent Difference, a measure of the relative difference between two points **RPD** 

TEF Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin) **TEQ** 

**TNTC** Too Numerous To Count

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#### **Case Narrative**

Client: Shannon & Wilson, Inc Job ID: 320-76365-1
Project/Site: DLG PFAS

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 2.2° 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.

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#### **Detection Summary**

Project/Site: DLG PFAS Client Sample ID: SB6-0.0-0.5 Lab Sample ID: 320-76365-1 No Detections. Lab Sample ID: 320-76365-2 Client Sample ID: SB6-6.9-7.9 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 Result Qualifier Dil Fac D Method Analyte RL MDL Unit **Prep Type** Perfluorohexanesulfonic acid (PFHxS) 1 EPA 537(Mod) 0.082 J 0.20 0.031 ug/Kg Total/NA Perfluorooctanesulfonic acid (PFOS) 0.24 J 1 # EPA 537(Mod) Total/NA 0.50 0.20 ug/Kg 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 Result Qualifier Analyte RL **MDL** Unit Dil Fac D Method **Prep Type** Perfluorohexanesulfonic acid (PFHxS) 0.22 J 0.26 1 🌣 EPA 537(Mod) Total/NA 0.040 ug/Kg 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** 1 EPA 537(Mod) Perfluorohexanoic acid (PFHxA) 0.085 J 0.31 0.065 ug/Kg Total/NA Perfluoroheptanoic acid (PFHpA) 0.054 J 0.31 0.045 ug/Kg 1 # EPA 537(Mod) Total/NA 1 🌣 EPA 537(Mod) Total/NA Perfluorononanoic acid (PFNA) 0.074 J 0.056 ug/Kg 0.31 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 Total/NA Perfluorooctanesulfonic acid (PFOS) 1 # EPA 537(Mod) 5.7 0.77 0.31 ug/Kg 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** 0.23 J 0.24 0.051 ug/Kg 1 🌣 EPA 537(Mod) Perfluorohexanoic acid (PFHxA) Total/NA 1 ☼ EPA 537(Mod) Perfluoroheptanoic acid (PFHpA) 0.25 0.24 0.035 ug/Kg Total/NA

This Detection Summary does not include radiochemical test results.

Client: Shannon & Wilson, Inc

Eurofins TestAmerica, Sacramento

Job ID: 320-76365-1

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Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

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	1	0.63		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		0.23	0.048	ug/Kg	1 🌣 EPA 537(Mod)	Total/NA		
Perfluorodecanoic acid (PFDA)	0.082		0.23	0.025	ug/Kg	1 🌣 EPA 537(Mod)	Total/NA		
Perfluorododecanoic acid (PFDoA)	0.36		0.23		ug/Kg	1 🌣 EPA 537(Mod)	Total/NA		
Perfluorotridecanoic acid (PFTriA)	0.12	J	0.23		ug/Kg	1 🌣 EPA 537(Mod)	Total/NA		
Perfluorotetradecanoic acid (PFTeA)	0.42		0.23		ug/Kg	1 🌣 EPA 537(Mod)	Total/NA		
Perfluorohexanesulfonic acid (PFHxS)	0.079	J	0.23		ug/Kg	1 🌣 EPA 537(Mod)	Total/NA		
Perfluorooctanesulfonic acid (PFOS)	0.54	JI	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	JI	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.

Eurofins TestAmerica, Sacramento

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## **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

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	1	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 JI	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.

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Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

Client Sample ID: SB6-0.0-0.5 Lab Sample ID: 320-76365-1

Date Collected: 07/12/21 20:30 **Matrix: Solid** Date Received: 07/16/21 11:30 Percent Solids: 95.4

Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ND		0.19	0.041	ug/Kg	<u></u>	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.028	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.083	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.035	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.021	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.035	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.065	ug/Kg	₽	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.049	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.052	ug/Kg	≎	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.024	ug/Kg	₽	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.030	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.48	0.19	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		1.9	0.38	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		1.9	0.36	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.026	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.24	0.11	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19			₩	07/19/21 18:40	07/23/21 15:40	1
ND		0.19	0.017	ug/Kg	₩	07/19/21 18:40	07/23/21 15:40	1
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
79		50 - 150				07/19/21 18:40	07/23/21 15:40	1
82		50 - 150				07/19/21 18:40	07/23/21 15:40	1
83		50 - 150				07/19/21 18:40	07/23/21 15:40	1
83		50 - 150				07/19/21 18:40	07/23/21 15:40	1
80		50 - 150				07/19/21 18:40	07/23/21 15:40	1
86		50 - 150				07/19/21 18:40	07/23/21 15:40	1
87		50 - 150				07/19/21 18:40	07/23/21 15:40	1
87		50 - 150				07/19/21 18:40	07/23/21 15:40	1
76		50 - 150				07/19/21 18:40	07/23/21 15:40	1
81		50 - 150				07/19/21 18:40	07/23/21 15:40	1
77		50 - 150				07/19/21 18:40	07/23/21 15:40	1
86		50 - 150				07/19/21 18:40	07/23/21 15:40	1
86		50 - 150				07/19/21 18:40	07/23/21 15:40	
73		50 - 150				07/19/21 18:40	07/23/21 15:40	1
B	0	51	, and	11:4	_	Duament	Amaliana	D:: -
Result 4.6	Qualifier	——————————————————————————————————————	<b>MDL</b> 0.1		U	Prepared	Analyzed 07/19/21 11:46	Dil Fac
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND       0.19         Secovery       Qualifier       Limits <t< td=""><td>  ND</td><td>  ND</td><td>  ND</td><td>  ND</td><td>  ND</td></t<>	ND	ND	ND	ND	ND

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

Client Sample ID: SB6-6.9-7.9 Lab Sample ID: 320-76365-2

Date Collected: 07/12/21 20:50 **Matrix: Solid** Date Received: 07/16/21 11:30 Percent Solids: 94.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.041	ug/Kg	<del></del>	07/19/21 18:40	07/23/21 16:08	
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.028	ug/Kg	₽	07/19/21 18:40	07/23/21 16:08	•
Perfluorooctanoic acid (PFOA)	ND		0.19	0.084	ug/Kg	≎	07/19/21 18:40	07/23/21 16:08	•
Perfluorononanoic acid (PFNA)	ND		0.19	0.035	ug/Kg	₽	07/19/21 18:40	07/23/21 16:08	
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.38	ug/Kg	₩	07/19/21 18:40	07/23/21 16:08	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.36	ug/Kg	₩	07/19/21 18:40	07/23/21 16:08	1
9-Chlorohexadecafluoro-3-oxanonan	ND		0.19	0.026	ug/Kg	≎	07/19/21 18:40	07/23/21 16:08	•
e-1-sulfonic acid									
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24		ug/Kg			07/23/21 16:08	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.19		ug/Kg			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
1802 PFHxS	76		50 - 150				07/19/21 18:40	07/23/21 16:08	
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		Qualifier	RL	MDL		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: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

Analyte

**Percent Moisture** 

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.19	0.041	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9		ug/Kg	₩	07/19/21 18:40	07/23/21 16:17	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.36	ug/Kg	₩	07/19/21 18:40	07/23/21 16:17	1
9-Chloronexadecafluoro-3-oxanonan e-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		ug/Kg	₩	07/19/21 18:40	07/23/21 16:17	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.19		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 <sub>-</sub> 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 <sub>-</sub> 150				07/19/21 18:40	07/23/21 16:17	1
13C3 PFBS	81		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 16:17	1
1802 PFHxS	75		50 - 150					07/23/21 16:17	1
13C4 PFOS	76		50 - 150					07/23/21 16:17	1
d3-NMeFOSAA	87		50 <sub>-</sub> 150					07/23/21 16:17	1
d5-NEtFOSAA	85		50 - 150					07/23/21 16:17	
13C3 HFPO-DA	74		50 - 150					07/23/21 16:17	1
General Chemistry									
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Eurofins TestAmerica, Sacramento

Analyzed

07/19/21 11:46

07/19/21 11:46

Prepared

RL

0.1

0.1

Result Qualifier

6.1

93.9

MDL Unit

0.1 %

0.1 %

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

Client Sample ID: SB6-11.8-12.4 Lab Sample ID: 320-76365-4 Date Collected: 07/12/21 21:03

**Matrix: Solid** Percent Solids: 92.5

Date Received: 07/16/21 11:30 Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Analyte	Result Qualifie	er RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	0.20	0.041	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	2.0	0.38	ug/Kg	₩	07/19/21 18:40	07/23/21 16:26	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	2.0	0.36	ug/Kg	₩	07/19/21 18:40	07/23/21 16:26	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

(ADONA)					
Isotope Dilution %Red	covery 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
1802 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

<b>General Chemistry</b>						_	_		
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 Job ID: 320-76365-1

Project/Site: DLG PFAS

Client Sample ID: SB7-0.0-1.1 Lab Sample ID: 320-76365-5

Date Collected: 07/12/21 21:40

Date Received: 07/16/21 11:30

Matrix: Solid
Percent Solids: 95.4

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.042	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	
Perfluoroheptanoic acid (PFHpA)	ND		0.20	0.029	ug/Kg	₩	07/19/21 18:40	07/23/21 16:35	
Perfluorooctanoic acid (PFOA)	ND		0.20	0.086	ug/Kg	☼	07/19/21 18:40	07/23/21 16:35	
Perfluorononanoic acid (PFNA)	ND		0.20	0.036	ug/Kg	≎	07/19/21 18:40	07/23/21 16:35	
Perfluorodecanoic acid (PFDA)	ND		0.20	0.022	ug/Kg	≎	07/19/21 18:40	07/23/21 16:35	
Perfluoroundecanoic acid (PFUnA)	ND		0.20	0.036	ug/Kg	≎	07/19/21 18:40	07/23/21 16:35	
Perfluorododecanoic acid (PFDoA)	ND		0.20	0.067	ug/Kg	₽	07/19/21 18:40	07/23/21 16:35	
Perfluorotridecanoic acid (PFTriA)	ND		0.20	0.051	ug/Kg	≎	07/19/21 18:40	07/23/21 16:35	
Perfluorotetradecanoic acid (PFTeA)	ND		0.20	0.054	ug/Kg	₩	07/19/21 18:40	07/23/21 16:35	•
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg			07/23/21 16:35	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg	₩	07/19/21 18:40	07/23/21 16:35	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
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	
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 <sub>-</sub> 150				07/19/21 18:40	07/23/21 16:35	1
13C3 PFBS	81		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 16:35	1
1802 PFHxS	74		50 - 150				07/19/21 18:40	07/23/21 16:35	
13C4 PFOS	73		50 <sub>-</sub> 150					07/23/21 16:35	1
d3-NMeFOSAA	81		50 - 150					07/23/21 16:35	1
d5-NEtFOSAA	103		50 - 150					07/23/21 16:35	
13C3 HFPO-DA	70		50 - 150				07/19/21 18:40	07/23/21 16:35	1
General Chemistry		0			1124	_	<b>D</b> ana i	A 1	<b>5</b>
Analyte		Qualifier	RL		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	0/2			07/19/21 11:46	1

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.24	0.051	ug/Kg	— <u></u>	07/19/21 18:40	07/23/21 16:53	
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.035	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
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	· · · · · · · · ·
Perfluorodecanoic acid (PFDA)	ND		0.24	0.027	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
Perfluoroundecanoic acid (PFUnA)	ND		0.24	0.043	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	•
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	•
Perfluorotetradecanoic acid (PFTeA)	ND		0.24	0.065	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
Perfluorobutanesulfonic acid (PFBS)	ND		0.24	0.030	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
Perfluorohexanesulfonic acid (PFHxS)	ND		0.24	0.037	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
Perfluorooctanesulfonic acid (PFOS)	ND		0.60	0.24	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
N-methylperfluorooctanesulfonamidoa	ND		2.4	0.47	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.4		ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.24	0.033	ug/Kg	☼	07/19/21 18:40	07/23/21 16:53	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.30	0.13	ug/Kg	₽	07/19/21 18:40	07/23/21 16:53	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.24	0.027	ug/Kg	₽	07/19/21 18:40	07/23/21 16:53	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.24	0.022	ug/Kg	₩	07/19/21 18:40	07/23/21 16:53	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	78		50 - 150				07/19/21 18:40	07/23/21 16:53	-
13C4 PFHpA	83		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C4 PFOA	88		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C5 PFNA	79		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C2 PFDA	81		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C2 PFUnA	75		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C2 PFDoA	79		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C2 PFTeDA	79		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C3 PFBS	94		50 - 150				07/19/21 18:40	07/23/21 16:53	
1802 PFHxS	76		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C4 PFOS	91		50 - 150				07/19/21 18:40	07/23/21 16:53	
d3-NMeFOSAA	95		50 - 150				07/19/21 18:40	07/23/21 16:53	
d5-NEtFOSAA	106		50 - 150				07/19/21 18:40	07/23/21 16:53	
13C3 HFPO-DA	74		50 - 150				07/19/21 18:40	07/23/21 16:53	
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Percent Moisture Percent Solids	21.3 78.8		0.1	0.1 0.1				07/19/21 11:46 07/19/21 11:46	1

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.26	0.054	ug/Kg	— <u></u>	07/19/21 18:40	07/23/21 17:02	
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		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		ug/Kg	₽	07/19/21 18:40	07/23/21 17:02	1
Perfluoroundecanoic acid (PFUnA)	ND		0.26		ug/Kg	☆	07/19/21 18:40	07/23/21 17:02	1
Perfluorododecanoic acid (PFDoA)	ND		0.26		ug/Kg	₽	07/19/21 18:40	07/23/21 17:02	1
Perfluorotridecanoic acid (PFTriA)	ND		0.26		ug/Kg	₽	07/19/21 18:40	07/23/21 17:02	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.26		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	0.22	J	0.26		ug/Kg	₩	07/19/21 18:40	07/23/21 17:02	1
(PFHxS)					0 0				
Perfluorooctanesulfonic acid (PFOS)	ND		0.64	0.26	ug/Kg	₽	07/19/21 18:40	07/23/21 17:02	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.6	0.50	ug/Kg	₩	07/19/21 18:40	07/23/21 17:02	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.6	0.48	ug/Kg	₩	07/19/21 18:40	07/23/21 17:02	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
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	
13C2 PFTeDA	73		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:02	1
13C3 PFBS	91		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:02	1
1802 PFHxS	74		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:02	
13C4 PFOS	87		50 - 150					07/23/21 17:02	1
d3-NMeFOSAA	82		50 <sub>-</sub> 150					07/23/21 17:02	1
d5-NEtFOSAA	93		50 - 150					07/23/21 17:02	
13C3 HFPO-DA	67		50 - 150					07/23/21 17:02	1
General Chemistry									
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	22.6		0.1	0.1	%			07/19/21 11:46	1

0.1

77.4

0.1 %

07/19/21 11:46

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.041	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa	ND		2.0	0.38	ug/Kg	₽	07/19/21 18:40	07/23/21 17:11	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.36	ug/Kg	☼	07/19/21 18:40	07/23/21 17:11	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:11	1
1802 PFHxS	70		50 - 150				07/19/21 18:40	07/23/21 17:11	1
13C4 PFOS	83		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:11	1
d3-NMeFOSAA	93		50 <sub>-</sub> 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		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.9		0.1	0.1	%			07/19/21 11:46	1
				0.1					

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.045	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.1	0.42	ug/Kg	₩	07/19/21 18:40	07/23/21 17:21	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.1	0.40	ug/Kg	₩	07/19/21 18:40	07/23/21 17:21	1
9-Chlorohexadecafluoro-3-oxanonan	ND		0.21	0.029	ug/Kg	₩	07/19/21 18:40	07/23/21 17:21	1
e-1-sulfonic acid	<u> </u>		<u></u>		<u></u>				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.27		ug/Kg			07/23/21 17:21	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.21		ug/Kg			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
1802 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		Qualifier	RL		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	0/			07/19/21 11:46	1

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

Client Sample ID: SB8-30.0-30.5 Lab Sample ID: 320-76365-10

Date Collected: 07/13/21 01:06

Date Received: 07/16/21 11:30

Matrix: Solid
Percent Solids: 81.1

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-methylperfluorooctanesulfonamidoa	ND		2.2	0.43	ug/Kg		07/19/21 18:40	07/23/21 17:30	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.2		ug/Kg	₩	07/19/21 18:40	07/23/21 17:30	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
	40.0		0.1	0.1	0/2	_		07/19/21 11:46	1
Percent Moisture	18.9 81.1		0.1	0.1				01/13/21 11.40	

2

3

5

0

10

12

14

13

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

Client Sample ID: SB9-0.0-0.5 Lab Sample ID: 320-76365-11

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.085	J	0.31	0.065	ug/Kg	— <u>∓</u>	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	0.68		0.31	0.048	ug/Kg	⇔	07/19/21 18:40	07/23/21 17:39	1
(PFHxS)					0 0				
Perfluorooctanesulfonic acid (PFOS)	5.7		0.77	0.31	ug/Kg	₩	07/19/21 18:40	07/23/21 17:39	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		3.1	0.60	ug/Kg	₩	07/19/21 18:40	07/23/21 17:39	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		3.1	0.57	ug/Kg	₩	07/19/21 18:40	07/23/21 17:39	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:39	1
13C3 PFBS	92		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:39	1
1802 PFHxS	73		50 - 150				07/19/21 18:40	07/23/21 17:39	1
13C4 PFOS	79		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:39	1
d3-NMeFOSAA	78		50 - 150					07/23/21 17:39	1
d5-NEtFOSAA	79		50 - 150					07/23/21 17:39	1
13C3 HFPO-DA	70		50 - 150					07/23/21 17:39	1
General Chemistry							_		
Analyte		Qualifier	RL		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	0/2			07/19/21 11:46	1

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

Client Sample ID: SB9-5.0-5.5

Date Collected: 07/13/21 14:16

Date Received: 07/16/21 11:30

**Percent Solids** 

Lab Sample ID: 320-76365-12

**Matrix: Solid** Percent Solids: 82.1

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.048	ug/Kg	— <u></u>	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		ug/Kg	₩	07/19/21 18:40	07/23/21 17:48	1
Perfluorooctanesulfonic acid (PFOS)	ND	G	0.63		ug/Kg	₩	07/19/21 18:40	07/23/21 17:48	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.3		ug/Kg		07/19/21 18:40	07/23/21 17:48	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.3	0.42	ug/Kg	₩	07/19/21 18:40	07/23/21 17:48	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
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 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:48	1
13C3 PFBS	100		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:48	1
1802 PFHxS	83		50 <sub>-</sub> 150				07/19/21 18:40	07/23/21 17:48	
13C4 PFOS	86		50 <sub>-</sub> 150					07/23/21 17:48	1
d3-NMeFOSAA	95		50 <sub>-</sub> 150					07/23/21 17:48	1
d5-NEtFOSAA	92		50 <sub>-</sub> 150					07/23/21 17:48	
13C3 HFPO-DA	79		50 - 150					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

07/19/21 11:46

0.1

0.1 %

**82.1** 

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.23	J	0.24	0.051	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.4	0.47	ug/Kg	₩	07/19/21 18:40	07/23/21 17:57	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.4	0.45	ug/Kg	₩	07/19/21 18:40	07/23/21 17:57	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	78		50 - 150				07/19/21 18:40	07/23/21 17:57	1
13C4 PFOS	81		50 <sub>-</sub> 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		Qualifier	RL		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 Job ID: 320-76365-1

Project/Site: DLG PFAS

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

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	•
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.5	0.48	ug/Kg	₩	07/19/21 11:59	07/21/21 04:28	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.5	0.46	ug/Kg	₩	07/19/21 11:59	07/21/21 04:28	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	93		50 - 150				07/19/21 11:59	07/21/21 04:28	1
13C4 PFOS	87		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 04:28	1
d3-NMeFOSAA	69		50 <sub>-</sub> 150					07/21/21 04:28	1
d5-NEtFOSAA	90		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 04:28	1
13C3 HFPO-DA	80		50 - 150					07/21/21 04:28	1
General Chemistry									
Analyte		Qualifier	RL		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	0/			07/19/21 11:46	1

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

**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

Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFDA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTriA) Perfluorobutanesulfonic acid (PFBS) Perfluorobutanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND ND ND ND ND ND		1.3 1.3 1.3 1.3 1.3	0.18 0.54	ug/Kg ug/Kg ug/Kg	# # #		07/21/21 04:38 07/21/21 04:38	
Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluorodecanoic acid (PFDA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorobexanesulfonic acid (PFBS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND ND ND ND		1.3 1.3 1.3	0.54	ug/Kg				1
Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFUnA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTriA) Perfluorobutanesulfonic acid (PFBS) Perfluorobexanesulfonic acid (PFBS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND ND ND ND		1.3 1.3			₩	07/19/21 11:59	07/21/21 04:38	
Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFDA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTriA) Perfluorobutanesulfonic acid (PFBS) Perfluorobexanesulfonic acid (PFBS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND ND ND		1.3	0.23	/1/			01/21/21 04.00	1
Perfluoroundecanoic acid (PFUnA) Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND ND				ug/Kg	≎	07/19/21 11:59	07/21/21 04:38	1
Perfluorododecanoic acid (PFDoA) Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorobutanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND			0.14	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
Perfluorotridecanoic acid (PFTriA) Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan			1.3	0.23	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
Perfluorotetradecanoic acid (PFTeA) Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		1.3	0.42	ug/Kg	≎	07/19/21 11:59	07/21/21 04:38	1
Perfluorobutanesulfonic acid (PFBS) Perfluorohexanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ואט		1.3	0.32	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
Perfluorohexanesulfonic acid (PFHxS) Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		1.3	0.34	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
Perfluorooctanesulfonic acid (PFOS) N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		1.3	0.16	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		1.3	0.20	ug/Kg	≎	07/19/21 11:59	07/21/21 04:38	1
cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		3.2	1.3	ug/Kg	≎	07/19/21 11:59	07/21/21 04:38	1
etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		13	2.5	ug/Kg	☆	07/19/21 11:59	07/21/21 04:38	1
e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		13	2.3	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan	ND		1.3	0.17	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
	ND		1.6	0.69	ug/Kg	₩	07/19/21 11:59	07/21/21 04:38	1
	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 <sub>-</sub> 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
1802 PFHxS	70		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 04:38	1
13C4 PFOS	78		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 04:38	1
d3-NMeFOSAA	56		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 04:38	1
d5-NEtFOSAA	70		50 <sub>-</sub> 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									
Percent Moisture	Result 84.6	Qualifier	RL	MDL 0.1		<u>D</u>	Prepared	Analyzed 07/19/21 11:46	Dil Fac

7/26/2021

07/19/21 11:46

0.1

0.1 %

15.4

**Percent Solids** 

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.25	0.053	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.5	0.49	ug/Kg	₽	07/19/21 11:59	07/21/21 04:47	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.5	0.47	ug/Kg	₽	07/19/21 11:59	07/21/21 04:47	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

(ADONA)					
Isotope Dilution	%Recovery C	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
1802 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	
Analysta	Peau

Analyte	Result Qualifier	RL	MDL Unit	D P	repared	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

Eurofins TestAmerica, Sacramento

3

5

8

10

12

13

1

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

**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

13C2 PFHxA         81         50 - 150         07/19/21 11:59         07/21/21 04:57           13C4 PFHpA         83         50 - 150         07/19/21 11:59         07/21/21 04:57           13C4 PFOA         95         50 - 150         07/19/21 11:59         07/21/21 04:57           13C5 PFNA         85         50 - 150         07/19/21 11:59         07/21/21 04:57           13C2 PFDA         93         50 - 150         07/19/21 11:59         07/21/21 04:57           13C2 PFUnA         83         50 - 150         07/19/21 11:59         07/21/21 04:57           13C2 PFDA         86         50 - 150         07/19/21 11:59         07/21/21 04:57           13C2 PFDA         86         50 - 150         07/19/21 11:59         07/21/21 04:57           13C2 PFDA         85         50 - 150         07/19/21 11:59         07/21/21 04:57           13C2 PFDAA         85         50 - 150         07/19/21 11:59         07/21/21 04:57           13C3 PFBS         77         50 - 150         07/19/21 11:59         07/21/21 04:57           18O2 PFHxS         86         50 - 150         07/19/21 11:59         07/21/21 04:57           13C4 PFOS         88         50 - 150         07/19/21 11:59         07/21/21 04:57	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroctanoia acid (PFOA)   ND	0.052	J	0.23	0.048	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	•
Perfluoronananic acid (PFNA)	ND		0.23	0.033	ug/Kg	≎	07/19/21 11:59	07/21/21 04:57	
Perfluorodecanoic acid (PFDA)   0.082	ND		0.23	0.099	ug/Kg	≎	07/19/21 11:59	07/21/21 04:57	•
Perfluoroundecanoic acid (PFUnA)   ND   0.23   0.042   ug/Kg   0   07/19/21   11:59   07/21/21   04:57	ND		0.23	0.042	ug/Kg	≎	07/19/21 11:59	07/21/21 04:57	1
Perfluorododecanoic acid   0.36   0.23   0.077   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluorotetradecanoic acid   0.12   J   0.23   0.059   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluorotetradecanoic acid   0.42   0.23   0.062   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluorotetradecanoic acid   0.42   0.23   0.029   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluorobulanesulfonic acid   0.079   J   0.23   0.036   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoroctanesulfonic acid   0.54   J   0.58   0.23   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoroctanesulfonic acid   0.54   J   0.58   0.23   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoroctanesulfonic acid   0.54   J   0.58   0.23   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoroctanesulfonamidoa   ND   0.23   0.45   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoroctanesulfonamidoa   ND   0.23   0.031   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.031   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.29   0.13   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.025   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.025   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.025   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.025   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.025   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   Perfluoropropylene Oxide Dimer   ND   0.23   0.025   ug/Kg   0 07/19/21 11:59   07/21/21 04:57   0.05	0.082	J	0.23	0.025	ug/Kg	≎	07/19/21 11:59	07/21/21 04:57	1
(PFDA) Perfluorotridecanoic acid (PFTriA) Perfluorotridecanoic acid (PFBS) Perfluorotridecanoic acid (PFBS) Perfluorotridecanoic acid (PFBS) ND 0.23 0.029 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluorotexanesulfonic acid (PFBS) ND 0.23 0.029 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluorotexanesulfonic acid (PFBS) Perfluorotexanesulfonic acid 0.079 J 0.23 0.036 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonic acid 0.079 J 0.23 0.036 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonic acid 0.54 J1 0.58 0.23 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ceid (PFDS) Perfluoroctanesulfonamidoa ND 0.23 0.45 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.45 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.031 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.031 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.031 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.031 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.031 ug/Kg 0.71/9/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.031 ug/Kg 0.71/9/21 11:59 07/19/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.025 ug/Kg 0.71/9/21 11:59 07/19/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.025 ug/Kg 0.71/9/21 11:59 07/19/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.021 ug/Kg 0.71/9/21 11:59 07/19/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.025 ug/Kg 0.71/9/21 11:59 07/19/21 11:59 07/21/21 04:57 Perfluoroctanesulfonamidoa ND 0.23 0.025 ug/Kg 0.71/9/21 11:59 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/2	ND		0.23	0.042	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
Perfluorotridecanoic acid (PFTriA)   0.12   0.23   0.059   ug/Kg   0.77/19/21 11:59   0.77/21/21 04:57	0.36		0.23	0.077	ug/Kg	☼	07/19/21 11:59	07/21/21 04:57	1
Perfluorobutanesulfonic acid (PFBS)	0.12	J	0.23	0.059	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
Perfluorobexanesulfonic acid   0.079	0.42		0.23	0.062	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
Perfluorooctanesulfonic acid   0.54   J   0.58   0.23   ug/Kg   07/19/21   11:59   07/21/21   04:57	ND		0.23	0.029	ug/Kg	₽	07/19/21 11:59	07/21/21 04:57	1
N-methylperfluorooctanesulfonamidoa   ND   2.3   0.45   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   cetic acid (MMeFOSAA)   N-ethylperfluorooctanesulfonamidoac   ND   2.3   0.43   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   cetic acid (NEIFOSAA)   O-phylperfluorooctanesulfonamidoac   ND   0.23   0.031   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   Hexafluoropropylene Oxide Dimer   ND   0.29   0.13   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.025   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.025   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.025   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   ND   0.23   0.021   ug/Kg   0.7/19/21 11:59   07/21/21 04:57   o-1-sulfonic acid   0.7/19/21 11:59   0.7/19/21 04:57   o-1-sulfonic acid   0.7/19/21 11:59   0.7/19/21 04:57   o-1-sulfonic acid   0.7/19/21 11:59   0.7/19/21 04:57   o-1-sulfonic acid   0.7/19/21 11:59   0.7/21/21 04:57   o-1-sulfonic acid   0.7/	0.079	J	0.23	0.036	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEFOSAA) 9-Chlorohexadecafluoro-3-oxanonan etic acid (NEFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 0.23 0.031 ug/kg 07/19/21 11:59 07/21/21 04:57 e-1-sulfonic acid Hexafluoropropylene Oxide Dimer ND 0.29 0.13 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxanundecan ND 0.23 0.025 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxanundecan ND 0.23 0.025 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxanundecan ND 0.23 0.021 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 13-Caperliuorononanoic acid ND 0.23 0.021 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 13-Caperliuorononanoic acid ND 0.23 0.021 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 13-Caperliuorononanoic acid ND 0.23 0.021 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 13-Caperliuorononanoic acid ND 0.23 0.021 ug/kg 07/19/21 11:59 07/21/21 04:57 Acid (HFPO-DA) 13-Caperliuorononanoic acid ND 0.23 0.021 ug/kg 07/19/21 11:59 07/21/21 04:57 O7/19/21 11:59 07/21/21 04:57 O7/	0.54	JI	0.58	0.23	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
etic acid (NEIFOSAA) 9-Chlorohexadecafluoro-3-oxanonan 9-Chlorohexadecafluoro-3-oxanonan 9-Chlorohexadecafluoro-3-oxanonan 1-Sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) Acid (HFPO-DA) ND 0.23 0.025 0.025 0.025 0.025 0.07/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/19/21 11:59 0.7/21/21 04:57 0.7/	ND		2.3	0.45	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
e-1-sulfonic acid Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (ADONA) Isotope Dilution %Recovery Qualifier Limits Prepared Analyzed (ADONA) Isotope Dilution 95 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C4 PFDA 95 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 95 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 86 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 87 77 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 88 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 88 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 88 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 77 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 77 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 77 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 77 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2 PFDA 77 50 - 150 77/19/21 11:59 77/21/21 04:57 71/3C2	ND		2.3	0.43	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 0.23 0.025 ug/Kg 07/19/21 11:59 07/21/21 04:57 e-1-sulfonic acid 4.8-Dioxa-3H-perfluorononanoic acid (ADONA)  Isotope Dilution 9/Recovery Qualifier Limits 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21 04:57 07/19/21 11:59 07/21/21 04:57 07/19/21	ND		0.23	0.031	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (A,8-Dioxa-3H-perfluorononanoic acid (AB-Dioxa-3H-perfluorononanoic acid (ND 0.23 0.021 ug/Kg 07/19/21 11:59 07/21/21 04:57 (ADONA)    Isotope Dilution	ND		0.29	0.13	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
Sotope Dilution   Secondary	ND		0.23	0.025	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
13C2 PFHxA 81 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFHpA 83 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOA 95 50 - 150 07/19/21 11:59 07/21/21 04:57 13C5 PFNA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFDA 93 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFUnA 83 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFUnA 83 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFDA 86 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFDA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFTeDA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 PFBS 77 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 86 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3-NMEFOSAA 91 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 HFPO-DA 77 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 HFPO-DA 77 50 - 150 07/19/21 11:59 07/21/21 04:57  General Chemistry  Analyte Result Qualifier RL MDL Unit D Prepared Analyzed D	ND		0.23	0.021	ug/Kg	₩	07/19/21 11:59	07/21/21 04:57	1
13C4 PFHpA	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOA 95 50 - 150 07/19/21 11:59 07/21/21 04:57 13C5 PFNA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFDA 93 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFUnA 83 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFDOA 86 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFTeDA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 PFBS 77 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 03-NMeFOSAA 70 50 - 150 07/19/21 11:59 07/21/21 04:57 03-NMeFOSAA 91 50 - 150 07/19/21 11:59 07/21/21 04:57 03 - 150 07/19/21 11:59 07/21/21 04:57 03 - 150 07/19/21 11:59	81		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         13C2 PFDA       93       50 - 150       07/19/21 11:59       07/21/21 04:57         13C2 PFUnA       83       50 - 150       07/19/21 11:59       07/21/21 04:57         13C2 PFDOA       86       50 - 150       07/19/21 11:59       07/21/21 04:57         13C2 PFTEDA       85       50 - 150       07/19/21 11:59       07/21/21 04:57         13C3 PFBS       77       50 - 150       07/19/21 11:59       07/21/21 04:57         18C2 PFHxS       86       50 - 150       07/19/21 11:59       07/21/21 04:57         13C4 PFOS       88       50 - 150       07/19/21 11:59       07/21/21 04:57         13C4 PFOSAA       70       50 - 150       07/19/21 11:59       07/21/21 04:57         d5-NEtFOSAA       91       50 - 150       07/19/21 11:59       07/21/21 04:57         13C3 HFPO-DA       77       50 - 150       07/19/21 11:59       07/21/21 04:57         General Chemistry         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       D	83		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 13C2 PFUnA 83 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFDoA 86 50 - 150 07/19/21 11:59 07/21/21 04:57 13C2 PFTeDA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 PFBS 77 50 - 150 07/19/21 11:59 07/21/21 04:57 18O2 PFHxS 86 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 03-NMeFOSAA 70 50 - 150 07/19/21 11:59 07/21/21 04:57 045-NEtFOSAA 91 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 HFPO-DA 77 50 - 150 07/19/21 11:59 07/21/21 04:57 05-150 07/19/21 11:59 07/21/21 04:57 05-150 07/19/21 11:59 07/21/21 04:57 05-150 07/19/21 11:59 07/21/21 04:57 07/19/21 11:59 07/21/21 04:57	95		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       13C2 PFDoA     86     50 - 150     07/19/21 11:59 07/21/21 04:57       13C2 PFTeDA     85     50 - 150     07/19/21 11:59 07/21/21 04:57       13C3 PFBS     77     50 - 150     07/19/21 11:59 07/21/21 04:57       18O2 PFHxS     86     50 - 150     07/19/21 11:59 07/21/21 04:57       13C4 PFOS     88     50 - 150     07/19/21 11:59 07/21/21 04:57       d3-NMeFOSAA     70     50 - 150     07/19/21 11:59 07/21/21 04:57       d5-NEtFOSAA     91     50 - 150     07/19/21 11:59 07/21/21 04:57       13C3 HFPO-DA     77     50 - 150     07/19/21 11:59 07/21/21 04:57       General Chemistry       Analyte     Result Qualifier     RL     MDL Unit     D     Prepared     Analyzed     D	85		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 13C2 PFTeDA 85 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 PFBS 77 50 - 150 07/19/21 11:59 07/21/21 04:57 18O2 PFHxS 86 50 - 150 07/19/21 11:59 07/21/21 04:57 13C4 PFOS 88 50 - 150 07/19/21 11:59 07/21/21 04:57 d3-NMeFOSAA 70 50 - 150 07/19/21 11:59 07/21/21 04:57 d5-NEtFOSAA 91 50 - 150 07/19/21 11:59 07/21/21 04:57 13C3 HFPO-DA 77 50 - 150 07/19/21 11:59 07/21/21 04:57  General Chemistry Analyte Result Qualifier RL MDL Unit D Prepared Analyzed D	93		50 - 150				07/19/21 11:59	07/21/21 04:57	1
13C2 PFTeDA	83		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       18O2 PFHxS     86     50 - 150     07/19/21 11:59     07/21/21 04:57       13C4 PFOS     88     50 - 150     07/19/21 11:59     07/21/21 04:57       d3-NMeFOSAA     70     50 - 150     07/19/21 11:59     07/21/21 04:57       d5-NEtFOSAA     91     50 - 150     07/19/21 11:59     07/21/21 04:57       13C3 HFPO-DA     77     50 - 150     07/19/21 11:59     07/21/21 04:57       General Chemistry       Analyte     Result     Qualifier     RL     MDL     Unit     D     Prepared     Analyzed     D	86		50 - 150				07/19/21 11:59	07/21/21 04:57	1
1802 PFHxS     86     50 - 150     07/19/21 11:59 07/21/21 04:57       13C4 PFOS     88     50 - 150     07/19/21 11:59 07/21/21 04:57       d3-NMeFOSAA     70     50 - 150     07/19/21 11:59 07/21/21 04:57       d5-NEtFOSAA     91     50 - 150     07/19/21 11:59 07/21/21 04:57       13C3 HFPO-DA     77     50 - 150     07/19/21 11:59 07/21/21 04:57       General Chemistry       Analyte     Result Qualifier     RL     MDL Unit     D     Prepared     Analyzed     D	85		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       d3-NMeFOSAA     70     50 - 150     07/19/21 11:59     07/21/21 04:57       d5-NEtFOSAA     91     50 - 150     07/19/21 11:59     07/21/21 04:57       13C3 HFPO-DA     77     50 - 150     07/19/21 11:59     07/21/21 04:57       General Chemistry       Analyte     Result     Qualifier     RL     MDL     Unit     D     Prepared     Analyzed     D	77		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       d5-NEtFOSAA     91     50 - 150     07/19/21 11:59     07/21/21 04:57       13C3 HFPO-DA     77     50 - 150     07/19/21 11:59     07/21/21 04:57       General Chemistry       Analyte     Result Qualifier     RL     MDL Unit     D     Prepared     Analyzed     D	86		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       13C3 HFPO-DA     77     50 - 150     07/19/21 11:59     07/21/21 04:57       General Chemistry       Analyte     Result Qualifier     RL     MDL Unit     D     Prepared     Analyzed     D	88		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         General Chemistry         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed       D	70		50 - 150				07/19/21 11:59	07/21/21 04:57	1
General Chemistry Analyte Result Qualifier RL MDL Unit D Prepared Analyzed D	91		50 - 150				07/19/21 11:59	07/21/21 04:57	1
Analyte Result Qualifier RL MDL Unit D Prepared Analyzed D	77		50 - 150				07/19/21 11:59	07/21/21 04:57	1
		0		p. 4. 10. 1	11-24	_	<b>D</b>	A	D.: -
		Qualifier				D	Prepared		Dil Fac
Percent Moisture		Result   0.052	Result   Qualifier   J   ND   ND   ND   ND   ND   ND   ND	0.052 J       0.23         ND       0.23         ND       0.23         ND       0.23         0.082 J       0.23         ND       0.23         0.12 J       0.23         0.42       0.23         ND       0.23         0.079 J       0.23         ND       2.3         ND       0.23         ND       0.56 <td< td=""><td>Result Qualifier         RL 0.052         MDL 0.23         0.048 0.033         0.048 0.033         0.003 0.033 0.099 0.023 0.042 0.082 0.082 0.023 0.025 0.025 0.025 0.025 0.025 0.025 0.023 0.042 0.036 0.23 0.077 0.012         D 0.23 0.042 0.23 0.059 0.029 0.042 0.023 0.062 0.023 0.062 0.079 0.023 0.036 0.023 0.036 0.025 0.029 0.033 0.036 0.045 0.023 0.036 0.045 0.023 0.036 0.045 0.023 0.036 0.045 0.023 0.031 0.025 0.0</td><td>  Result   Qualifier   RL</td><td>  Result   Qualifier   RL   MDL   Unit   D    </td><td>Result Qualifier         RL Qualifier         MDL Qualifier         Unit Qualifier         D Prepared QUALIFIED           0.052 J QUARD</td><td>0.052 J         0.23         0.048 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.033 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.099 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.042 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.082 J         0.23         0.042 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.36         0.23         0.042 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.36         0.23         0.077 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.42         0.23         0.059 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.42         0.23         0.059 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.42         0.23         0.062 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.079 J         0.23         0.094 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.079 J         0.23         0.036 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.044 ug/Kg         ○7/19/21 11:59         07/21/21 04:57</td></td<>	Result Qualifier         RL 0.052         MDL 0.23         0.048 0.033         0.048 0.033         0.003 0.033 0.099 0.023 0.042 0.082 0.082 0.023 0.025 0.025 0.025 0.025 0.025 0.025 0.023 0.042 0.036 0.23 0.077 0.012         D 0.23 0.042 0.23 0.059 0.029 0.042 0.023 0.062 0.023 0.062 0.079 0.023 0.036 0.023 0.036 0.025 0.029 0.033 0.036 0.045 0.023 0.036 0.045 0.023 0.036 0.045 0.023 0.036 0.045 0.023 0.031 0.025 0.0	Result   Qualifier   RL	Result   Qualifier   RL   MDL   Unit   D	Result Qualifier         RL Qualifier         MDL Qualifier         Unit Qualifier         D Prepared QUALIFIED           0.052 J QUARD	0.052 J         0.23         0.048 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.033 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.099 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.042 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.082 J         0.23         0.042 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.36         0.23         0.042 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.36         0.23         0.077 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.42         0.23         0.059 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.42         0.23         0.059 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.42         0.23         0.062 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.079 J         0.23         0.094 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           0.079 J         0.23         0.036 ug/Kg         ○7/19/21 11:59         07/21/21 04:57           ND         0.23         0.044 ug/Kg         ○7/19/21 11:59         07/21/21 04:57

Eurofins TestAmerica, Sacramento

7/26/2021

07/19/21 11:46

0.1

0.1 %

80.2

**Percent Solids** 

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

**Client Sample ID: SED-03** Date Collected: 07/13/21 18:38

Date Received: 07/16/21 11:30

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-76365-18

**Matrix: Solid** 

Percent Solids: 96.3

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		1.9	0.37	ug/Kg	₩	07/19/21 11:59	07/21/21 05:06	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		1.9	0.35	ug/Kg	☼	07/19/21 11:59	07/21/21 05:06	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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
1802 PFHxS	86		50 - 150				07/10/21 11:50	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

50 - 150

50 - 150

50 - 150

50 - 150

91

75

92

88

07/19/21 11:59 07/21/21 05:06

07/19/21 11:59 07/21/21 05:06

07/19/21 11:59 07/21/21 05:06

07/19/21 11:59 07/21/21 05:06

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Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

**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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.12	J	0.22	0.045	ug/Kg	<del></del>	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-methylperfluorooctanesulfonamidoa	ND		2.2	0.42	ug/Kg	☼	07/19/21 11:59	07/21/21 05:15	1
cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac	ND		2.2	0.40	ug/Kg	₽	07/19/21 11:59	07/21/21 05:15	1
etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-1-sulfonic acid	ND		0.22		ug/Kg	₩		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	
13C4 PFOA	86		50 - 150				07/19/21 11:59	07/21/21 05:15	
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	
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	
13C3 HFPO-DA	74		50 - 150				07/19/21 11:59	07/21/21 05:15	1
General Chemistry									
Analyte		Qualifier	RL	MDL		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	0/			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

**Percent Moisture** 

**Percent Solids** 

Lab Sample ID: 320-76365-20

Matrix: Solid

Percent Solids: 84.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.11	J	0.23	0.049	ug/Kg	<del>-</del>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.3	0.46	ug/Kg	₩	07/19/21 11:59	07/21/21 05:25	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	₩	07/19/21 11:59	07/21/21 05:25	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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

07/19/21 11:46

07/19/21 11:46

0.1

0.1

15.5

84.5

0.1 %

0.1 %

3

5

9

11

13

14

15

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

**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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	-15 RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.049	ug/Kg	— <u></u>	07/19/21 11:59	07/21/21 05:34	1
Perfluoroheptanoic acid (PFHpA)	ND		0.23		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.3	0.45	ug/Kg	₩	07/19/21 11:59	07/21/21 05:34	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	₩	07/19/21 11:59	07/21/21 05:34	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	84		50 - 150				07/19/21 11:59	07/21/21 05:34	1
13C4 PFOS	82		50 <sub>-</sub> 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 <sub>-</sub> 150				07/19/21 11:59	07/21/21 05:34	1
13C3 HFPO-DA	73		50 - 150					07/21/21 05:34	1
General Chemistry	_					_	_		
Analyte		Qualifier	RL _	MDL		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: 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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.52	0.11	ug/Kg	<u></u>	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	JI	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.2	1.0	ug/Kg	₩	07/19/21 11:59	07/21/21 09:20	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.2	0.97	ug/Kg	₩	07/19/21 11:59	07/21/21 09:20	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	96		50 - 150					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		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	0/			07/19/21 11:46	1

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7/26/2021

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.33	0.070	ug/Kg	— <u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		3.3	0.65	ug/Kg	₩	07/19/21 11:59	07/21/21 09:30	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		3.3	0.61	ug/Kg	₩	07/19/21 11:59	07/21/21 09:30	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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					07/21/21 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		0			1114	_	<b>D</b>	A 1	D:: =
Analyte		Qualifier	RL _	MDL		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

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Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

**Client Sample ID: SED-08** Lab Sample ID: 320-76365-24

Date Collected: 07/14/21 16:45 **Matrix: Solid** Percent Solids: 13.5 Date Received: 07/16/21 11:30

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	JI	3.3	1.3	ug/Kg	₩	07/19/21 11:59	07/21/21 09:39	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		13		ug/Kg	₩	07/19/21 11:59	07/21/21 09:39	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		13		ug/Kg	₩		07/21/21 09:39	1
9-Chlorohexadecafluoro-3-oxanonan e-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		ug/Kg	₩	07/19/21 11:59	07/21/21 09:39	1
11-Chloroeicosafluoro-3-oxaundecan e-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 <sub>-</sub> 150				07/19/21 11:59	07/21/21 09:39	1
13C3 PFBS	76		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 09:39	1
1802 PFHxS	83		50 <sub>-</sub> 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					07/21/21 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					07/21/21 09:39	1
General Chemistry	<u> </u>	0		,	1114	_	<b>.</b>	A !	D:: =
Analyte		Qualifier	RL		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	0/_			07/19/21 11:46	1

General Oneniistry							
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

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Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.049	ug/Kg	— <del>—</del>	07/19/21 11:59	07/21/21 09:48	
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.034	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluorooctanoic acid (PFOA)	ND		0.23	0.10	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluorononanoic acid (PFNA)	ND		0.23	0.042	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluorodecanoic acid (PFDA)	ND		0.23	0.026	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluoroundecanoic acid (PFUnA)	ND		0.23	0.042	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluorododecanoic acid (PFDoA)	ND		0.23	0.078	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluorotridecanoic acid (PFTriA)	ND		0.23	0.060	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Perfluorotetradecanoic acid (PFTeA)	ND		0.23	0.063	ug/Kg	₽	07/19/21 11:59	07/21/21 09:48	
Perfluorobutanesulfonic acid (PFBS)	ND		0.23	0.029	ug/Kg	≎	07/19/21 11:59	07/21/21 09:48	
Perfluorohexanesulfonic acid	0.038	J	0.23	0.036	ug/Kg	₽	07/19/21 11:59	07/21/21 09:48	
(PFHxS)									
Perfluorooctanesulfonic acid (PFOS)	ND		0.58	0.23	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.3	0.46	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.3	0.43	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.23	0.032	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.29	0.13	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.23	0.026	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.23	0.021	ug/Kg	₩	07/19/21 11:59	07/21/21 09:48	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	78		50 - 150				07/19/21 11:59	07/21/21 09:48	
13C4 PFHpA	79		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 09:48	
13C4 PFOA	88		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 09:48	
13C5 PFNA	81		50 - 150				07/19/21 11:59	07/21/21 09:48	
13C2 PFDA	84		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 09:48	
13C2 PFUnA	84		50 - 150				07/19/21 11:59	07/21/21 09:48	
13C2 PFDoA	83		50 - 150				07/19/21 11:59	07/21/21 09:48	
13C2 PFTeDA	83		50 <sub>-</sub> 150				07/19/21 11:59	07/21/21 09:48	
13C3 PFBS	75		50 <sub>-</sub> 150					07/21/21 09:48	
1802 PFHxS	83		50 - 150					07/21/21 09:48	
13C4 PFOS	81		50 - 150					07/21/21 09:48	
d3-NMeFOSAA	74		50 <sub>-</sub> 150					07/21/21 09:48	
d5-NEtFOSAA	90		50 - 150					07/21/21 09:48	
13C3 HFPO-DA	73		50 - 150					07/21/21 09:48	
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Percent Moisture	16.7	<u> </u>	0.1	0.1		=	- торигои	07/19/21 11:46	

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7/26/2021

07/19/21 11:46

0.1

0.1 %

83.3

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

Client Sample ID: SB2-45.3-46.0

Date Collected: 07/02/21 15:05 **Matrix: Solid** Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-26 Percent Solids: 91.7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	Н	0.19	0.040	ug/Kg	<u></u>	07/19/21 11:59	07/21/21 09:58	
Perfluoroheptanoic acid (PFHpA)	ND	Н	0.19	0.028	ug/Kg	≎	07/19/21 11:59	07/21/21 09:58	1
Perfluorooctanoic acid (PFOA)	ND	Н	0.19	0.082	ug/Kg	≎	07/19/21 11:59	07/21/21 09:58	1
Perfluorononanoic acid (PFNA)	ND	Н	0.19	0.034	ug/Kg	₽	07/19/21 11:59	07/21/21 09:58	1
Perfluorodecanoic acid (PFDA)	ND	Н	0.19	0.021	ug/Kg	₽	07/19/21 11:59	07/21/21 09:58	1
Perfluoroundecanoic acid (PFUnA)	ND	Н	0.19	0.034	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
Perfluorododecanoic acid (PFDoA)	ND	Н	0.19	0.064	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
Perfluorotridecanoic acid (PFTriA)	ND	Н	0.19	0.049	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
Perfluorotetradecanoic acid (PFTeA)	ND	Н	0.19	0.052	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
Perfluorobutanesulfonic acid (PFBS)	ND	Н	0.19	0.024	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND	Н	0.19	0.030	ug/Kg	₽	07/19/21 11:59	07/21/21 09:58	1
Perfluorooctanesulfonic acid (PFOS)	ND	Н	0.48	0.19	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	Н	1.9	0.37	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	Н	1.9		ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
9-Chlorohexadecafluoro-3-oxanonan	ND	Н	0.19	0.026	ug/Kg	≎	07/19/21 11:59	07/21/21 09:58	1
e-1-sulfonic acid									
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.24		ug/Kg			07/21/21 09:58	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.19		ug/Kg	≎		07/21/21 09:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	Н	0.19	0.017	ug/Kg	₩	07/19/21 11:59	07/21/21 09:58	1
lsotope 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
1802 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		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	8.3		0.1	0.1				07/19/21 11:46	1
Percent Solids	91.7	ш	0.1	0.1	0/			07/19/21 11:46	1

## **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

Matrix: Solid Prep Type: Total/NA

				-	Dilution Re		-	•	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTD
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-1
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	75 75	73 74	79	68
		70	90			75 77			
320-76365-10	SB8-30.0-30.5			86	80		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
-CS 320-508039/2-A	Lab Control Sample	74	81	82	82	77	73	87	82
	Lab Control Sample								
LCS 320-508240/2-A	•	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
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-76365-1	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		

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### **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

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance 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)
320-76365-11	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

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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

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** 

	MB	MB							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/19/21 11:59	07/21/21 16:34	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MB	MB							

ИB	MR	

Isotope Dilution	%Recovery 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
1802 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: I	Lab	Cont	rol	Samp	e
		Dror	Type	ь. Т	otal/N	Λ

Prep Type: Total/NA Prep Batch: 508039

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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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)

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 %Rec.

Analysis Batom 600027	Spike	LCS LCS			%Rec.
Analyte	Added	Result Qualifie	r Unit	D %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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	2.00	1.72 J	ug/Kg	86	63 - 144
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	2.00	1.96 J	ug/Kg	98	61 - 139
9-Chlorohexadecafluoro-3-oxan onane-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 <sub>-</sub> 137
11-Chloroeicosafluoro-3-oxaund ecane-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
LCS	LCS				

LCS LCS

Isotope Dilution	%Recovery Qualifier	r 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		
1802 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

		Prep Type: Total/NA
		Prep Batch: 508039
		%Rec.
D	%Rec	Limits

Client Sample ID: SB2-45.3-46.0

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	ND	Н	2.16	2.13		ug/Kg	<u></u>	98	70 - 132	
Perfluoroheptanoic acid (PFHpA)	ND	Н	2.16	2.10		ug/Kg	₩	97	71 - 131	
Perfluorooctanoic acid (PFOA)	ND	Н	2.16	2.47		ug/Kg	≎	114	69 - 133	

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Job ID: 320-76365-1 Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76365-26 MS Client Sample ID: SB2-45.3-46.0 **Matrix: Solid Prep Type: Total/NA Analysis Batch: 508764** Prep Batch: 508039

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorononanoic acid (PFNA)	ND	H	2.16	2.13		ug/Kg	<del>-</del>	98	72 - 129	
Perfluorodecanoic acid (PFDA)	ND	Н	2.16	2.03		ug/Kg	☼	94	69 - 133	
Perfluoroundecanoic acid (PFUnA)	ND	Н	2.16	2.18		ug/Kg	₽	101	64 - 136	
Perfluorododecanoic acid (PFDoA)	ND	Н	2.16	1.97		ug/Kg	≎	91	69 - 135	
Perfluorotridecanoic acid (PFTriA)	ND	Н	2.16	2.39		ug/Kg	≎	111	66 - 139	
Perfluorotetradecanoic acid (PFTeA)	ND	Н	2.16	1.96		ug/Kg	₽	91	69 - 133	
Perfluorobutanesulfonic acid (PFBS)	ND	Н	1.91	1.88		ug/Kg	₽	98	72 - 128	
Perfluorohexanesulfonic acid (PFHxS)	ND	Н	1.97	2.00		ug/Kg	₽	102	67 - 130	
Perfluorooctanesulfonic acid (PFOS)	ND	Н	2.01	1.99		ug/Kg	₽	99	68 - 136	
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND	Н	2.16	2.41		ug/Kg	₽	111	63 - 144	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND	Н	2.16	1.78	J	ug/Kg	≎	82	61 - 139	
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	ND	Н	2.02	2.20		ug/Kg	≎	109	75 - 135	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	Н	2.16	1.96		ug/Kg	☼	91	77 - 137	
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	ND	Н	2.04	2.24		ug/Kg	₽	110	76 - 136	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	Н	2.04	2.28		ug/Kg	☼	112	79 - 139	

MS MS

Isotope Dilution	%Recovery	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
1802 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									<b>Prep Ty</b>	pe: Tot	al/NA
Analysis Batch: 508764									Prep Ba	atch: 50	08039
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	ND	Н	1.98	2.02		ug/Kg	<del></del> <del>‡</del>	102	70 - 132	5	30
Perfluoroheptanoic acid (PFHpA)						ug/Kg		100	71 - 131		30

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Client Sample ID: SB2-45.3-46.0

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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)

Lab Sample ID: 320-76365-26 MSD

**Matrix: Solid** 

Client Sample ID: SB2-45.3-46.0

Prep Type: Total/NA
Prep Batch: 508039

Analysis Batch: 508764									Prep Ba	atch: 50	)8039
	•	Sample	Spike		MSD				%Rec.		RPD
Analyte		Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	ND	Н	1.98	2.16		ug/Kg	₽	109	69 - 133	14	30
Perfluorononanoic acid (PFNA)	ND	Н	1.98	2.12		ug/Kg	₽	107	72 - 129	0	30
Perfluorodecanoic acid (PFDA)	ND	Н	1.98	2.16		ug/Kg	☼	109	69 - 133	6	30
Perfluoroundecanoic acid (PFUnA)	ND	Н	1.98	2.04		ug/Kg	₽	103	64 - 136	7	30
Perfluorododecanoic acid (PFDoA)	ND	Н	1.98	2.07		ug/Kg	≎	105	69 - 135	5	30
Perfluorotridecanoic acid (PFTriA)	ND	Н	1.98	2.32		ug/Kg	≎	117	66 - 139	3	30
Perfluorotetradecanoic acid (PFTeA)	ND	Н	1.98	2.12		ug/Kg	≎	107	69 - 133	8	30
Perfluorobutanesulfonic acid (PFBS)	ND	Н	1.75	1.83		ug/Kg	₽	105	72 - 128	3	30
Perfluorohexanesulfonic acid (PFHxS)	ND	Н	1.80	1.83		ug/Kg	≎	101	67 - 130	9	30
Perfluorooctanesulfonic acid (PFOS)	ND	Н	1.84	1.75		ug/Kg	₽	96	68 - 136	12	30
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND	Н	1.98	2.03		ug/Kg	₽	103	63 - 144	17	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND	Н	1.98	2.06		ug/Kg	₽	104	61 - 139	15	30
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid	ND	Н	1.84	1.92		ug/Kg	₽	104	75 - 135	14	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	Н	1.98	2.08		ug/Kg	≎	105	77 - 137	6	30
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid	ND	Н	1.86	2.01		ug/Kg	≎	108	76 - 136	10	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	Н	1.86	2.19		ug/Kg	₽	118	79 - 139	4	30

MSD	MSD

Isotope Dilution	%Recovery	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
1802 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	Result Qual	lifier RL	MDL U	Init	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND	0.20	0.042 uç	g/Kg	_	07/19/21 18:40	07/23/21 15:22	1

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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)

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** 

Analysis Baton. 000700								1 Tep Batem 000240		
		MB								
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		2.0	0.39	ug/Kg		07/19/21 18:40	07/23/21 15:22	1	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		2.0	0.37	ug/Kg		07/19/21 18:40	07/23/21 15:22	1	
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
	MB	MB								

	MB	MB				
Isotope Dilution	%Recovery	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
1802 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 <sub>-</sub> 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** 

<b>Client Sample</b>	ID: Lab	Contro	I Sample
	_	_	- 4 1/51.6

**Prep Type: Total/NA** Prep Batch: 508240

	<b>Spike</b>	LUS	LUS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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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)

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** %Rec.

Analysis Baton. 500700	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Perfluoroundecanoic acid	2.00	2.21		ug/Kg		111	64 - 136
(PFUnA)							
Perfluorododecanoic acid	2.00	1.84		ug/Kg		92	69 - 135
(PFDoA)							
Perfluorotridecanoic acid	2.00	1.59		ug/Kg		80	66 - 139
(PFTriA)							
Perfluorotetradecanoic acid	2.00	2.29		ug/Kg		114	69 - 133
(PFTeA)							
Perfluorobutanesulfonic acid	1.77	1.44		ug/Kg		82	72 - 128
(PFBS)							
Perfluorohexanesulfonic acid	1.82	1.87		ug/Kg		103	67 - 130
(PFHxS)							
Perfluorooctanesulfonic acid	1.86	1.77		ug/Kg		96	68 - 136
(PFOS)						405	
N-methylperfluorooctanesulfona	2.00	2.10		ug/Kg		105	63 - 144
midoacetic acid (NMeFOSAA)	2.00	0.00				400	64 400
N-ethylperfluorooctanesulfonami	2.00	2.00		ug/Kg		100	61 - 139
doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan	1.86	1.75		ua/Ka		94	75 <sub>-</sub> 135
onane-1-sulfonic acid	1.00	1.75		ug/Kg		94	75 - 135
	2.00	2.04		ug/Kg		102	77 - 137
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	2.00	2.04		ug/ixg		102	11 - 131
11-Chloroeicosafluoro-3-oxaund	1.88	1.70		ug/Kg		90	76 - 136
ecane-1-sulfonic acid	1.00	1.70		~g/1\g		55	70-100
4,8-Dioxa-3H-perfluorononanoic	1.88	2.09		ug/Kg		111	79 - 139
acid (ADONA)	1.00	2.00		~g/1\g			10-100
adia (1.120141)							

LCS LCS

	LUJ	LUJ	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	80		50 - 150
13C4 PFHpA	90		50 <sub>-</sub> 150
13C4 PFOA	87		50 - 150
13C5 PFNA	84		50 - 150
13C2 PFDA	83		50 <sub>-</sub> 150
13C2 PFUnA	81		50 - 150
13C2 PFDoA	87		50 <sub>-</sub> 150
13C2 PFTeDA	73		50 - 150
13C3 PFBS	96		50 <sub>-</sub> 150
1802 PFHxS	90		50 - 150
13C4 PFOS	85		50 <sub>-</sub> 150
d3-NMeFOSAA	94		50 <sub>-</sub> 150
d5-NEtFOSAA	97		50 - 150
13C3 HFPO-DA	77		50 <sub>-</sub> 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

<b>,</b>	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	ND		1.87	1.90		ug/Kg	<u></u>	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	

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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)

Lab Sample ID: 320-76365-1 MS Client Sample ID: SB6-0.0-0.5 **Matrix: Solid Prep Type: Total/NA** 

Analysis Batch: 509756 Prep Batch: 508240 Sample Sample MS MS Spike %Rec. **Result Qualifier** Added Result Qualifier Unit D %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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND	1.87	1.78 J	ug/Kg	₩	95	63 - 144
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND	1.87	1.87 J	ug/Kg	₩	100	61 - 139
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-1-sulfonic acid	ND	1.77	1.47	ug/Kg	₩	83	76 - 136
4,8-Dioxa-3H-perfluorononanoic	ND	1.77	1.71	ug/Kg	₩	97	79 - 139

acid (ADONA) MS MS Isotope Dilution %Recovery Qualifier Limits 13C2 PFHxA 71 50 - 150 13C4 PFHpA 88 50 - 150 13C4 PFOA 87 50 - 150 13C5 PFNA 88 50 - 150 82 50 - 150 13C2 PFDA 86 13C2 PFUnA 50 - 150 13C2 PFDoA 80 50 - 150 13C2 PFTeDA 82 50 - 150 13C3 PFBS 92 50 - 150 1802 PFHxS 76 50 - 150 13C4 PFOS 85 50 - 150 d3-NMeFOSAA 100 50 - 150 d5-NEtFOSAA

102

72

Lab Sample ID: 320-76365-1 MSD

**Matrix: Solid** 

13C3 HFPO-DA

Analysis Batch: 509756									Prep Batch: 50		
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	ND		1.94	2.11		ug/Kg	<u></u>	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

50 - 150

50 - 150

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Client Sample ID: SB6-0.0-0.5

Prep Type: Total/NA

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## **QC Sample Results**

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)

Lab Sampl	e ID:	320-76365-1	MSD
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**Matrix: Solid** 

Analysis Batch: 509756

Client Sample ID: SB6-0.0-0.5

Prep Type: Total/NA Prep Batch: 508240

Analysis Batch: 509756									Prep Ba	atch: 50	<b>J8240</b>
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		1.94	2.07		ug/Kg	₽	107	63 - 144	15	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		1.94	1.96		ug/Kg	☼	101	61 - 139	5	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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

	11102 1110	
Isotope Dilution	%Recovery Qu	alifier 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 <sub>-</sub> 150
13C2 PFTeDA	74	50 - 150
13C3 PFBS	75	50 - 150
1802 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

## **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76365-1 DU

**Matrix: Solid** 

Analysis Batch: 508016

Allalysis Datoli. 000010									
	Sample	Sample	DU	DU					RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D		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

Analysis Batem 000017								
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	15.5		15.9		%		 3	20
Percent Solids	84.5		84.1		%		0.5	20

**Prep Type: Total/NA** 

Client Sample ID: SB6-0.0-0.5

**Client Sample ID: SED-104** 

Prep Type: Total/NA

## **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76365-1 Project/Site: DLG PFAS

### 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

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## **QC Association Summary**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

### 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	

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## **QC Association Summary**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76365-1

## **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	

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Job ID: 320-76365-1

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

Client Sample ID: SB6-0.0-0.5 Date Collected: 07/12/21 20:30

Lab Sample ID: 320-76365-1

**Matrix: Solid** 

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analys	is D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB6-0.0-0.5

Lab Sample ID: 320-76365-1 Date Collected: 07/12/21 20:30 **Matrix: Solid** 

Date Received: 07/16/21 11:30 Percent Solids: 95.4

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76365-2 Date Collected: 07/12/21 20:50 **Matrix: Solid** 

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216					508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SB6-6.9-7.9

Lab Sample ID: 320-76365-2 Date Collected: 07/12/21 20:50 **Matrix: Solid** 

Date Received: 07/16/21 11:30 Percent Solids: 94.7

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76365-3

Date Collected: 07/12/21 21:00 **Matrix: Solid** 

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76365-3

Date Collected: 07/12/21 21:00 Matrix: Solid Date Received: 07/16/21 11:30 Percent Solids: 93.9

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76365-4

Date Collected: 07/12/21 21:03

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

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Job ID: 320-76365-1

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/12/21 21:40 Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-5

Matrix: Solid

		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
L	Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

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

Lab Sample ID: 320-76365-6

Lab Sample ID: 320-76365-7

**Matrix: Solid** 

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**Matrix: Solid** Percent Solids: 95.4

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/12/21 23:20

**Matrix: Solid** 

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/12/21 23:05

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

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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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/13/21 00:04 Date Received: 07/16/21 11:30 Lab Sample ID: 320-76365-8

Matrix: Solid

		Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
L	Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

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

Batch Batch Batch Dil Initial Final Prepared **Prep Type** Type Method Factor Amount Amount Number or Analyzed Analyst Run Lab Total/NA Prep SHAKE 508240 07/19/21 18:40 AM TAL SAC 5.35 g 10.0 mL Total/NA Analysis EPA 537(Mod) 1 509756 07/23/21 17:11 K1S TAL SAC

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/13/21 01:10

Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-9 Matrix: Solid

Lab Sample ID: 320-76365-10

Percent Solids: 85.9

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/13/21 01:06

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/13/21 13:00 Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-11

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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

Dil Batch Batch Batch Initial Final Prepared **Prep Type** Туре Method Factor Amount Amount Number or Analyzed Analyst Run Lab Total/NA Prep SHAKE 508240 07/19/21 18:40 AM TAL SAC 5.25 g 10.0 mL Total/NA Analysis EPA 537(Mod) 509756 07/23/21 17:39 K1S TAL SAC

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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

	Batch	Batch	_	Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Received: 07/16/21 11:30

Client Sample ID: SB9-36.6-36.8	Lab Sample ID: 320-76365-13
Date Collected: 07/13/21 15:37	Matrix: Solid
D ( D )   1 OTHOUGH 44 00	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC	

Job ID: 320-76365-1

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

**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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/13/21 16:48 Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-14

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/13/21 16:48 Date Received: 07/16/21 11:30

Lab Sample ID: 320-76365-14 **Matrix: Solid** 

Lab Sample ID: 320-76365-15

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	Kuii		5.11 g	10.0 mL	508039	07/19/21 11:59		TAL SAC
Total/NA	Analysis	EPA 537(Mod)		1			508575	07/21/21 04:28	K1S	TAL SAC

**Client Sample ID: SED-01** 

Date Collected: 07/13/21 14:30

Date Collected: 07/13/21 14:30		-	Matrix: Solid
Date Received: 07/16/21 11:30			
	 	_	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					508016	07/19/21 11:46	TCS	TAL SAC	

Client Sample ID: SED-02

Lab Sample ID: 320-76365-16

**Matrix: Solid** 

Percent Solids: 78.7

Cheff Cample ID. OLD-02
Date Collected: 07/13/21 16:30
Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76365-17

**Matrix: Solid** 

Client Sample ID: SED-102

Date Collected: 07/13/21 16:40 Date Received: 07/16/21 11:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

Client Sample ID: SED-102 Date Collected: 07/13/21 16:40

Lab Sample ID: 320-76365-17

07/21/21 04:57 K1S

**Matrix: Solid** Percent Solids: 80.2

TAL SAC

Date Received: 07/16/21 11:30

Analysis

EPA 537(Mod)

Batch Batch Batch Dil Initial Final Prepared **Prep Type** Туре Method **Factor Amount** Amount Number or Analyzed Run Analyst Lab Total/NA Prep SHAKE 508039 07/19/21 11:59 OP TAL SAC 5.40 g 10.0 mL

Client Sample ID: SED-03 Lab Sample ID: 320-76365-18

1

**Matrix: Solid** 

508575

Date Collected: 07/13/21 18:38 Date Received: 07/16/21 11:30

Total/NA

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 **Matrix: Solid** 

Date Collected: 07/14/21 09:30 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			508016	07/19/21 11:46	TCS	TAL SAC

**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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76365-20 **Client Sample ID: SED-104** 

**Matrix: Solid** 

Date Collected: 07/14/21 09:40 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 **Matrix: Solid** 

Date Collected: 07/14/21 11:05 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 **Matrix: Solid** 

Date Collected: 07/14/21 12:00 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216		1			508017	07/19/21 11:46	TCS	TAL SAC	

Client Sample ID: SED-06

Lab Sample ID: 320-76365-22

**Matrix: Solid** 

Percent Solids: 33.4

Chefft Sample ID. SED-06	Lau Sailip
Date Collected: 07/14/21 12:00	
Date Received: 07/16/21 11:30	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76365-23 Client Sample ID: SED-07 Date Collected: 07/14/21 14:00

**Matrix: Solid** 

Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			508017	07/19/21 11:46	TCS	TAL SAC

Lab Sample ID: 320-76365-23 Client Sample ID: SED-07

Date Collected: 07/14/21 14:00 **Matrix: Solid** Date Received: 07/16/21 11:30 Percent Solids: 54.8

Batch Batch Batch Dil Initial Final **Prepared Prep Type** Type Method **Factor Amount** Amount Number or Analyzed Run Analyst Lab Total/NA Prep SHAKE 508039 07/19/21 11:59 OP TAL SAC 5.51 g 10.0 mL 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 **Matrix: Solid** 

Date Collected: 07/14/21 16:45 Date Received: 07/16/21 11:30

Dil Batch Initial Final Batch Prepared Batch **Prep Type** Type Method Run **Factor Amount** Amount Number or Analyzed Analyst Lab 508017 07/19/21 11:46 TCS Total/NA Analysis D 2216 1 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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 **Matrix: Solid** 

Date Collected: 07/14/21 18:15 Date Received: 07/16/21 11:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	D 2216					508017	07/19/21 11:46	TCS	TAL SAC	

#### **Lab Chronicle**

Client: Shannon & Wilson, Inc Job ID: 320-76365-1

Project/Site: DLG PFAS

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

Batch Batch Dil Initial Final Batch Prepared

Method or Analyzed **Prep Type** Type Run **Factor Amount** Amount Number Analyst Lab Total/NA SHAKE 10.0 mL 508039 07/19/21 11:59 TAL SAC Prep 5.14 g 07/21/21 09:48 D1R Total/NA EPA 537(Mod) 508764 TAL SAC Analysis 1

Client Sample ID: SB2-45.3-46.0 Lab Sample ID: 320-76365-26

Date Collected: 07/02/21 15:05 Date Received: 07/16/21 11:30

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method **Amount Amount** Number or Analyzed Type Run **Factor** Analyst Lab Total/NA Analysis D 2216 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

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method **Factor Amount** Number or Analyzed Analyst Lab Type Run **Amount** Prep SHAKE 508039 07/19/21 11:59 OP TAL SAC Total/NA 5.70 g 10.0 mL Total/NA Analysis EPA 537(Mod) 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

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**Matrix: Solid** 

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## **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	Pr	ogram	Identification Number	Expiration Date
Alaska (UST)	St	ate	17-020	02-20-24
The following analyte	e are included in this rend	ort but the laboratory is r	not certified by the governing authority.	This list may include analytes for whi
the agency does not		ort, but the laboratory is i	lot certified by the governing authority.	This list may include analytes for will
,		Matrix	Analyte	This list may include analytes for will
the agency does not	offer certification.	•	, , ,	This list may include analytes for will

## **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

320-76365-25

320-76365-26

SED-09

SB2-45.3-46.0

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

Solid

Solid

07/14/21 18:15 07/16/21 11:30

07/02/21 15:05 07/16/21 11:30

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Job ID: 320-76365-1

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SHANNON & WILSO GEOTECHNICAL AND ENVIRONMENTAL 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600 www.shannonwilson.com		N-OF-CUST		RECORD	Labor Attn: _ de preservative	David Acctucker
Turn Around Time:  Normal Rush  Please Specify	Quote No:  MSA Number: T&D  J-Flags: Yes No	pate mpled				Remarks/Matrix Composition/Grab? Sample Containers
Sample Identity  SB6-0.0-0.5  SB6-6.3-7.9  SB6-6.3-7.9  SB6-1.8-12.4  SB7-0.0-1.1  SB7-29.8-30.3  SB8-0.0-0.6  SB8-16.4-16.8	2030 74 2050 2100 2103 2140 2320 2305 0004 711	2/21 × 1 × 2 × 2 × 2 × 3/21 ×	320-76365 Cha	ain of Custody		Soil
S68 - 30.0 - 30.5  Project Information	Sample Receipt	Reliquished By	: 1.	Reliquished By:	2.	Reliquished By: 3.
Number: 102581-009 Name: DLG PFAS Contact: Hovey Wade Ongoing Project? es No Sampler: VTY DHF	Total No. of Containers:  COC Seals/Intact? Y/N/NA  Received Good Cond./Cold  Temp:  Delivery Method: Gold Steak		Time: <b>1500</b> S	Signature:	Time:	Signature: Time:  Printed Name: Date:  Company:
No	tes:	Received By:	1.	Received By:	2.	Received By: 3.
		100	Time: 11-30 S			Signature: Time:  Printed Name: Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - jol	signee files	Company: ETA SAC	C	Company:		Company:









No.

SHANNON & WILSO  GEOTECHNICAL AND ENVIRONMENTAL  23555 Hill Road Fairbanks, AK 99709 (907) 479-0600	CONSULTANTS CHAIL	N-OF-CUSTOD		Laboratory Test Auerica Attn: David Actucker ervative if used)
Turn Around Time:  Normal Rush	Quote No:  MSA Number: TB ()			Remarks/Matrix Composition/Grab? Sample Containers
Please Specify Sample Identity	Lab No. Time Sar	Date mpled		
SB9-0.0-0.5 SB9-5.0-5.5	1416	3121 7		sae
SB9 -36.6-36.8 SB9 - 15.6-16.2 SED-01	1537 1648 1430	× ×		sediment
SED-02 SED-102 SED-03	1630 1640 1838	/ <del>/</del> /		
SED-04 SED-104	0930 Fl.	14121 ×		
Project Information	Sample Receipt	Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Number: 102581 -009 Name: DLG - PFA3	Total No. of Containers: 26  COC Seals/Intact? Y/N/NA	Signature: Time:	Signature: Time:	Signature: Time:
Contact: MWW Ongoing Project? Yes No No	Received Good Cond./Cold Temp:	Printed Name: Date: 1	Printed Name: Date:	Printed Name: Date:
Sampler: VTY, DHF	Delivery Method: goldstreak tes:	Slownon & Wig	Company:	Company:
NO	les.	Received By: 1.	Received By: 2.	Received By: 3.
		(~~ /~	Signature: Time:	Signature: Time:
		Conne Van	Printed Name: Date:	Printed Name: Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for con Pink - Shannon & Wilson - jol	signee files	Company: ETA SAC	Company:	Company:

No.













SHANNON & WILSO  GEOTECHNICAL AND ENVIRONMENTAL  2355 Hill Road  Fairbanks, AK 99709  (907) 479-0600  www.shannonwilson.com		N-OF-CUSTODY	Attn Analytical Methods (include preservati	ive if used)
Turn Around Time:  Normal Rush  Please Specify	Quote No:  MSA Number: TBD  J-Flags: Yes No			Remarks/Matrix Composition/Grab? Sample Containers
SED-05 SED-06 SED-07 SED-08 SED-09 SED-09	1400 1815 1815	Date mpled XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	1 1 1 1	Remarks/Matrix Composition/Grab? Sample Containers  Sediment
Project Information  Number: 102581-009  Name: DLG PFAS	Sample Receipt Total No. of Containers: 26 COC Seals/Intact? Y/N/NA	Reliquished By: 1. Signature: Time: 1500	Reliquished By: 2. Signature: Time:	Reliquished By: 3.  Signature: Time:
Contact: Honcy Nade Ongoing Project? Yes No Sampler: No	Received Good Cond./Cold Temp: Delivery Method:	Printed Name: Date: High Veselina Jakimova Company: Summon Hullicom Received By: 1.	Printed Name: Date:  Company:  Received By: 2.	Printed Name: Date:  Company:  Received By: 3.
Distribution: White - w/shipment - returne	d to Shannon & Wilson w/ laboratory repor	Signature: Time: \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Signature: Time:	Signature: Time:  Printed Name: Date:  Company:
Yellow - w/shipment - for cor Pink - Shannon & Wilson - jo	nsignee files	ETA Sac		Sompany.

**4** 

Client: Shannon & Wilson, Inc

List Source: Eurofins TestAmerica, Sacramento

Job Number: 320-76365-1

Login Number: 76365 List Number: 1

Creator: Cahill. Nicholas P

Creator: Canill, Nicholas P		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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	

Eurofins TestAmerica, Sacramento

## **Laboratory Data Review Checklist**

Completed By:			
•	Justin Risley		
Title	::		
	Engineering Staff		
Date	::		
	August 11, 2021		
Con	sultant Firm:		
	Shannon & Wilson, Inc.		
Lab	pratory Name:		
	Eurofins Environment Testing		
Lab	pratory Report Number:		
í	320-76365-1		
Lab	pratory Report Date:		
	July 26, 2021		
CS S	Site Name:		
	Dillingham DOT&PF		
ADI	EC File Number:		
2	2540.38.023		
Haz	ard Identification Number:		
,	26971		

	320-76365-1			
Lal	boratory Report Date:			
	July 26, 2021			
CS	Site Name:			
	Dillingham DOT&PF			
L				
1.	Note: Any N/A or No box checked must have an explanation in the comments box.  Laboratory			
	<ul> <li>a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>			
	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?			
	$Yes \square No \square N/A \boxtimes Comments:$			
	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)?			
	$Yes \boxtimes No \square N/A \square$ Comments:			
	b. Correct analyses requested?			
	$Yes \boxtimes No \square N/A \square$ Comments:			
3.	Laboratory Sample Receipt Documentation			
	a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?			
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:			
	Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.			
	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:			

320-76365-1	
Laboratory Report Date:	
July 26, 2021	
CS Site Name:	
Dillingham DOT&PF	
c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?	
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:	
No discrepancies were noted.	
e. Data quality or usability affected?	
Comments:	
Data quality and/or usability are not affected; see above.	
4. <u>Case Narrative</u>	
a. Present and understandable?	
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:	

320-76365-1			
Laboratory Report Date:			
July 26, 2021			
CS Site Name:			
Dillingham DOT&PF			
<ul> <li>b. Discrepancies, errors, or QC failures identified by the lab?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>			
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 <i>SED-01</i> , <i>SED-06</i> , <i>SED-07</i> , and <i>SED-08</i> exhibited a light-yellow hue after final extraction and voluming.			
c. Were all corrective actions documented?			
Yes⊠ No□ N/A□ Comments:			
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. <u>Samples Results</u>			
a. Correct analyses performed/reported as requested on COC?			
Yes⊠ No□ N/A□ Comments:			

320	)-76365-1			
Laborat	tory Report Date:			
July	y 26, 2021			
CS Site	e Name:			
Dill	lingham DOT&PF			
	b. All applicable holding times met?			
	Yes $\square$ No $\boxtimes$ N/A $\square$ Comments:			
	Project sample <i>SB2-45.3-46.0</i> 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:			
	1 to 2 1 to 2 1 to 1 to 1 to 1 to 1 to 1			
L	d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?			
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:			
_	e. Data quality or usability affected?			
PFAS were not detected in sample <i>SB2-45.3-46.0</i> . The non-detect results are assumed to have analytical bias and are flagged 'UJ' for reporting purposes. We note that the reference method not list a specific holding time, and PFAS tend to be highly stable within the soil matrix. It is u that the results are affected. Qualification was applied out of an abundance of caution.				
6. <u>QC</u>	<u>C Samples</u>			
	a. Method Blank			
	i. One method blank reported per matrix, analysis and 20 samples?			
	Yes⊠ No□ N/A□ Comments:			
	105 NOL WALL Comments.			
ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?				
_	Yes $\boxtimes$ No $\square$ N/A $\square$ 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.			

320-76365-1		
Laboratory Report Date:		
July 26, 2021		
CS Site Name:		
Dillingham DOT&PF		
iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?		
$Yes \square No \square N/A \boxtimes Comments:$		
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)		
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>		
$Yes \square No \boxtimes N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 laborate limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and o sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laborator QC pages)		
$Yes \square No \square N/A \boxtimes Comments:$		
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.

320-76365-1
aboratory Report Date:
July 26, 2021
S Site Name:
Dillingham DOT&PF
vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes $\square$ No $\square$ N/A $\boxtimes$ 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.
<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?
$Yes \square No \square N/A \boxtimes Comments:$
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 $\boxtimes$ No $\square$ N/A $\square$ 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)
$Yes \boxtimes No \square N/A \square$ Comments:

320	0-76365-1			
Laborat	tory Report Date:			
July	y 26, 2021			
CS Site	Name:			
Dill	lingham 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:			
	See above.			
vii. Data quality or usability affected? (Use comment box to explain.)  Comments:				
The data quality/usability is not affected.				
L	d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods On			
	<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>			
Г	Yes⊠ No□ N/A□ Comments:			
L	<ul> <li>ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits an project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>			
_	iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?			
<u>-</u>	$Yes \square No \square N/A \boxtimes Comments:$			
	See above.			
_	iv. Data quality or usability affected?  Comments:			
	The data quality/usability is not affected; see above.			

320-76365-1		
Laboratory Report Date:		
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CS Site Name:		
Dillingham DOT&PF		
e. Trip Blanks		
<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>		
$Yes \square No \square N/A \boxtimes Comments:$		
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)		
$Yes \square No \square N/A \boxtimes Comments:$		
See above.		
iii. All results less than LOQ and project specified objectives?		
$Yes \square No \square N/A \boxtimes Comments:$		
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:		
ii. Submitted blind to lab?		
$Yes \boxtimes No \square N/A \square$ 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.		

220 7/22/5 1		
320-76365-1		
boratory Report Date:		
July 26, 2021		
S Site Name:		
Dillingham DOT&PF		
iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)		
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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		
La	boratory Report Date:		
	July 26, 2021		
CS Site Name:			
	Dillingham DOT&PF		
7.	Other Data Flags/Qualifiers (ACO	E, AFCEE, Lab Specific, etc.)	

a.	Defined	and	appropriate?
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Yes□	No□	$N/A \boxtimes$	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.

Page 11 November 2019



# **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

Jamil altina

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS Laboratory Job ID: 320-76675-1

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## **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76675-1

Project/Site: DLG PFAS

#### **Qualifiers**

100	$\sim$	N/A	C
	U	IVI	J

(	Qualitier	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)

Negative / Absent NEG POS Positive / Present

PQL **Practical Quantitation Limit** 

**PRES** Presumptive QC **Quality Control** 

RER Relative Error Ratio (Radiochemistry)

RLReporting Limit or Requested Limit (Radiochemistry)

**RPD** Relative Percent Difference, a measure of the relative difference between two points

Toxicity Equivalent Factor (Dioxin) TEF Toxicity Equivalent Quotient (Dioxin) TEQ

TNTC Too Numerous To Count

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#### **Case Narrative**

Client: Shannon & Wilson, Inc Job ID: 320-76675-1
Project/Site: DLG PFAS

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 3.5° 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.

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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		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 U	Init	Dil Fac	D Method	Prep Type
Perfluorobutanesulfonic acid (PFBS)	1.8	1.6	0.16 ng	g/L	1	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3	1.6	0.46 ng	g/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		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 Metl	hod 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

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Client: Shannon & Wilson, Inc Job ID: 320-76675-1

Project/Site: DLG PFAS

## 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		EPA 537(Mod)	Total/NA
Perfluorodecanoic acid (PFDA)	0.35 JI	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		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 [	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	13	1.9	0.56	ng/L		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 Job ID: 320-76675-1 Project/Site: DLG PFAS

Client Sample ID: FB071721 Lab Sample ID: 320-76675-1

Date Collected: 07/17/21 19:15 **Matrix: Water** Date Received: 07/23/21 11:22

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.4	1.1	ng/L		07/26/21 20:43	07/28/21 03:30	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.4		ng/L		07/26/21 20:43	07/28/21 03:30	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8		ng/L			07/28/21 03:30	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5		ng/L		07/26/21 20:43	07/28/21 03:30	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8		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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 03:30	1
13C3 PFBS	79		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 03:30	1
1802 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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 03:30	1
d5-NEtFOSAA	91		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 03:30	1
13C3 HFPO-DA	81		50 <sub>-</sub> 150				07/26/21 20:43	07/00/04 00:00	1

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

Client Sample ID: DLG-MW05-45

Lab Sample ID: 320-76675-2

Date Collected: 07/17/21 16:20 **Matrix: Water** Date Received: 07/23/21 11:22

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		1.7	0.50	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluoroheptanoic acid (PFHpA)	ND		1.7	0.22	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorooctanoic acid (PFOA)	ND		1.7	0.74	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorononanoic acid (PFNA)	ND		1.7	0.23	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorodecanoic acid (PFDA)	0.27	J	1.7	0.27	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorobutanesulfonic acid (PFBS)	1.7		1.7	0.17	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.7	0.49	ng/L		07/26/21 20:43	07/28/21 03:39	
Perfluorooctanesulfonic acid (PFOS)	ND		1.7		ng/L		07/26/21 20:43	07/28/21 03:39	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		07/26/21 20:43	07/28/21 03:39	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		07/26/21 20:43	07/28/21 03:39	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7		ng/L			07/28/21 03:39	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5		ng/L			07/28/21 03:39	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7		ng/L			07/28/21 03:39	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		07/26/21 20:43	07/28/21 03:39	
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	97		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C4 PFHpA	99		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C4 PFOA	108		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C5 PFNA	108		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C2 PFDA	108		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C2 PFUnA	107		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C2 PFDoA	111		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C2 PFTeDA	121		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C3 PFBS	88		50 - 150				07/26/21 20:43	07/28/21 03:39	
1802 PFHxS	98		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C4 PFOS	103		50 - 150				07/26/21 20:43	07/28/21 03:39	
d3-NMeFOSAA	102		50 - 150				07/26/21 20:43	07/28/21 03:39	
d5-NEtFOSAA	102		50 - 150				07/26/21 20:43	07/28/21 03:39	
13C3 HFPO-DA	91		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 03:39	

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76675-1

Client Sample ID: DLG-MW105-45

Date Received: 07/23/21 11:22

Date Collected: 07/17/21 16:10

Lab Sample ID: 320-76675-3 Matrix: Water

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.0	0.97	ng/L		07/26/21 20:43	07/28/21 03:48	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.0	1.0	ng/L		07/26/21 20:43	07/28/21 03:48	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

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

8/3/2021

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

Client Sample ID: DLG-MW05-67 Lab Sample ID: 320-76675-4

Date Collected: 07/17/21 19:20 **Matrix: Water** Date Received: 07/23/21 11:22

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		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.0	0.97	ng/L		07/26/21 20:43	07/28/21 03:57	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.0	1.1	ng/L			07/28/21 03:57	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 03:57	1
13C2 PFUnA	100		50 <sub>-</sub> 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 <sub>-</sub> 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
1802 PFHxS	87		50 - 150					07/28/21 03:57	1
13C4 PFOS	93		50 - 150					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					07/28/21 03:57	
13C3 HFPO-DA	82		50 <sub>-</sub> 150					07/28/21 03:57	. 1

Client: Shannon & Wilson, Inc Job ID: 320-76675-1

Project/Site: DLG PFAS

Date Received: 07/23/21 11:22

13C3 HFPO-DA

**Client Sample ID: EB-MW05** Lab Sample ID: 320-76675-5 Date Collected: 07/17/21 19:40

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/26/21 20:43	07/28/21 04:06	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/26/21 20:43	07/28/21 04:06	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 04:06	1
d3-NMeFOSAA	87		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 04:06	1
d5-NEtFOSAA	92		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 04:06	1

07/26/21 20:43 07/28/21 04:06

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

Client Sample ID: DLG-MW09-11 Lab Sample ID: 320-76675-6

Date Collected: 07/18/21 15:52 **Matrix: Water** Date Received: 07/23/21 11:22

Analyte	Result	Qualifier	RL	MDL		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5	1.1	ng/L		07/26/21 20:43	07/28/21 04:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/26/21 20:43	07/28/21 04:16	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 04:16	1
13C3 PFBS	68		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 04:16	1
1802 PFHxS	93		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 04:16	
13C4 PFOS	108		50 <sub>-</sub> 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					07/28/21 04:16	1
13C3 HFPO-DA	66		50 - 150					07/28/21 04:16	1

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

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** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.2	1.0	ng/L		07/26/21 20:43	07/28/21 04:25	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.2	1.1	ng/L		07/26/21 20:43	07/28/21 04:25	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	

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 Job ID: 320-76675-1 Project/Site: DLG PFAS

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 Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 Analyte Result Qualifier RL **MDL** Unit Dil Fac Prepared Analyzed 07/26/21 20:43 07/28/21 04:52 Perfluorohexanoic acid (PFHxA) 1.8 0.53 ng/L 2.2 07/26/21 20:43 07/28/21 04:52 Perfluoroheptanoic acid (PFHpA) 0.29 J 1.8 0.23 ng/L Perfluorooctanoic acid (PFOA) ND 1.8 0.78 ng/L 07/26/21 20:43 07/28/21 04:52 Perfluorononanoic acid (PFNA) ND 0.25 ng/L 07/26/21 20:43 07/28/21 04:52 1.8 Perfluorodecanoic acid (PFDA) ND 1.8 0.28 ng/L 07/26/21 20:43 07/28/21 04:52 ND Perfluoroundecanoic acid (PFUnA) 1.8 1.0 ng/L 07/26/21 20:43 07/28/21 04:52 Perfluorododecanoic acid (PFDoA) ND 1.8 0.50 ng/L 07/26/21 20:43 07/28/21 04:52 Perfluorotridecanoic acid (PFTriA) ND 1.8 07/26/21 20:43 07/28/21 04:52 1.2 ng/L Perfluorotetradecanoic acid (PFTeA) ND 1.8 0.67 ng/L 07/26/21 20:43 07/28/21 04:52 Perfluorobutanesulfonic acid 1.8 0.18 ng/L 07/26/21 20:43 07/28/21 04:52 1.1 J (PFBS) 1.8 0.52 ng/L 07/26/21 20:43 07/28/21 04:52 Perfluorohexanesulfonic acid 1.2 J (PFHxS) Perfluorooctanesulfonic acid 0.95 J 1.8 0.49 ng/L 07/26/21 20:43 07/28/21 04:52 (PFOS) ND 1.1 ng/L 07/26/21 20:43 07/28/21 04:52 N-methylperfluorooctanesulfonamidoa 4.6 cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac ND 4.6 1.2 ng/L 07/26/21 20:43 07/28/21 04:52 etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 0.22 ng/L 07/26/21 20:43 07/28/21 04:52 1.8 e-1-sulfonic acid Hexafluoropropylene Oxide Dimer ND 3.7 1.4 ng/L 07/26/21 20:43 07/28/21 04:52 Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 1.8 0.29 ng/L 07/26/21 20:43 07/28/21 04:52 e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid ND 1.8 0.37 ng/L 07/26/21 20:43 07/28/21 04:52 (ADONA)

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 Job ID: 320-76675-1

Project/Site: DLG PFAS

Date Received: 07/23/21 11:22

Perfluorohexanesulfonic acid

(PFHxS) Isotope Dilution

13C2 PFHxA

1802 PFHxS

13C3 PFBS

1300

%Recovery Qualifier

102

87

87

Client Sample ID: DLG-MW09-50

Lab Sample ID: 320-76675-9 Date Collected: 07/19/21 12:23

**Matrix: Water** 

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	
Perfluorooctanoic acid (PFOA)	59		1.8	0.76	ng/L		07/26/21 20:43	07/28/21 05:01	•
Perfluorononanoic acid (PFNA)	ND		1.8	0.24	ng/L		07/26/21 20:43	07/28/21 05:01	•
Perfluorodecanoic acid (PFDA)	0.35	JI	1.8	0.28	ng/L		07/26/21 20:43	07/28/21 05:01	
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.99	ng/L		07/26/21 20:43	07/28/21 05:01	•
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.49	ng/L		07/26/21 20:43	07/28/21 05:01	•
Perfluorotridecanoic acid (PFTriA)	ND		1.8	1.2	ng/L		07/26/21 20:43	07/28/21 05:01	
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.65	ng/L		07/26/21 20:43	07/28/21 05:01	
Perfluorooctanesulfonic acid (PFOS)	19		1.8	0.48	ng/L		07/26/21 20:43	07/28/21 05:01	•
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.5		ng/L		07/26/21 20:43	07/28/21 05:01	,
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.5	1.2	ng/L		07/26/21 20:43	07/28/21 05:01	,
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8		ng/L		07/26/21 20:43	07/28/21 05:01	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.6		ng/L		07/26/21 20:43	07/28/21 05:01	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8	0.29			07/26/21 20:43	07/28/21 05:01	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8	0.36	ng/L		07/26/21 20:43	07/28/21 05:01	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C4 PFHpA	69		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C4 PFOA	97		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C5 PFNA	91		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C2 PFDA	78		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C2 PFUnA	91		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C2 PFDoA	92		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C2 PFTeDA	92		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C4 PFOS	83		50 - 150				07/26/21 20:43	07/28/21 05:01	
d3-NMeFOSAA	84		50 - 150				07/26/21 20:43	07/28/21 05:01	
d5-NEtFOSAA	88		50 - 150				07/26/21 20:43	07/28/21 05:01	
13C3 HFPO-DA	72		50 - 150				07/26/21 20:43	07/28/21 05:01	
Method: EPA 537(Mod) - PFAS		.3, Table B Qualifier		MEN	Unit	<b>r</b>	Droporod	Analyzed	Dil E-
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	1100		18		ng/L			07/31/21 04:12	10
Perfluorobutanesulfonic acid (PFBS)	1100		18	1.8	ng/L		07/20/21 20:43	07/31/21 04:12	10

07/26/21 20:43 07/31/21 04:12

07/26/21 20:43 07/31/21 04:12

07/26/21 20:43 07/31/21 04:12

07/26/21 20:43 07/31/21 04:12

Analyzed

Prepared

18

Limits

50 - 150

50 - 150

50 - 150

5.1 ng/L

10

10

10

10

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76675-1

Project/Site: DLG PFAS

Date Received: 07/23/21 11:22

13C3 HFPO-DA

Client Sample ID: EB-MW09 Lab Sample ID: 320-76675-10 Date Collected: 07/19/21 12:40

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/26/21 20:43	07/28/21 05:10	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/26/21 20:43	07/28/21 05:10	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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
1802 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				07/00/04 00:40	07/28/21 05:10	1

07/26/21 20:43 07/28/21 05:10

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

Lab Sample ID: 320-76675-11 Client Sample ID: DLG-MW04-25 Date Collected: 07/21/21 13:00

**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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		07/26/21 20:43	07/28/21 05:20	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		07/26/21 20:43	07/28/21 05:20	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

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
1802 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 <sub>-</sub> 150	07/26/21 20:43	07/28/21 05:20	1

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

Client Sample ID: DLG-MW104-25

Lab Sample ID: 320-76675-12 Date Collected: 07/21/21 13:10

**Matrix: Water** 

Method: EPA 537(Mod) - PFAS f		5						
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.8	1.1	ng/L		07/26/21 20:43	07/28/21 05:29	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.8	1.2	ng/L		07/26/21 20:43	07/28/21 05:29	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

(ADONA)					
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
1802 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 Job ID: 320-76675-1 Project/Site: DLG PFAS

Client Sample ID: DLG-MW04-53

Date Received: 07/23/21 11:22

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-76675-13 Date Collected: 07/21/21 17:20

**Matrix: Water** 

Analyte	Result Qualifie	er 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.8	1.2	ng/L		07/26/21 20:43	07/28/21 05:38	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.8	1.3	ng/L		07/26/21 20:43	07/28/21 05:38	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 Qualific	er 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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:38	1
13C4 PFOA	95	50 <sub>-</sub> 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 <sub>-</sub> 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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:38	1
13C2 PFTeDA	106	50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:38	1
13C3 PFBS	71	50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:38	1
1802 PFHxS	80	50 <sub>-</sub> 150					07/28/21 05:38	1
13C4 PFOS	88	50 - 150				07/06/04 00:40	07/28/21 05:38	1

07/26/21 20:43 07/28/21 05:38

07/26/21 20:43 07/28/21 05:38

07/26/21 20:43 07/28/21 05:38

50 - 150

50 - 150

50 - 150

84

90

Client: Shannon & Wilson, Inc Job ID: 320-76675-1

Project/Site: DLG PFAS

Lab Sample ID: 320-76675-14 Client Sample ID: EB-MW04

Date Collected: 07/21/21 18:00 **Matrix: Water** Date Received: 07/23/21 11:22

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		07/26/21 20:43	07/28/21 05:47	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9		ng/L		07/26/21 20:43	07/28/21 05:47	1
9-Chlorohexadecafluoro-3-oxanonan e-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		ng/L		07/26/21 20:43	07/28/21 05:47	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9		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 <sub>-</sub> 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 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:47	1
13C3 PFBS	85		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:47	1
1802 PFHxS	94		50 - 150				07/26/21 20:43	07/28/21 05:47	1
13C4 PFOS	97		50 <sub>-</sub> 150				07/26/21 20:43	07/28/21 05:47	1
d3-NMeFOSAA	90		50 - 150					07/28/21 05:47	1
d5-NEtFOSAA	98		50 <sub>-</sub> 150					07/28/21 05:47	
13C3 HFPO-DA	83		50 - 150					07/28/21 05:47	1

Job ID: 320-76675-1

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water Prep Type: Total/NA

				•	Dilution Re		•	•	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTD.
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-15
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
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS		d5NEFOS	•	,	
Lab Carrella ID		-	_						
Lap Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
<u> </u>	Client Sample ID FB071721	<u>(50-150)</u>	( <b>50-150</b> )	( <b>50-150</b> )	( <b>50-150</b> )	<b>(50-150)</b> 91	( <b>50-150</b> ) 81		
320-76675-1	<u> </u>								
320-76675-1 320-76675-2	FB071721	79	83	89	82	91	81		
320-76675-1 320-76675-2 320-76675-3	FB071721 DLG-MW05-45	79 88	83 98	89 103	82 102	91 102 94	81 91		
320-76675-1 320-76675-2 320-76675-3 320-76675-4	FB071721 DLG-MW05-45 DLG-MW105-45	79 88 82	83 98 88	89 103 96	82 102 90	91 102 94 91	81 91 84		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5	FB071721 DLG-MW05-45 DLG-MW105-45 DLG-MW05-67 EB-MW05	79 88 82 78 81	83 98 88 87 82	89 103 96 93 88	82 102 90 87 87	91 102 94	81 91 84 82 74		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6	FB071721 DLG-MW05-45 DLG-MW105-45 DLG-MW05-67	79 88 82 78	83 98 88 87	89 103 96 93	82 102 90 87 87 93	91 102 94 91 92	81 91 84 82		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7	FB071721  DLG-MW05-45  DLG-MW105-45  DLG-MW05-67  EB-MW05  DLG-MW09-11  DLG-MW09-65	79 88 82 78 81 68 76	83 98 88 87 82 93	89 103 96 93 88 108	82 102 90 87 87 93 85	91 102 94 91 92 90 80	81 91 84 82 74 66		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8	FB071721  DLG-MW05-45  DLG-MW05-67  EB-MW05  DLG-MW09-11  DLG-MW09-65  DLG-MW109-65	79 88 82 78 81 68	83 98 88 87 82 93	89 103 96 93 88 108 89 81	82 102 90 87 87 93 85 72	91 102 94 91 92 90	81 91 84 82 74 66 75 66		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8 320-76675-9	FB071721  DLG-MW05-45  DLG-MW05-67  EB-MW05  DLG-MW09-11  DLG-MW09-65  DLG-MW109-65  DLG-MW09-50	79 88 82 78 81 68 76 69	83 98 88 87 82 93 87 79	89 103 96 93 88 108	82 102 90 87 87 93 85	91 102 94 91 92 90 80 78	81 91 84 82 74 66		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8 320-76675-9 320-76675-9 - DL	FB071721  DLG-MW05-45  DLG-MW05-67  EB-MW05  DLG-MW09-11  DLG-MW09-65  DLG-MW09-50  DLG-MW09-50	79 88 82 78 81 68 76 69	83 98 88 87 82 93 87 79	89 103 96 93 88 108 89 81 83	82 102 90 87 87 93 85 72 84	91 102 94 91 92 90 80 78 88	81 91 84 82 74 66 75 66 72		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8 320-76675-9 320-76675-9 - DL 320-76675-10	FB071721 DLG-MW05-45 DLG-MW05-67 EB-MW05 DLG-MW09-11 DLG-MW09-65 DLG-MW109-65 DLG-MW09-50 DLG-MW09-50 EB-MW09	79 88 82 78 81 68 76 69	83 98 88 87 82 93 87 79	89 103 96 93 88 108 89 81	82 102 90 87 87 93 85 72	91 102 94 91 92 90 80 78	81 91 84 82 74 66 75 66		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8 320-76675-9 320-76675-9 - DL 320-76675-10 320-76675-11	FB071721 DLG-MW05-45 DLG-MW05-67 EB-MW05 DLG-MW09-11 DLG-MW09-65 DLG-MW109-65 DLG-MW09-50 DLG-MW09-50 EB-MW09 DLG-MW04-25	79 88 82 78 81 68 76 69 87 82 80	83 98 88 87 82 93 87 79	89 103 96 93 88 108 89 81 83	82 102 90 87 87 93 85 72 84	91 102 94 91 92 90 80 78 88 101 96	81 91 84 82 74 66 75 66 72 79		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8 320-76675-9 320-76675-9 - DL 320-76675-10 320-76675-11	FB071721 DLG-MW05-45 DLG-MW05-45 DLG-MW05-67 EB-MW05 DLG-MW09-11 DLG-MW09-65 DLG-MW109-65 DLG-MW09-50 DLG-MW09-50 EB-MW09 DLG-MW04-25 DLG-MW104-25	79 88 82 78 81 68 76 69 87 82 80 80	83 98 88 87 82 93 87 79 87 90 89	89 103 96 93 88 108 89 81 83 96 94	82 102 90 87 87 93 85 72 84 87 88	91 102 94 91 92 90 80 78 88 101 96	81 91 84 82 74 66 75 66 72 79 80		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-7 320-76675-8 320-76675-9 320-76675-9 - DL 320-76675-10 320-76675-11 320-76675-12 320-76675-13	FB071721  DLG-MW05-45  DLG-MW05-67  EB-MW05  DLG-MW09-11  DLG-MW09-65  DLG-MW109-65  DLG-MW09-50  EB-MW09  DLG-MW04-25  DLG-MW104-25  DLG-MW04-53	79 88 82 78 81 68 76 69 87 82 80 80 71	83 98 88 87 82 93 87 79 87 90 89 85 80	89 103 96 93 88 108 89 81 83 96 94 91 88	82 102 90 87 87 93 85 72 84 87 88 85 85	91 102 94 91 92 90 80 78 88 101 96 90	81 91 84 82 74 66 75 66 72 79 80 74 69		
320-76675-1 320-76675-2 320-76675-3 320-76675-4 320-76675-5 320-76675-6 320-76675-8 320-76675-9 320-76675-9 - DL 320-76675-10 320-76675-11 320-76675-12 320-76675-13 320-76675-14	FB071721 DLG-MW05-45 DLG-MW05-45 DLG-MW05-67 EB-MW05 DLG-MW09-11 DLG-MW09-65 DLG-MW109-65 DLG-MW09-50 DLG-MW09-50 EB-MW09 DLG-MW04-25 DLG-MW04-25 DLG-MW04-53 EB-MW04	79 88 82 78 81 68 76 69 87 82 80 80 71 85	83 98 88 87 82 93 87 79 87 90 89 85 80 94	89 103 96 93 88 108 89 81 83 96 94 91 88 97	82 102 90 87 87 93 85 72 84 87 88 85 85 84	91 102 94 91 92 90 80 78 88 101 96 90 90	81 91 84 82 74 66 75 66 72 79 80 74 69 83		
Lab Sample ID  320-76675-1  320-76675-2  320-76675-3  320-76675-4  320-76675-5  320-76675-6  320-76675-7  320-76675-9  320-76675-9 - DL  320-76675-11  320-76675-12  320-76675-13  320-76675-14  LCS 320-510491/2-A  LCSD 320-510491/3-A	FB071721  DLG-MW05-45  DLG-MW05-67  EB-MW05  DLG-MW09-11  DLG-MW09-65  DLG-MW109-65  DLG-MW09-50  EB-MW09  DLG-MW04-25  DLG-MW104-25  DLG-MW04-53	79 88 82 78 81 68 76 69 87 82 80 80 71	83 98 88 87 82 93 87 79 87 90 89 85 80	89 103 96 93 88 108 89 81 83 96 94 91 88	82 102 90 87 87 93 85 72 84 87 88 85 85	91 102 94 91 92 90 80 78 88 101 96 90	81 91 84 82 74 66 75 66 72 79 80 74 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

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## **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS PFHxS = 1802 PFHxS

PFOS = 13C4 PFOS d3NMFOS = d3-NMeFOSAA d5NEFOS = d5-NEtFOSAA HFPODA = 13C3 HFPO-DA Job ID: 320-76675-1

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Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

MD MD

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** 

	MR	MR							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/26/21 20:43	07/28/21 03:03	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/26/21 20:43	07/28/21 03:03	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MR	MB							

	IVIB	IVIB				
Isotope Dilution	%Recovery	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
1802 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** 

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

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** 

-	Spike	LCS	LCS		%Rec.
Analyte	Added	Result	Qualifier Unit	D %Rec	Limits
Perfluorodecanoic acid (PFDA)	40.0	36.7	ng/L	92	71 - 129
Perfluoroundecanoic acid	40.0	33.5	ng/L	84	69 - 133
(PFUnA)					
Perfluorododecanoic acid	40.0	36.3	ng/L	91	72 - 134
(PFDoA)					
Perfluorotridecanoic acid	40.0	45.8	ng/L	114	65 - 144
(PFTriA)					
Perfluorotetradecanoic acid	40.0	38.5	ng/L	96	71 - 132
(PFTeA)	<u>-</u>				
Perfluorobutanesulfonic acid	35.4	36.0	ng/L	102	72 - 130
(PFBS)			,,		
Perfluorohexanesulfonic acid	36.4	35.1	ng/L	97	68 - 131
(PFHxS)	27.4	25.7	/I	00	05 440
Perfluorooctanesulfonic acid	37.1	35.7	ng/L	96	65 - 140
(PFOS)	40.0	39.7	na/l	99	65 - 136
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	39.7	ng/L	99	00 - 100
N-ethylperfluorooctanesulfonami	40.0	40.5	ng/L	101	61 - 135
doacetic acid (NEtFOSAA)	40.0	40.5	iig/L	101	01-100
9-Chlorohexadecafluoro-3-oxan	37.3	35.6	ng/L	95	77 - 137
onane-1-sulfonic acid	0.10	33.3	9/=		
Hexafluoropropylene Oxide	40.0	45.6	ng/L	114	72 - 132
Dimer Acid (HFPO-DA)			3		
11-Chloroeicosafluoro-3-oxaund	37.7	40.9	ng/L	109	76 - 136
ecane-1-sulfonic acid			ŭ		
4,8-Dioxa-3H-perfluorononanoic	37.7	34.2	ng/L	91	81 - 141
acid (ADONA)					
L	.CS LCS				

Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFHxA	84		50 - 150
13C4 PFHpA	89		50 <sub>-</sub> 150
13C4 PFOA	97		50 - 150
13C5 PFNA	95		50 - 150
13C2 PFDA	96		50 - 150
13C2 PFUnA	110		50 <sub>-</sub> 150
13C2 PFDoA	97		50 - 150
13C2 PFTeDA	123		50 <sub>-</sub> 150
13C3 PFBS	86		50 - 150
1802 PFHxS	92		50 - 150
13C4 PFOS	97		50 <sub>-</sub> 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** 

			Prep Ty	pe: Tot	al/NA		
			Prep Batch: 51049				
			%Rec.		RPD		
Unit	D	%Rec	Limits	RPD	Limit		
ng/L		96	72 - 129	4	30		
				Prep Ba %Rec. Unit D %Rec Limits	WRec.           Unit         D         %Rec         Limits         RPD		

**Client Sample ID: Lab Control Sample Dup** 

Spike LCSD LCSD Analyte Added Result Quali Perfluorohexanoic acid (PFHxA) 40.0 38.4 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 30

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# **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

# Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-510491/3-A	Lab	Sample	ID: L	CSD <sub>3</sub>	20-51049	1/3-A
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**Matrix: Water** 

acid (ADONA)

Analysis Batch: 511531

<b>Client Sample</b>	ID: Lab	<b>Control</b>	<b>Sample</b>	Dup
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Prep Type: Total/NA Prep Batch: 510491

Analysis Batch: 511531							Prep Ba	atch: 5'	10491
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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	40.0	38.8		ng/L		97	69 - 133	15	30
(PFUnA)									
Perfluorododecanoic acid	40.0	39.5		ng/L		99	72 - 134	8	30
(PFDoA)									
Perfluorotridecanoic acid	40.0	46.9		ng/L		117	65 - 144	2	30
(PFTriA)									
Perfluorotetradecanoic acid	40.0	37.8		ng/L		95	71 - 132	2	30
(PFTeA)									
Perfluorobutanesulfonic acid	35.4	37.3		ng/L		106	72 - 130	4	30
(PFBS)								_	
Perfluorohexanesulfonic acid	36.4	38.3		ng/L		105	68 - 131	9	30
(PFHxS)	27.4	20.0		/I		00	CF 440	•	20
Perfluorooctanesulfonic acid	37.1	36.9		ng/L		99	65 - 140	3	30
(PFOS) N-methylperfluorooctanesulfona	40.0	41.1		ng/L		103	65 - 136	3	30
midoacetic acid (NMeFOSAA)	40.0	41.1		Hg/L		103	03 - 130	3	30
N-ethylperfluorooctanesulfonami	40.0	39.2		ng/L		98	61 - 135	3	30
doacetic acid (NEtFOSAA)	10.0	00.2		119/2		00	0.100	Ü	00
9-Chlorohexadecafluoro-3-oxan	37.3	36.8		ng/L		99	77 - 137	3	30
onane-1-sulfonic acid				J.					
Hexafluoropropylene Oxide	40.0	40.6		ng/L		102	72 - 132	12	30
Dimer Acid (HFPO-DA)				•					
11-Chloroeicosafluoro-3-oxaund	37.7	40.7		ng/L		108	76 - 136	1	30
ecane-1-sulfonic acid									
4,8-Dioxa-3H-perfluorononanoic	37.7	36.8		ng/L		98	81 - 141	7	30

LCSD LCSD

	2002	_005	
Isotope Dilution	%Recovery	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
1802 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
_			

# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76675-1 Project/Site: DLG PFAS

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	FPA 537(Mod)	510491

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Job ID: 320-76675-1

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

Client Sample ID: FB071721

Date Collected: 07/17/21 19:15 Date Received: 07/23/21 11:22

Lab Sample ID: 320-76675-1

Lab Sample ID: 320-76675-4

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76675-2

Date Collected: 07/17/21 16:20 Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76675-3

Date Collected: 07/17/21 16:10 Date Received: 07/23/21 11:22

Batch Batch Dil Initial Final Batch Prepared Number Method Amount or Analyzed **Prep Type** Type Run **Factor** Amount 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) 511531 07/28/21 03:48 AP TAL SAC 1

Client Sample ID: DLG-MW05-67

Date Collected: 07/17/21 19:20 Date Received: 07/23/21 11:22

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method Factor Amount Amount Number or Analyzed Type Run Analyst Lab Total/NA 3535 309.4 mL 510491 07/26/21 20:43 JER Prep 10.0 mL TAL SAC Total/NA Analysis EPA 537(Mod) 1 511531 07/28/21 03:57 AP TAL SAC

Client Sample ID: EB-MW05 Lab Sample ID: 320-76675-5 Date Collected: 07/17/21 19:40 **Matrix: Water** 

Date Received: 07/23/21 11:22

Dran Trina	Batch	Batch	Dun	Dil	Initial	Final	Batch	Prepared	Amaluat	l ab
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Lab Sample ID: 320-76675-6 Date Collected: 07/18/21 15:52 **Matrix: Water** 

Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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Job ID: 320-76675-1

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

Lab Sample ID: 320-76675-7

Matrix: Water

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

8/3/2021

Date Collected: 07/19/21 11:40 Date Received: 07/23/21 11:22

Client Sample ID: DLG-MW09-65

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/19/21 11:30

Lab Sample ID: 320-76675-8

Matrix: Water

Date Collected: 07/19/21 11:30 Date Received: 07/23/21 11:22

	_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
	Total/NA	Prep	3535			273.8 mL	10.0 mL	510491	07/26/21 20:43	JER	TAL SAC
l	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 Date Received: 07/23/21 11:22

Batch Batch Dil Initial Final Batch Prepared Method Amount Number or Analyzed **Prep Type** Type Run **Factor** Amount 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) 10 511857 07/31/21 04:12 S1M TAL SAC DL 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) 511531 07/28/21 05:01 AP TAL SAC 1

Client Sample ID: EB-MW09 Lab Sample ID: 320-76675-10

Date Collected: 07/19/21 12:40 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

Date Collected: 07/21/21 13:00

Lab Sample ID: 320-76675-11

Matrix: Water

Date Collected: 07/21/21 13:00 Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-76675-1

Project/Site: DLG PFAS

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76675-14 **Client Sample ID: EB-MW04** 

Date Collected: 07/21/21 18:00 **Matrix: Water** 

Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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	<b>Expiration Date</b>
Alaska (UST)	State	17-020	02-20-24

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# **Method Summary**

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

Method **Method Description** Protocol Laboratory EPA 537(Mod) PFAS for QSM 5.3, Table B-15 EPA TAL SAC TAL SAC 3535 Solid-Phase Extraction (SPE) SW846

#### **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

Job ID: 320-76675-1

# **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

8/3/2021











No.











No.

Client: Shannon & Wilson, Inc

Job Number: 320-76675-1

Login Number: 76675

List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Cahill, Nicholas P

orcator: Carini, Micriolas I		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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. <u>Laboratory</u>
a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
$Yes \boxtimes No \square N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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:
Tesizi Noili N/All Comments.
b. Correct analyses requested?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
Samples were received at 3.5°C.
<ul> <li>b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?</li> </ul>
Yes□ No□ N/A⊠ Comments:
PFAS samples do not require preservation beyond the temperature requirements.

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Laboratory Report Date:	
August 3, 2021	
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Dillingham DOT&PF	
c. Sample condition documented	- broken, leaking (Methanol), zero headspace (VOC vials)?
$Yes \boxtimes No \square N/A \square$	Comments:
The sample receipt form notes tha	t the samples were received in good condition.
	s, were they documented? For example, incorrect sample e temperature outside of acceptable range, insufficient or missing
$Yes \boxtimes No \square N/A \square$	Comments:
e. Data quality or usability affect	ed?
	Comments:
Data quality and/or usability are n	ot affected; see above.
4. <u>Case Narrative</u>	
a. Present and understandable?	
Yes⊠ No□ N/A□	Comments:

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Laboratory Report Date:	
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CS Site Name:	
Dillingham DOT&PF	
b. Discrepancies, errors, or QC failures identified by the lab?	
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:	
The case narrative indicated:	
Method EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the sample is below the method recommended limit: <i>DLG-MW09-11</i> . Generally, data quality is considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved in the sample(s).	s not for all IDA
Method EPA 537(Mod): The "I" qualifier means the transition mass ratio for the indicated was outside of the established ratio limits. The qualitative identification of the analyte has s degree of uncertainty, and the reported value may have some high bias. However, analyst just was used to positively identify the analyte. This applies to the following sample: <i>DLG-MW</i> (PFDA).	some udgement
Method EPA 537(Mod): Results for sample <i>DLG-MW09-50</i> were reported from the analys diluted extract due to high concentration of the target analyte in the analysis of the undilute The dilution factor was applied to the labeled internal standard area counts and these area c within acceptance limits.	d extract.
Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix s duplicate (MS/MSD) associated with preparation batch 320-510491.	pike
Method 3535: Samples contain a small amount of brown sediment. <i>DLG-MW05-45</i> , <i>DLG-DLG-MW05-67</i> , <i>DLG-MW09-11</i> , <i>DLG-MW09-65</i> , <i>DLG-MW109-65</i> , <i>DLG-MW09-50</i> , <i>DLG-Special Sediment</i> , <i>DLG-MW09-50</i> , <i>DLG-MW104-25</i> , and <i>DLG-MW04-53</i> . Preparation batch 320-510491	
Method 3535: Sample extract is golden-yellow in color. <i>DLG-MW09-11</i> . Preparation batch 510491	320-
c. Were all corrective actions documented?	
Yes $\square$ No $\boxtimes$ N/A $\square$ Comments:	

Corrective actions were not documented.

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aboratory Report Date:
August 3, 2021
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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 <i>DLG-MW09-50</i> (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.
. 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?
$Yes \square No \square N/A \boxtimes Comments:$
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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Laboratory Report Date:
August 3, 2021
CS Site Name:
Dillingham DOT&PF
5. 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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
Yes⊠ No□ N/A□ Comments:
ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:

Metals and/or inorganics were not analyzed as part of this work order.

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Labo	oratory Report Date:
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CS S	Site Name:
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	<ul> <li>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)</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
	Tes Not IVAL 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 $\square$ No $\square$ N/A $\boxtimes$ 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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Labora	atory Report Date:	
Αι	igust 3, 2021	
CS Sit	e Name:	
Di	llingham DOT&PF	
	ii. Metals/Inorganics – or	ne 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.
	project specified object AK102 75%-125%, A	at recoveries (%R) reported and within method or laboratory limits and etives, if applicable? (AK Petroleum methods: AK101 60%-120%, K103 60%-120%; all other analyses see the laboratory QC pages)
	$Yes \square No \square N/A \boxtimes$	Comments:
	There was insufficient volume accuracy.	to perform an MS/MSD. See LCS/LCSD to determine laboratory
	limits and project spec	e percent differences (RPD) reported and less than method or laboratory eified objectives, if applicable? RPD reported from MS/MSD, and or ate. (AK Petroleum methods 20%; all other analyses see the laboratory
	$Yes \square  No \square  N/A \boxtimes$	Comments:
	There was insufficient volume precision.	to perform an MS/MSD. See LCS/LCSD to determine laboratory
	v. If %R or RPD is outside	de of acceptable limits, what samples are affected?  Comments:
	There was insufficient volume	to perform an MS/MSD.
	vi. Do the affected sample	e(s) have data flags? If so, are the data flags clearly defined?
	Yes□ No□ N/A⊠	Comments:
	See above.	
	vii. Data quality or usabil	ity affected? (Use comment box to explain.) Comments:
	The data quality/usability is no	ot affected.
	d. Surrogates – Organics Onl	y or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only
	i. Are surrogate/IDA rec samples?	eoveries reported for organic analyses – field, QC and laboratory
	Yes⊠ No□ N/A□	Comments:

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Laboratory Rep	port Date:	
August 3, 2	2021	
CS Site Name:		
Dillingham	DOT&PF	
	project specified objecti analyses see the laborate	recoveries (%R) reported and within method or laboratory limits and ives, if applicable? (AK Petroleum methods 50-150 %R; all other ory report pages)
	$Yes \square No \boxtimes N/A \square$	Comments:
Due to	this IDA recovery failure	ple <i>DLG-MW09-11</i> was below laboratory limits for 13C2 PFTeDA. e, the associated non-detect result for PFTeA is considered estimated s been flagged 'UJ' in the analytical database.
iii.	Do the sample results w flags clearly defined?	with failed surrogate/IDA recoveries have data flags? If so, are the data
	Yes⊠ No□ N/A□	Comments:
See abo	ove.	
iv.	Data quality or usabilit	y affected? Comments:
The dat	ta quality/usability is affe	ected; see above.
e. Trin	Blanks	
-		per matrix, analysis and for each cooler containing volatile samples? n below.)
	$Yes \square No \square N/A \boxtimes$	Comments:
PFAS a	re not volatile compound	ds; therefore, a trip blank is not required. A field blank was taken.
ii.		nsport the trip blank and VOA samples clearly indicated on the COC? aining why must be entered below)
	$Yes \square No \square N/A \boxtimes$	Comments:
See abo	ove.	
iii.	All results less than LO	Q and project specified objectives?
	Yes⊠ No□ N/A□	Comments:
	ld blank had no detection	
iv.	If above LOQ or project	ct specified objectives, what samples are affected?  Comments:
No sam	ples were affected.	

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aboratory Report Date:
August 3, 2021
S Site Name:
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?
$Yes \boxtimes No \square N/A \square$ Comments:
ii. Submitted blind to lab?
Yes⊠ No□ N/A□ Comments:
The field duplicate pairs <i>DLG-MW05-45/DLG-MW105-45</i> , <i>DLG-MW09-65/DLG-MW109-65</i> , and <i>DLG-MW04-25/DLG-MW104-25</i> 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 $\square$ No $\boxtimes$ N/A $\square$ 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:
<i>EB-MW05</i> , <i>EB-MW09</i> , and <i>EB-MW04</i> were submitted with this work order. Additionally, field blank sample <i>FB071721</i> was submitted with this work order.

320-76675-1
Laboratory Report Date:
August 3, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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?
$Yes \square No \square N/A \boxtimes Comments:$
No other data flags or qualifiers.



# **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

Jamil Ottima

Authorized for release by: 7/31/2021 1:09:02 PM

David Alltucker, Project Manager I (916)374-4383

David.Alltucker@Eurofinset.com

·····LINKS ······

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS Laboratory Job ID: 320-76677-1

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# **Definitions/Glossary**

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

Qualifiers

**LCMS** 

Qualifier Qualifier Description

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.

Example 2 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

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#### **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 3.5° 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.

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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		₩	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	JI	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	JI	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.

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# **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.

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Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

**Client Sample ID: SB10-26.8-32.0** 

Lab Sample ID: 320-76677-1 Date Collected: 07/15/21 13:26 **Matrix: Solid** 

Percent Solids: 92.7 Date Received: 07/23/21 11:22

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.032	ug/Kg	— <del>-</del>	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-methylperfluorooctanesulfonamidoa	ND		0.21	0.024	ug/Kg	₩	07/26/21 18:34	07/28/21 04:07	1
cetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.21	0.050	ug/Kg	₩	07/26/21 18:34	07/28/21 04:07	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	85		50 - 150				07/26/21 18:34	07/28/21 04:07	1
13C4 PFOS	87		50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 04:07	1
d3-NMeFOSAA	86		50 <sub>-</sub> 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		Qualifier	RL		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 Job ID: 320-76677-1 Project/Site: DLG-PFAS

**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

Method: EPA 537(Mod) - PFAS Analyte	Result (		·15 RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND -		0.20	0.031	ug/Kg		07/26/21 18:34		
Perfluoroheptanoic acid (PFHpA)	ND		0.20		ug/Kg			07/28/21 04:35	
Perfluorooctanoic acid (PFOA)	ND		0.20		ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	
Perfluorononanoic acid (PFNA)	ND		0.20		ug/Kg	∴	07/26/21 18:34	07/28/21 04:35	,
Perfluorodecanoic acid (PFDA)	ND		0.20		ug/Kg	₩		07/28/21 04:35	
Perfluoroundecanoic acid (PFUnA)	ND		0.20		ug/Kg	₩		07/28/21 04:35	
Perfluorododecanoic acid (PFDoA)	ND		0.20		ug/Kg			07/28/21 04:35	
Perfluorotridecanoic acid (PFTriA)	ND		0.20		ug/Kg	₩		07/28/21 04:35	
Perfluorotetradecanoic acid (PFTeA)	ND		0.20		ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	
Perfluorobutanesulfonic acid (PFBS)	ND		0.20		ug/Kg		07/26/21 18:34	07/28/21 04:35	· · · · · · .
Perfluorohexanesulfonic acid (PFHxS)	ND		0.20		ug/Kg	₩		07/28/21 04:35	
Perfluorooctanesulfonic acid (PFOS)	ND		0.20		ug/Kg			07/28/21 04:35	
N-methylperfluorooctanesulfonamidoa	ND		0.20		ug/Kg			07/28/21 04:35	
cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	,
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.20	0.035	ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	,
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.20	0.041	ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.20	0.031	ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.20	0.039	ug/Kg	₩	07/26/21 18:34	07/28/21 04:35	•
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	89		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C4 PFHpA	79		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C4 PFOA	83		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C5 PFNA	84		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C2 PFDA	84		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C2 PFUnA	89		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C2 PFDoA	78		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C2 PFTeDA	79		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C3 PFBS	81		50 - 150				07/26/21 18:34	07/28/21 04:35	
1802 PFHxS	81		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C4 PFOS	91		50 - 150				07/26/21 18:34	07/28/21 04:35	
d3-NMeFOSAA	89		50 - 150				07/26/21 18:34	07/28/21 04:35	
d5-NEtFOSAA	91		50 - 150				07/26/21 18:34	07/28/21 04:35	
13C3 HFPO-DA	80		50 - 150				07/26/21 18:34	07/28/21 04:35	
General Chemistry	_						_		
Analyte	Result (	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Percent Moisture	9.8		0.1	0.1				07/26/21 12:38	,
Percent Solids	90.2		0.1	0.1	0/			07/26/21 12:38	•

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

**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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.22	0.034	ug/Kg	— <u></u>	07/26/21 18:34	07/28/21 04:45	1
Perfluoroheptanoic acid (PFHpA)	ND		0.22		ug/Kg	₽	07/26/21 18:34	07/28/21 04:45	1
Perfluorooctanoic acid (PFOA)	ND		0.22		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		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.22	0.025	ug/Kg		07/26/21 18:34	07/28/21 04:45	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.22	0.053	ug/Kg	₩	07/26/21 18:34	07/28/21 04:45	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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	
13C3 HFPO-DA	75		50 - 150				07/26/21 18:34	07/28/21 04:45	1
General Chemistry									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	14.3		0.1	0.1	%			07/26/21 12:38	1

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

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

Perfluorohexanoic acid (PFHxA) Perfluoroheptanoic acid (PFHpA) Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA) Perfluoroundecanoic acid (PFUnA)	ND ND 0.069 0.25 0.32	J	0.21 0.21 0.21		ug/Kg		07/26/21 18:34	07/28/21 04:54	
Perfluorooctanoic acid (PFOA) Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA)	0.069 0.25 0.32	J		0.039					
Perfluorononanoic acid (PFNA) Perfluorodecanoic acid (PFDA)	0.25 0.32	<b>J</b>	0.21	0.000	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	
Perfluorodecanoic acid (PFDA)	0.32		0.21	0.054	ug/Kg	≎	07/26/21 18:34	07/28/21 04:54	•
			0.21	0.023	ug/Kg	₽	07/26/21 18:34	07/28/21 04:54	
Perfluoroundecanoic acid (PFUnA)			0.21	0.049	ug/Kg	≎	07/26/21 18:34	07/28/21 04:54	•
	ND		0.21	0.043	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	•
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.031	ug/Kg	₽	07/26/21 18:34	07/28/21 04:54	
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	•
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.038	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.039	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	,
Perfluorohexanesulfonic acid (PFHxS)	ND		0.21	0.030	ug/Kg	≎	07/26/21 18:34	07/28/21 04:54	
Perfluorooctanesulfonic acid (PFOS)	2.7		0.21	0.044	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	•
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	₽	07/26/21 18:34	07/28/21 04:54	,
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.21		ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.21		ug/Kg		07/26/21 18:34		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21		ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.21		ug/Kg		07/26/21 18:34		•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.21	0.040	ug/Kg	₩	07/26/21 18:34	07/28/21 04:54	,
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
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	7
13C4 PFOA	69		50 - 150				07/26/21 18:34	07/28/21 04:54	
13C5 PFNA	70		50 - 150				07/26/21 18:34	07/28/21 04:54	
13C2 PFDA	64		50 - 150				07/26/21 18:34	07/28/21 04:54	
13C2 PFUnA	71		50 - 150				07/26/21 18:34	07/28/21 04:54	
13C2 PFDoA	71		50 - 150				07/26/21 18:34	07/28/21 04:54	
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	
18O2 PFHxS	69		50 - 150				07/26/21 18:34	07/28/21 04:54	
13C4 PFOS	73		50 - 150				07/26/21 18:34	07/28/21 04:54	
d3-NMeFOSAA	63		50 - 150				07/26/21 18:34	07/28/21 04:54	
d5-NEtFOSAA	70		50 - 150				07/26/21 18:34	07/28/21 04:54	
13C3 HFPO-DA	66		50 - 150				07/26/21 18:34	07/28/21 04:54	•
General Chemistry									
Analyte Percent Moisture	Result 5.9	Qualifier	——————————————————————————————————————	MDL 0.1	Unit	D	Prepared	Analyzed 07/26/21 12:38	Dil Fac

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

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Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

Client Sample ID: SB11-2.3-3.3

**Percent Solids** 

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** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		0.24	0.037	ug/Kg	<u></u>	07/26/21 18:34	07/28/21 05:03	
Perfluoroheptanoic acid (PFHpA)	ND		0.24	0.045	ug/Kg	₩	07/26/21 18:34	07/28/21 05:03	
Perfluorooctanoic acid (PFOA)	ND		0.24	0.063	ug/Kg	₩	07/26/21 18:34	07/28/21 05:03	
Perfluorononanoic acid (PFNA)	ND		0.24	0.026	ug/Kg	₩	07/26/21 18:34	07/28/21 05:03	
Perfluorodecanoic acid (PFDA)	ND		0.24	0.057	ug/Kg	≎	07/26/21 18:34	07/28/21 05:03	•
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	
Perfluorotridecanoic acid (PFTriA)	ND		0.24	0.025	ug/Kg	≎	07/26/21 18:34	07/28/21 05:03	•
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-methylperfluorooctanesulfonamidoa	ND		0.24	0.027	ug/Kg	₩	07/26/21 18:34	07/28/21 05:03	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.24	0.057	ug/Kg	₩	07/26/21 18:34	07/28/21 05:03	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
sotope 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 <sub>-</sub> 150				07/26/21 18:34	07/28/21 05:03	
1802 PFHxS	78		50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 05:03	
13C4 PFOS	90		50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 05:03	1
d3-NMeFOSAA	96		50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 05:03	1
d5-NEtFOSAA	85		50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 05:03	
13C3 HFPO-DA	84		50 - 150					07/28/21 05:03	1
General Chemistry									
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Percent Moisture	18.2		0.1	0.1	%			07/26/21 12:38	1
			0.4		0/			07/00/04 40 00	

0.1

0.1 %

81.8

07/26/21 12:38

Client: Shannon & Wilson, Inc Job ID: 320-76677-1

Project/Site: DLG-PFAS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		0.23	0.035	ug/Kg	<u></u>	07/26/21 18:34	07/28/21 05:13	
Perfluoroheptanoic acid (PFHpA)	ND		0.23	0.043	ug/Kg	≎	07/26/21 18:34	07/28/21 05:13	
Perfluorooctanoic acid (PFOA)	0.093	J	0.23	0.060	ug/Kg	≎	07/26/21 18:34	07/28/21 05:13	
Perfluorononanoic acid (PFNA)	0.16	J	0.23	0.025	ug/Kg	₽	07/26/21 18:34	07/28/21 05:13	
Perfluorodecanoic acid (PFDA)	0.47		0.23	0.055	ug/Kg	☆	07/26/21 18:34	07/28/21 05:13	
Perfluoroundecanoic acid (PFUnA)	0.080	JI	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.23	0.026	ug/Kg	₩	07/26/21 18:34	07/28/21 05:13	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.23	0.055	ug/Kg	₩	07/26/21 18:34	07/28/21 05:13	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	
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 <sub>-</sub> 150				07/26/21 18:34	07/28/21 05:13	1
13C2 PFUnA	77		50 <sub>-</sub> 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	
13C2 PFTeDA	75		50 <sub>-</sub> 150					07/28/21 05:13	1
13C3 PFBS	68		50 <sub>-</sub> 150					07/28/21 05:13	
1802 PFHxS	75		50 - 150					07/28/21 05:13	
13C4 PFOS	81		50 <sub>-</sub> 150					07/28/21 05:13	1
d3-NMeFOSAA	66		50 - 150 50 - 150					07/28/21 05:13	
d5-NEtFOSAA	70		50 - 150 50 - 150					07/28/21 05:13	
13C3 HFPO-DA	70		50 <sub>-</sub> 150					07/28/21 05:13	1
General Chemistry									
Analyte		Qualifier	RL		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	0/_			07/26/21 12:38	1

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

**Client Sample ID: SB11-22.5-25.4** 

**Percent Solids** 

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

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND	0.21	0.032	ug/Kg	— <u></u>	07/26/21 18:34	07/28/21 23:44	
Perfluoroheptanoic acid (PFHpA)	ND	0.21	0.039	ug/Kg	≎	07/26/21 18:34	07/28/21 23:44	
Perfluorooctanoic acid (PFOA)	0.24	0.21	0.055	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
Perfluorononanoic acid (PFNA)	ND	0.21	0.023	ug/Kg	₽	07/26/21 18:34	07/28/21 23:44	
Perfluorodecanoic acid (PFDA)	ND	0.21	0.050	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
Perfluoroundecanoic acid (PFUnA)	ND	0.21	0.043	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
Perfluorododecanoic acid (PFDoA)	ND	0.21	0.031	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
Perfluorotridecanoic acid (PFTriA)	ND	0.21	0.022	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
Perfluorotetradecanoic acid (PFTeA)	ND	0.21	0.038	ug/Kg	≎	07/26/21 18:34	07/28/21 23:44	
Perfluorobutanesulfonic acid (PFBS)	ND	0.21	0.039	ug/Kg	≎	07/26/21 18:34	07/28/21 23:44	
Perfluorohexanesulfonic acid (PFHxS)	0.048 J	0.21	0.030	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
Perfluorooctanesulfonic acid (PFOS)	ND	0.21	0.044	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	0.21	0.024	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	0.21	0.050	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	0.21	0.036	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	,
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	0.21		ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	,
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	0.21		ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.21	0.040	ug/Kg	₩	07/26/21 18:34	07/28/21 23:44	•
Isotope Dilution	%Recovery Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	91	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C4 PFHpA	86	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C4 PFOA	82	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C5 PFNA	83	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C2 PFDA	82	50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 23:44	
13C2 PFUnA	89	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C2 PFDoA	78	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C2 PFTeDA	81	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C3 PFBS	78	50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 23:44	
1802 PFHxS	79	50 - 150				07/26/21 18:34	07/28/21 23:44	
13C4 PFOS	84	50 - 150				07/26/21 18:34	07/28/21 23:44	
d3-NMeFOSAA	79	50 <sub>-</sub> 150				07/26/21 18:34	07/28/21 23:44	
d5-NEtFOSAA	88	50 - 150					07/28/21 23:44	
13C3 HFPO-DA	82	50 - 150				07/26/21 18:34	07/28/21 23:44	
General Chemistry								
A a la sta	Result Qualifier	RL	MDL	l lmi4		Dropored	Analyzed	Dil Fa
Analyte Percent Moisture	9.5 Qualifier	0.1	0.1		<u>D</u>	Prepared	07/26/21 12:38	DII Fa

7/31/2021

07/26/21 12:38

0.1

90.5

0.1 %

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

**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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.032	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg	₩	07/26/21 18:34	07/29/21 12:07	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.20	0.049	ug/Kg	₩	07/26/21 18:34	07/29/21 12:07	1
9-Chlorohexadecafluoro-3-oxanonan e-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		ug/Kg	₩	07/26/21 18:34	07/29/21 12:07	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.20		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
1802 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						_			
	Daacili	Qualifier	RL	MDI	Unit	D	Prepared	Analyzed	Dil Fac
Analyte		Quanner				=	- roparou		
Analyte Percent Moisture Percent Solids	11.5 88.5	Quanner	0.1	0.1	%		11000100	07/26/21 12:38 07/26/21 12:38	1

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

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** 

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	-15 RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	0.065		0.22		ug/Kg		07/26/21 18:34		1
Perfluoroheptanoic acid (PFHpA)	0.047		0.22		ug/Kg	₩	07/26/21 18:34	07/29/21 00:03	1
Perfluorooctanoic acid (PFOA)	ND		0.22		ug/Kg	₩		07/29/21 00:03	1
Perfluorononanoic acid (PFNA)	ND		0.22		ug/Kg			07/29/21 00:03	1
Perfluorodecanoic acid (PFDA)	ND		0.22		ug/Kg	₩		07/29/21 00:03	1
Perfluoroundecanoic acid (PFUnA)	ND		0.22		ug/Kg	₩		07/29/21 00:03	1
Perfluorododecanoic acid (PFDoA)	ND		0.22		ug/Kg		07/26/21 18:34		1
Perfluorotridecanoic acid (PFTriA)	ND		0.22		ug/Kg	₩		07/29/21 00:03	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.22		ug/Kg	₩	07/26/21 18:34		1
Perfluorobutanesulfonic acid (PFBS)	ND		0.22		ug/Kg			07/29/21 00:03	 1
Perfluorohexanesulfonic acid (PFHxS)	0.097	J	0.22		ug/Kg			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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.22	0.025	ug/Kg	₩	07/26/21 18:34	07/29/21 00:03	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.22		ug/Kg	₩	07/26/21 18:34	07/29/21 00:03	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.22		ug/Kg		07/26/21 18:34		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.22		ug/Kg		07/26/21 18:34		1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.22		ug/Kg		07/26/21 18:34		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
1802 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		Qualifier	RL		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 Job ID: 320-76677-1

Project/Site: DLG-PFAS

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

Analyte	Result Qualif	ier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND	0.25	0.039	ug/Kg	<u></u>	07/26/21 18:34	07/29/21 00:12	
Perfluoroheptanoic acid (PFHpA)	ND	0.25	0.048	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorooctanoic acid (PFOA)	ND	0.25	0.067	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorononanoic acid (PFNA)	ND	0.25	0.028	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorodecanoic acid (PFDA)	ND	0.25	0.060	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluoroundecanoic acid (PFUnA)	ND	0.25	0.053	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorododecanoic acid (PFDoA)	ND	0.25	0.038	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorotridecanoic acid (PFTriA)	ND	0.25	0.026	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorotetradecanoic acid (PFTeA)	ND	0.25	0.047	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorobutanesulfonic acid (PFBS)	ND	0.25	0.048	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Perfluorohexanesulfonic acid (PFHxS)	ND	0.25	0.037	ug/Kg	₽	07/26/21 18:34	07/29/21 00:12	
Perfluorooctanesulfonic acid (PFOS)	ND	0.25	0.054	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	0.25	0.029	ug/Kg		07/26/21 18:34	07/29/21 00:12	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	0.25	0.060	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	0.25	0.044	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	0.25	0.052	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	0.25	0.039	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.25	0.049	ug/Kg	₩	07/26/21 18:34	07/29/21 00:12	
Isotope Dilution	%Recovery Qualif	ier Limits				Prepared	Analyzed	Dil F
13C2 PFHxA	83	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C4 PFHpA	73	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C4 PFOA	75	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C5 PFNA	72	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C2 PFDA	75	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C2 PFUnA	78	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C2 PFDoA	73	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C2 PFTeDA	76	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C3 PFBS	71	50 - 150				07/26/21 18:34	07/29/21 00:12	
18O2 PFHxS	74	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C4 PFOS	82	50 - 150				07/26/21 18:34	07/29/21 00:12	
d3-NMeFOSAA	73	50 - 150				07/26/21 18:34	07/29/21 00:12	
d5-NEtFOSAA	74	50 - 150				07/26/21 18:34	07/29/21 00:12	
13C3 HFPO-DA	79	50 - 150				07/26/21 18:34	07/29/21 00:12	
General Chemistry								
Analyte	Result Qualif		MDL		D	Prepared	Analyzed	Dil Fa
Percent Moisture	22.9	0.1	0.1	%	_	_	07/26/21 12:38	
Percent Solids	77.1	0.1	0.1	0/			07/26/21 12:38	

7/31/2021

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

Client Sample ID: SB-121-15.0-16.0

**Percent Solids** 

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.24	0.037	ug/Kg	<u></u>	07/26/21 18:34	07/29/21 00:21	
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	₩		07/29/21 00:21	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.24		ug/Kg	.₩	07/26/21 18:34	07/29/21 00:21	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.24	0.057	ug/Kg	₩	07/26/21 18:34	07/29/21 00:21	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 PFHxS	72		50 - 150				07/26/21 18:34	07/29/21 00:21	1
13C4 PFOS	77		50 <sub>-</sub> 150				07/26/21 18:34	07/29/21 00:21	1
d3-NMeFOSAA	73		50 <sub>-</sub> 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		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	24.7		0.1	0.1	%			07/26/21 12:38	1

0.1

0.1 %

75.3

07/26/21 12:38

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

**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

Method: EPA 537(Mod) - PFAS Analyte		Qualifier	-13 RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.20	0.031	ug/Kg	— <u></u>	07/26/21 18:34	07/29/21 12:16	1
Perfluoroheptanoic acid (PFHpA)	ND		0.20		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg		07/26/21 18:34	07/29/21 12:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg	₩	07/26/21 18:34	07/29/21 12:16	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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		Qualifier	RL _	MDL		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 Job ID: 320-76677-1 Project/Site: DLG-PFAS

Client Sample ID: SB-12-40.0-40.6

Analyte

**Percent Moisture** 

**Percent Solids** 

Lab Sample ID: 320-76677-13 Date Collected: 07/19/21 18:32 Matrix: Solid Date Received: 07/23/21 11:22 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 ND 0.22 Perfluoroheptanoic acid (PFHpA) 0.041 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorooctanoic acid (PFOA) ND 0.22 0.058 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorononanoic acid (PFNA) ND 0.22 0.024 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorodecanoic acid (PFDA) 0.22 0.052 ug/Kg 07/26/21 18:34 07/29/21 00:40 ND Perfluoroundecanoic acid (PFUnA) ND 0.22 0.046 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorododecanoic acid (PFDoA) ND 0.22 0.033 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorotridecanoic acid (PFTriA) ND 0.22 0.023 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorotetradecanoic acid (PFTeA) ND 0.22 0.040 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorobutanesulfonic acid (PFBS) ND 0.22 0.041 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorohexanesulfonic acid (PFHxS) ND 0.22 0.032 ug/Kg 07/26/21 18:34 07/29/21 00:40 Perfluorooctanesulfonic acid (PFOS) ND 0.22 0.047 ug/Kg 07/26/21 18:34 07/29/21 00:40 N-methylperfluorooctanesulfonamidoa ND 0.22 0.025 ug/Kg 07/26/21 18:34 07/29/21 00:40 cetic acid (NMeFOSAA) ND 0.22 N-ethylperfluorooctanesulfonamidoac 0.052 ug/Kg 07/26/21 18:34 07/29/21 00:40 etic acid (NEtFOSAA) ND 0.22 0.038 ug/Kg 07/26/21 18:34 07/29/21 00:40 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid 0.22 © 07/26/21 18:34 07/29/21 00:40 Hexafluoropropylene Oxide Dimer ND 0.045 ug/Kg Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 0.22 0.034 ug/Kg 07/26/21 18:34 07/29/21 00:40 e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid ND 0.22 0.042 ug/Kg © 07/26/21 18:34 07/29/21 00:40 (ADONA) Isotope Dilution %Recovery Qualifier Limits Prepared Analyzed Dil Fac 13C2 PFHxA 50 - 150 07/26/21 18:34 07/29/21 00:40 94 88 07/26/21 18:34 07/29/21 00:40 13C4 PFHpA 50 - 150 13C4 PFOA 84 50 - 150 07/26/21 18:34 07/29/21 00:40 50 - 150 13C5 PFNA 82 07/26/21 18:34 07/29/21 00:40 13C2 PFDA 79 50 - 150 07/26/21 18:34 07/29/21 00:40 07/26/21 18:34 07/29/21 00:40 13C2 PFUnA 86 50 - 150 13C2 PFDoA 86 50 - 150 07/26/21 18:34 07/29/21 00:40 13C2 PFTeDA 76 50 - 150 07/26/21 18:34 07/29/21 00:40 13C3 PFBS 76 50 - 150 07/26/21 18:34 07/29/21 00:40 1802 PFHxS 77 50 - 150 07/26/21 18:34 07/29/21 00:40 13C4 PFOS 81 50 - 150 07/26/21 18:34 07/29/21 00:40 d3-NMeFOSAA 80 50 - 150 07/26/21 18:34 07/29/21 00:40 d5-NEtFOSAA 86 50 - 150 07/26/21 18:34 07/29/21 00:40 13C3 HFPO-DA 82 50 - 150 07/26/21 18:34 07/29/21 00:40 **General Chemistry** 

Eurofins TestAmerica, Sacramento

Analyzed

07/26/21 12:38

07/26/21 12:38

RL

0.1

0.1

MDL Unit

0.1 %

0.1 % D

Prepared

Result Qualifier

10

90.0

6

Dil Fac

Job ID: 320-76677-1

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

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

				-	Dilution Re		-	-	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTD
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-15
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
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	Perce PFHxS	ent Isotope PFOS	Dilution Re	covery (Ac	•	imits)	
Lab Sample ID	Client Sample ID	C3PFBS (50-150)		•			•	imits)	
<u> </u>	Client Sample ID SB10-26.8-32.0		PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA	imits)	
320-76677-1		(50-150)	PFHxS (50-150)	PFOS (50-150)	d3NMFOS (50-150)	d5NEFOS (50-150)	HFPODA (50-150)	imits)	
320-76677-1 320-76677-1 MS	SB10-26.8-32.0	(50-150) 80	PFHxS (50-150) 85	PFOS (50-150) 87	d3NMFOS (50-150) 86	<b>d5NEFOS</b> (50-150) 89	HFPODA (50-150) 84	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD	SB10-26.8-32.0 SB10-26.8-32.0	(50-150) 80 72	PFHxS (50-150) 85 82	PFOS (50-150) 87 84	d3NMFOS (50-150) 86 85	<b>d5NEFOS</b> (50-150) 89 86	HFPODA (50-150) 84 82	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0	(50-150) 80 72 76	<b>PFHxS</b> (50-150)  85  82  80	<b>PFOS</b> (50-150)  87  84  95	d3NMFOS (50-150) 86 85 89	<b>d5NEFOS</b> (50-150)  89  86  98	HFPODA (50-150) 84 82 84	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0	(50-150) 80 72 76 81	PFHxS (50-150) 85 82 80 81	PFOS (50-150) 87 84 95 91	<b>d3NMFOS</b> (50-150)  86  85  89  89	d5NEFOS (50-150) 89 86 98 91	HFPODA (50-150) 84 82 84 80	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1	(50-150) 80 72 76 81 65	<b>PFHxS</b> (50-150)  85 82 80 81 70	<b>PFOS</b> (50-150)  87  84  95  91  76	(50-150) 86 85 89 89 76	<b>d5NEFOS</b> (50-150)  89  86  98  91  84	HFPODA (50-150) 84 82 84 80 75	imits)	
Lab Sample ID 320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-5	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2	(50-150)  80  72  76  81  65  66	85 82 80 81 70 69	PFOS (50-150) 87 84 95 91 76 73	86 85 89 89 76 63	<b>d5NEFOS</b> (50-150)  89  86  98  91  84  70	84 82 84 80 75 66	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-6	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3	(50-150)  80  72  76  81  65  66  82	<b>PFHxS</b> (50-150)  85 82 80 81 70 69 78	PFOS (50-150)  87  84  95  91  76  73  90	86 85 89 89 76 63 96	<b>d5NEFOS</b> (50-150)  89  86  98  91  84  70  85	84 82 84 80 75 66 84	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-6 320-76677-7	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB111-2.3-3.3	72 76 81 65 66 82 68	<b>PFHxS</b> (50-150)  85 82 80 81 70 69 78 75	PFOS (50-150) 87 84 95 91 76 73 90 81	86 85 89 89 76 63 96 66	d5NEFOS (50-150) 89 86 98 91 84 70 85 70	84 82 84 80 75 66 84 70	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-6 320-76677-7 320-76677-7	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB111-2.3-3.3	(50-150)  80 72 76 81 65 66 82 68 78	PFHxS (50-150) 85 82 80 81 70 69 78 75	PFOS (50-150) 87 84 95 91 76 73 90 81 84	86 85 89 89 76 63 96 66 79	d5NEFOS (50-150) 89 86 98 91 84 70 85 70 88	84 82 84 80 75 66 84 70 82	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-6 320-76677-7 320-76677-8 320-76677-9	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB11-2.3-3.3 SB11-22.5-25.4 SB11-31.4-32.0	(50-150)  80 72 76 81 65 66 82 68 78 79	85 82 80 81 70 69 78 75 79	PFOS (50-150) 87 84 95 91 76 73 90 81 84 89	86 85 89 89 76 63 96 66 79	d5NEFOS (50-150) 89 86 98 91 84 70 85 70 88 81	84 82 84 80 75 66 84 70 82	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-6 320-76677-7 320-76677-8 320-76677-9 320-76677-10	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB11-2.3-3.3 SB11-22.5-25.4 SB11-31.4-32.0 SB12-0.3-0.8	(50-150)   80   72   76   81   65   66   82   68   78   79   79	85 82 80 81 70 69 78 75 79 80 84	PFOS (50-150) 87 84 95 91 76 73 90 81 84 89 81	86 85 89 76 63 96 66 79 84 76	d5NEFOS (50-150) 89 86 98 91 84 70 85 70 88 81 81	84 82 84 80 75 66 84 70 82 80 89	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5 320-76677-6 320-76677-7 320-76677-8 320-76677-9 320-76677-10 320-76677-11	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB111-2.3-3.3 SB111-2.5-25.4 SB11-31.4-32.0 SB12-0.3-0.8 SB12-15.0-16.0 SB-121-15.0-16.0	(50-150)  80 72 76 81 65 66 82 68 78 79 79 71	85 82 80 81 70 69 78 75 79 80 84 74	PFOS (50-150)  87  84  95  91  76  73  90  81  84  89  81  82  77	86 85 89 89 76 63 96 66 79 84 76 73	d5NEFOS (50-150) 89 86 98 91 84 70 85 70 88 81 81 74	84 82 84 80 75 66 84 70 82 80 89 79	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-5	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB111-2.3-3.3 SB111-2.5-25.4 SB11-31.4-32.0 SB12-0.3-0.8 SB12-15.0-16.0 SB-121-15.0-16.0 SB-12-35.0-35.7	(50-150)  80 72 76 81 65 66 82 68 78 79 79 71 68	85 82 80 81 70 69 78 75 79 80 84 74	PFOS (50-150)  87  84  95  91  76  73  90  81  84  89  81  82  77  88	86 85 89 76 63 96 66 79 84 76 73 73 82	d5NEFOS (50-150) 89 86 98 91 84 70 85 70 88 81 81 74 77	84 82 84 80 75 66 84 70 82 80 89 79 78	imits)	
320-76677-1 320-76677-1 MS 320-76677-1 MSD 320-76677-2 320-76677-3 320-76677-4 320-76677-6 320-76677-7 320-76677-8 320-76677-9 320-76677-10 320-76677-11	SB10-26.8-32.0 SB10-26.8-32.0 SB10-26.8-32.0 SB101-26.8-32.0 SB10-36.0-37.1 SB11-0.3-1.2 SB11-2.3-3.3 SB111-2.3-3.3 SB111-2.5-25.4 SB11-31.4-32.0 SB12-0.3-0.8 SB12-15.0-16.0 SB-121-15.0-16.0	(50-150)   80   72   76   81   65   66   82   68   78   79   79   71   68   72	PFHxS (50-150) 85 82 80 81 70 69 78 75 79 80 84 74 72	PFOS (50-150)  87  84  95  91  76  73  90  81  84  89  81  82  77	86 85 89 89 76 63 96 66 79 84 76 73	d5NEFOS (50-150) 89 86 98 91 84 70 85 70 88 81 81 74	84 82 84 80 75 66 84 70 82 80 89 79	imits)	

#### **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

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## **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS d3NMFOS = d3-NMeFOSAA d5NEFOS = d5-NEtFOSAA HFPODA = 13C3 HFPO-DA Job ID: 320-76677-1

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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

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

									• • • • • •
	MB	MB							
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 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	0.0232	J	0.20	0.023	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg		07/26/21 18:34	07/28/21 03:48	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MR	MR							

MB	MB	

	IVIB	IVIB			
Isotope Dilution	%Recovery	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
1802 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
	Pren Type: Total/NA

Prep Batch: 510461

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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7/31/2021

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-510461/2-A

**Matrix: Solid** 

13C3 HFPO-DA

Lab Sample ID: 320-76677-1 MS

**Analysis Batch: 510877** 

**Client Sample ID: Lab Control Sample** 

			Prep Type: Total/NA Prep Batch: 510461
			%Rec.
Unit	D	%Rec	Limits
ug/Kg		101	69 - 133

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorodecanoic acid (PFDA)	2.00	2.01		ug/Kg		101	69 - 133	
Perfluoroundecanoic acid	2.00	2.10		ug/Kg		105	64 - 136	
(PFUnA)								
Perfluorododecanoic acid	2.00	2.16		ug/Kg		108	69 - 135	
(PFDoA)								
Perfluorotridecanoic acid	2.00	2.18		ug/Kg		109	66 - 139	
(PFTriA)								
Perfluorotetradecanoic acid	2.00	1.90		ug/Kg		95	69 - 133	
(PFTeA)								
Perfluorobutanesulfonic acid	1.77	1.99		ug/Kg		112	72 - 128	
(PFBS)								
Perfluorohexanesulfonic acid	1.82	1.83		ug/Kg		100	67 <sub>-</sub> 130	
(PFHxS)	4.00	4.70		".			00 100	
Perfluorooctanesulfonic acid	1.86	1.78		ug/Kg		96	68 - 136	
(PFOS)						404		
N-methylperfluorooctanesulfona	2.00	2.08		ug/Kg		104	63 - 144	
midoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonami	2.00	2.21		ug/Kg		110	61 - 139	
doacetic acid (NEtFOSAA)	2.00	2.21		ug/ixg		110	01-139	
9-Chlorohexadecafluoro-3-oxan	1.86	1.74		ug/Kg		94	75 - 135	
onane-1-sulfonic acid	1.00	1.7-7		ug/itg		04	70-100	
Hexafluoropropylene Oxide	2.00	1.90		ug/Kg		95	77 - 137	
Dimer Acid (HFPO-DA)	2.00	1.00		ug/itg		00	77 - 107	
11-Chloroeicosafluoro-3-oxaund	1.88	1.62		ug/Kg		86	76 - 136	
ecane-1-sulfonic acid				5. 5				
4,8-Dioxa-3H-perfluorononanoic	1.88	1.74		ug/Kg		93	79 - 139	
acid (ADONA)				5 0				
LCS	CLCS							

Isotope Dilution %Recovery Qualifier Limits 13C2 PFHxA 89 50 - 150 13C4 PFHpA 77 50 - 150 13C4 PFOA 82 50 - 150 13C5 PFNA 79 50 - 150 77 50 - 150 13C2 PFDA 13C2 PFUnA 82 50 - 150 76 50 - 150 13C2 PFDoA 13C2 PFTeDA 80 50 - 150 13C3 PFBS 75 50 - 150 1802 PFHxS 83 50 - 150 13C4 PFOS 88 50 - 150 d3-NMeFOSAA 80 50 - 150 d5-NEtFOSAA 76 50 - 150

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Client Sample ID: SB10-26.8-32.0

Prep Type: Total/NA **Prep Batch: 510461** 

**Matrix: Solid Analysis Batch: 510877** Sample Sample MS MS %Rec. Spike Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits ND 2.04 <u>~</u> 95 70 - 132 Perfluorohexanoic acid (PFHxA) 1.94 ug/Kg Perfluoroheptanoic acid (PFHpA) ND 2.04 2.21 ug/Kg ☼ 108 71 - 131 Perfluorooctanoic acid (PFOA) ND 2.04 2.03 100 69 - 133 ug/Kg Ö

50 - 150

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76677-1 MS **Client Sample ID: SB10-26.8-32.0** 

**Matrix: Solid** 

Prep Type: Total/NA

**Analysis Batch: 510877 Prep Batch: 510461** Spike MS MS %Rec Sample Sample

	Sample	Sample	<b>Spike</b>	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorononanoic acid (PFNA)	ND		2.04	2.07		ug/Kg	<u></u>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.04	2.19		ug/Kg	☼	108	63 - 144	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.04	2.02		ug/Kg	₩	99	61 - 139	
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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	

	MS	MS	
Isotope Dilution	%Recovery	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
1802 PFHxS	82		50 <sub>-</sub> 150
13C4 PFOS	84		50 - 150
d3-NMeFOSAA	85		50 - 150
d5-NEtFOSAA	86		50 - 150
13C3 HFPO-DA	82		50 - 150

Sample Sample

ND

ND

Result Qualifier

Lab Sample ID: 320-76677-1 MSD

**Matrix: Solid** 

**Analysis Batch: 510877** 

Perfluorohexanoic acid (PFHxA)

Perfluoroheptanoic acid (PFHpA)

Client Sample ID: SB10-26.8-32.0 Prep Type: Total/NA **Prep Batch: 510461** %Rec. **RPD** Limits RPD Limit D %Rec ₩ 101 70 - 132 10 30

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71 - 131

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MSD MSD

2.15

2.25

Result Qualifier

Unit

ug/Kg

ug/Kg

Spike

Added

2.13

2.13

2

## **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76677-1 Project/Site: DLG-PFAS

## Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76677-	MSD						Clier	nt Samı	ole ID: SB		
Matrix: Solid Analysis Batch: 510877									Prep Ty Prep Ba		
Analysis Baton: 010011	Sample	Sample	Spike	MSD	MSD				%Rec.	atom. o	RPD
Analyte	•	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanoic acid (PFOA)	ND		2.13	2.22		ug/Kg	<u></u>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.13	2.40		ug/Kg	₩	112	63 - 144	9	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.13	1.93		ug/Kg	₩	91	61 - 139	4	30
9-Chlorohexadecafluoro-3-oxan	ND		1.99	1.86		ug/Kg	₽	93	75 - 135	2	30

2.13

2.01

2.01

2.10

1.67

1.83

ug/Kg

ug/Kg

ug/Kg

99

83

91

₩

77 - 137

76 - 136

79 - 139

15

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MSD	MSD

ND

ND

ND

Isotope Dilution	%Recovery	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
1802 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

onane-1-sulfonic acid Hexafluoropropylene Oxide

Dimer Acid (HFPO-DA)

ecane-1-sulfonic acid

acid (ADONA)

11-Chloroeicosafluoro-3-oxaund

4,8-Dioxa-3H-perfluorononanoic

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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** 

<b>Lab Sample ID</b> 320-76677-7	Client Sample ID SB11-22.5-25.4	Prep Type Total/NA	Matrix Solid	Method EPA 537(Mod)	Prep Batch 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 SB10-26.8-32.0	Prep Type	Matrix	Method	Prep Batch
320-76677-1 320-76677-2	SB10-26.8-32.0 SB101-26.8-32.0	Total/NA Total/NA	Solid Solid	D 2216 D 2216	
320-76677-3	SB10-36.0-37.1	Total/NA	Solid	D 2216	

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## **QC Association Summary**

Client: Shannon & Wilson, Inc
Project/Site: DLG-PFAS

Job ID: 320-76677-1

## **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	

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Job ID: 320-76677-1

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

**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

Lab Sample ID: 320-76677-2

Lab Sample ID: 320-76677-3

Lab Sample ID: 320-76677-3

Lab Sample ID: 320-76677-4

Percent Solids: 90.2

**Matrix: Solid** 

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/15/21 13:36

**Matrix: Solid** Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			510292	07/26/21 12:38	TCS	TAL SAC

Date Collected: 07/15/21 13:36

Date Received: 07/23/21 11:22

Iotal/NA	Analysis D 2216	1	510292 07/26/21 12:38 TCS TAL SAC
<b>Client Sam</b>	ple ID: SB101-26.8-32.0		Lab Sample ID: 320-76677-2
<b>Date Collecte</b>	ed: 07/15/21 13:36		Matrix: Solid

Batch Batch Dil Initial Final Batch Prepared Amount Number Method Amount or Analyzed Analyst **Prep Type** Type **Factor** Run Lab Total/NA SHAKE 510461 07/26/21 18:34 AM TAL SAC Prep 5.59 g 10 0 ml Total/NA Analysis EPA 537(Mod) 510877 07/28/21 04:35 K1S TAL SAC 1

Client Sample ID: SB10-36.0-37.1

Date Collected: 07/15/21 16:59

Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			510292	07/26/21 12:38	TCS	TAL SAC

Date Collected: 07/15/21 16:59 Matrix: Solid Date Received: 07/23/21 11:22 Percent Solids: 85.7

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/17/21 09:34

Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			510292	07/26/21 12:38	TCS	TAL SAC

Eurofins TestAmerica, Sacramento

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Matrix: Solid

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/17/21 10:58 Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-5

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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

Dran Trens	Batch	Batch	Dun	Dil	Initial	Final	Batch	Prepared	Amalust	l ab
Prep Type Total/NA	Type Prep	Method SHAKE	Run	Factor	5.13 g	Amount 10.0 mL	Number 510461	or Analyzed 07/26/21 18:34	Analyst 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** 

Date Collected: 07/17/21 10:48

Date Received: 07/23/21 11:22

Lab Samp	le ID:	320-76677-6
		Matrice Callel

Lab Sample ID: 320-76677-7

Matrix: Solid

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/17/21 13:36

Date Received: 07/23/21 11:22

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			510292	07/26/21 12:38	TCS	TAL SAC

Eurofins TestAmerica, Sacramento

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/17/21 15:08 Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-8

Matrix: Solid

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/19/21 15:10

Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-9

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/19/21 15:10

Date Received: 07/23/21 11:22

Lab Sample ID: 320-76677-9 Matrix: Solid

Lab Cample ID: 200 70077 40

Percent Solids: 81.3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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: SR12-15 0-16 0

Client Sample ID: 5B12-15.0-16.0	Lab Sample ID: 320-76677-10
Date Collected: 07/19/21 16:48	Matrix: Solid
Date Received: 07/23/21 11:22	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			510292	07/26/21 12:38	TCS	TAL SAC

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Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

**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

**Matrix: Solid** 

**Matrix: Solid** 

Percent Solids: 77.1

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Date Received: 07/23/21 11:22 Matrix: Solid

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method **Amount Amount** Number or Analyzed Type Run **Factor** Analyst Lab Total/NA Analysis D 2216 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

Batch Batch Dil Initial Final **Batch Prepared** Method Factor **Amount** Number or Analyzed **Prep Type** Type Run Amount **Analyst** Lab Total/NA Prep SHAKE 510461 07/26/21 18:34 TAL SAC 5.59 g 10.0 mL AM 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

Date Received: 07/23/21 11:22

Dil Batch Initial Final Batch **Prepared** Batch **Prep Type** Type Method **Factor** Amount Amount Number or Analyzed Run Analyst Lab 510292 Total/NA Analysis D 2216 07/26/21 12:38 TCS TAL SAC 1

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

Batch Batch Dil Initial Final **Batch** Prepared **Prep Type** Type Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA SHAKE 510461 07/26/21 18:34 AM TAL SAC Prep 5.41 g 10.0 mL Total/NA Analysis 511264 07/29/21 12:16 GWO TAL SAC EPA 537(Mod) 1

Client Sample ID: SB-12-40.0-40.6 Lab Sample ID: 320-76677-13

Date Collected: 07/19/21 18:32 Date Received: 07/23/21 11:22

Dil Batch Batch Initial Final Batch **Prepared** Method **Factor** Amount Amount Number or Analyzed **Prep Type** Type Run Analyst Lab D 2216 510292 07/26/21 12:38 TCS TAL SAC Total/NA Analysis

#### **Lab Chronicle**

Client: Shannon & Wilson, Inc Job ID: 320-76677-1

Project/Site: DLG-PFAS

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

Matrix: Solid
Percent Solids: 90.0

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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## **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	Pro	ogram	Identification Number	Expiration Date	
Alaska (UST)	Sta	ate	17-020	02-20-24	
the agency does not	•	rt, but the laboratory is r	not certified by the governing authority.	This list may include analyte	es for whi
,	•	rt, but the laboratory is r Matrix	not certified by the governing authority.  Analyte	I his list may include analyte	es for whi
the agency does not o	offer certification.	•	, , ,	This list may include analyte	es for whi

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## **Method Summary**

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

Method **Method Description** Protocol Laboratory EPA 537(Mod) PFAS for QSM 5.3, Table B-15 EPA TAL SAC TAL SAC D 2216 Percent Moisture **ASTM** 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

Job ID: 320-76677-1

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## **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
20-76677-7	SB11-22.5-25.4	Solid	07/17/21 13:36	07/23/21 11:22
20-76677-8	SB11-31.4-32.0	Solid	07/17/21 15:08	07/23/21 11:22
20-76677-9	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
20-76677-11	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

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Т

SHANNON & WILSON, INC.	CHAIN	-OF-CUSTOD	Y RECORD	Laborato	Page 1 of 2 ry Test American
2355 Hill Road Fairbanks, AK 99709 (907) 479-0600			Analytical Methods (inclu	Attn:	and Aceticker
www.shannonwilson.com			/ / / /	<del>, , , , , , , , , , , , , , , , , , , </del>	
Turn Around Time: Quote N	0:				Zaine is
Normal Rush MSA Nu	mber: TBD	100/			Remarks/Matrix Composition/Grab? Sample Containers
Please Specify J-Flags:	Yes No				Remarks/Matrix
Sample Identity Lab No.	Date Time Samp	e oled			
5B10-26.8-32.0	1326 7119			1	3016
5B101-26.8-32.0	1336	Y			
SB10-36.0-37.1	1659 V	<u> </u>			
SB11-0.3-1.2	0934 714				
5811-2.3-3.3	1058	X			
<b>B</b> BU1-2.3-3.3	1048				
SB11 - 22.5 - 25.4	1336	320-76677	Chain of Custody	2	
SBM-31.4-32.0	1508 V	io			
SB12-0.3-0.8	1510 7/19	121 >			
5B12-15.0-16.0	1648			I V	V
	ple Receipt	Reliquished By: 1.	Reliquished By:		Reliquished By: 3.
Number: 10)581-009 Total No. of Co.	10	Signature: Time: 19		Time: 1125 Sign.	ature: Time:
Name: DLC - PFA5 COC Seals/Int Contact: Marcy Nedel Received Goo		Printed Name Date:		Date: 312314 Print	ed Name: Date:
Ongoing Project? Yes No Temp:		Veselina Jakmova	Saturtar organ		
Sampler: Delivery Metho	d. goldstreak c	Company:	Company:	Com	pany:
Notes:		Sharmon & Wilson			1 D 1 3 1 1 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3
		Received By: 1.	Received By:	2.	Received By: 3.
		Signature: Time: 1/22	Signature: 1	Time:Signa	ature: Time:
	P	Printed Name: Date: 712	Printed Name:	Date: Print	ed Name: Date:
Distribution White websites in the Comment	Miles	Salvador dropeza			
Distribution: White - w/shipment - returned to Shannon & Yellow - w/shipment - for consignee files	vilson w/ laboratory report	ETBSAC	Company:	Com	pany:
Pink - Shannon & Wilson - job file					

3.5° No.











7/31/2021









Client: Shannon & Wilson, Inc

Job Number: 320-76677-1

Login Number: 76677 List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Cahill, Nicholas P

Creator. Carrin, Nicrotas F		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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**

Con	npleted By:
	Justin Risley
Title	e:
	Engineering Staff
Date	e:
	August 11, 2021
Con	sultant Firm:
	Shannon & Wilson, Inc.
Lab	oratory Name:
	Eurofins Environment Testing
Lab	oratory Report Number:
	320-76677-1
Lab	oratory Report Date:
	July 31, 2021
CS	Site Name:
	Dillingham DOT&PF
AD	EC File Number:
	2540.38.023
Haz	ard Identification Number:
	26971

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	320-76677-1
Lab	poratory 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
1.	Laboratory
	a. Did an ADEC CS approved laboratory receive and <u>perform</u> 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b. Correct analyses requested?
	$Yes \boxtimes No \square N/A \square$ Comments:
3.	Laboratory Sample Receipt Documentation
	a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other
	than temperature control.

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320-76677-1	
Laboratory Report Date:	
July 31, 2021	
CS Site Name:	
Dillingham DOT&PF	
<ul> <li>c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>	
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.?	
$Yes \square No \square N/A \boxtimes Comments:$	
No discrepancies were noted.	
e. Data quality or usability affected?	
Comments:	
Data quality and/or usability are not affected; see above.	
4. <u>Case Narrative</u>	
a. Present and understandable?	
Yes⊠ No□ N/A□ Comments:	
b. Discrepancies, errors, or QC failures identified by the lab?	
Yes $\boxtimes$ No $\square$ N/A $\square$ 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.	1
c. Were all corrective actions documented?	
$Yes \square No \square N/A \boxtimes Comments:$	
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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	320	0-76	77-1
Lal	bora	ıtory	Report Date:
	Jul	y 31	2021
CS	Sit	e Na	ne:
	Di	lling	am DOT&PF
5.	Sai	mple	<u>Results</u>
		0	Correct analyses performed/reported as requested on COC?
		a.	Yes⊠ No□ N/A□ Comments:
	L	b.	all applicable holding times met?
	F		$Yes \boxtimes No \square N/A \square$ Comments:
		c.	all soils reported on a dry weight basis?
	Г		$Yes \boxtimes No \square N/A \square$ Comments:
			are the reported LOQs less than the Cleanup Level or the minimum required detection level for ne project?
	ſ		$Yes \boxtimes No \square N/A \square$ Comments:
		e.	Data quality or usability affected?
		The	data quality/usability is not affected; see above.
6.	QC	Sar	<u>ples</u>
		a.	Method Blank
			i. One method blank reported per matrix, analysis and 20 samples?
			Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	L		ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
			Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
		N-n	ethylperfluorooctanesulfonamidoacetic acid (NMeFOSAA) was detected at an estimated

concentration in the method blank sample associated with preparation batch 320-510461.

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320-76677-1
Laboratory Report Date:
July 31, 2021
CS Site Name:
Dillingham DOT&PF
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 $\square$ No $\square$ N/A $\boxtimes$ 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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
Yes $\boxtimes$ No $\square$ N/A $\square$ 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?
$Yes \square No \square N/A \boxtimes Comments:$
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)
$Yes \boxtimes No \square N/A \square$ Comments:

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aboratory Report Date:  July 31, 2021  S Site Name:  Dillingham DOT&PF  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:	320-76677-1	
S Site Name:  Dillingham DOT&PF   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?	aboratory Report Date:	
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?	July 31, 2021	
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?	S Site Name:	
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 NAM 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/AM 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?	Dillingham DOT&PF	
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?	limits and project speci sample/sample duplica QC pages)	ified objectives, if applicable? RPD reported from LCS/LCSD, and or
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?		
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?	An LCSD was not reported; me	ethod precision is assessed in section 6.d.iv.
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?	v. If %R or RPD is outside	<u>.                                      </u>
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?	No samples are affected. Metho	od accuracy was demonstrated to be within acceptance criteria.
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?	vi. Do the affected sample	e(s) have data flags? If so, are the data flags clearly defined?
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?	•	
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?		
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?	vii. Data quality or usability	y affected? (Use comment box to explain.)
<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> </ul>	1 3	• • • • • • • • • • • • • • • • • • • •
Note: Leave blank if not required for project  i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?	The data quality/usability is no	t affected.
	Note: Leave blank if not r  i. Organics – One MS/M	required for project  SD reported per matrix, analysis and 20 samples?
ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?	_	
Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:  Metals and/or inorganics were not analyzed as a part of this work order.		

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32	20-76677-1
Labor	atory Report Date:
Ju	ly 31, 2021
CS Si	te Name:
Di	illingham DOT&PF
	<ul> <li>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)</li> <li>Yes ⋈ No ⋈ N/A ⋈ Comments:</li> </ul>
	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 $\square$ No $\square$ N/A $\boxtimes$ 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
	<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
	Yes⊠ No□ N/A□ Comments:

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320-76677-1
Laboratory Report Date:
July 31, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>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)</li> </ul>
$Yes \boxtimes No \square N/A \square$ 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
<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)</li> </ul>
Yes $\square$ No $\square$ N/A $\boxtimes$ 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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320-76677-1
Laboratory Report Date:
July 31, 2021
CS Site Name:
Dillingham DOT&PF
v. Data quality or usability affected?  Comments:
The data quality/usability is not affected.
f. Field Duplicate
<ul> <li>i. One field duplicate submitted per matrix, analysis and 10 project samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
Yes⊠ No□ N/A□ Comments:
ii. Submitted blind to lab?
$Yes \boxtimes No \square N/A \square$ Comments:
The field duplicate pairs <i>SB10-26.8-32.0 / SB101-26.8-32.0</i> , <i>SB11-2.3-3.3 / SB111-2.3-3.3</i> , and <i>SB12-15.0-16.0 / SB-121-15.0-16.0</i> 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 $\square$ No $\boxtimes$ N/A $\square$ 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 <i>SB11-2.3-3.3</i> and <i>SB111-2.3-3.3</i> 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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320-76677-1
Laboratory Report Date:
July 31, 2021
CS Site Name:
Dillingham DOT&PF
g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?
Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:
Samples for this project are not collected with reusable equipment, therefore a practical potential for equipment based cross-contamination does not exist.
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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 $\square$ No $\square$ N/A $\boxtimes$ 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.

Page 10 November 2019



# **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

Jamil Ottima

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS Laboratory Job ID: 320-76864-1

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## **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76864-1

Project/Site: DLG-PFAS

### **Qualifiers**

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
1	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)

RLReporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points **RPD** 

TEF Toxicity Equivalent Factor (Dioxin) TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

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#### **Case Narrative**

Client: Shannon & Wilson, Inc Job ID: 320-76864-1
Project/Site: DLG-PFAS

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 4.6° 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.

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

Lab Sample ID: 320-76864-1 Client Sample ID: SB13-0-0.5

Analyte Perfluorohexanoic acid (PFHxA) Perfluorooctanoic acid (PFOA)	0.26 0.12	Qualifier	RL 0.20 0.20		Unit ug/Kg ug/Kg	1	<del>_</del>	,	Prep Type Total/NA Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.21		0.20	0.038	ug/Kg	1	₩.	EPA 537(Mod)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)  Perfluorooctanesulfonic acid (PFOS) -  DL	3.5 32		0.20 1.0		ug/Kg ug/Kg			EPA 537(Mod) EPA 537(Mod)	Total/NA Total/NA

**Client Sample ID: SB13-10.9-11.4** 

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	6.4		0.33	0.051	ug/Kg		₩	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

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** 

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

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

Client Sample ID: SB14-140.6-141.8

No Detections.

No Detections.

Client Sample ID: SB14-21.2-21.7

No Detections.

This Detection Summary does not include radiochemical test results.

Lab Sample ID: 320-76864-2

Lab Sample ID: 320-76864-3

Lab Sample ID: 320-76864-4

Lab Sample ID: 320-76864-5

Lab Sample ID: 320-76864-6

Lab Sample ID: 320-76864-7

Lab Sample ID: 320-76864-8

Job ID: 320-76864-1

Client: Shannon & Wilson, Inc

Project/Site: DLG-PFAS

Client Sample ID: SB13-0-0.5

Date Collected: 07/22/21 08:25 Date Received: 07/28/21 15:23

11-Chloroeicosafluoro-3-oxaundecan

4,8-Dioxa-3H-perfluorononanoic acid

e-1-sulfonic acid

(ADONA)

Lab Sample ID: 320-76864-1

© 07/30/21 11:43 08/01/21 10:55

© 07/30/21 11:43 08/01/21 10:55

**Matrix: Solid** Percent Solids: 95.7

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Perfluorohexanoic acid (PFHxA) 07/30/21 11:43 08/01/21 10:55 0.26 0.20 0.031 ug/Kg Perfluoroheptanoic acid (PFHpA) ND 0.20 0.038 ug/Kg 07/30/21 11:43 08/01/21 10:55 Perfluorooctanoic acid (PFOA) 0.12 J 0.20 0.053 ug/Kg © 07/30/21 11:43 08/01/21 10:55 Perfluorononanoic acid (PFNA) ND 0.20 0.022 ug/Kg Perfluorodecanoic acid (PFDA) ND 0.20 0.048 ug/Kg Perfluoroundecanoic acid (PFUnA) ND 0.20 0.042 ug/Kg ☼ 07/30/21 11:43 08/01/21 10:55 Perfluorododecanoic acid (PFDoA) ND 0.20 0.030 ug/Kg © 07/30/21 11:43 08/01/21 10:55 Perfluorotridecanoic acid (PFTriA) ND 0.20 0.021 ug/Kg © 07/30/21 11:43 08/01/21 10:55 Perfluorotetradecanoic acid (PFTeA) ND 0.20 0.037 ug/Kg © 07/30/21 11:43 08/01/21 10:55 Perfluorobutanesulfonic acid 0.21 0.20 0.038 ug/Kg 07/30/21 11:43 08/01/21 10:55 (PFBS) 0.20 0.029 ug/Kg © 07/30/21 11:43 08/01/21 10:55 Perfluorohexanesulfonic acid 3.5 (PFHxS) N-methylperfluorooctanesulfonamidoa ND 0.20 0.023 ug/Kg © 07/30/21 11:43 08/01/21 10:55 cetic acid (NMeFOSAA) ND 0.20 0.048 ug/Kg © 07/30/21 11:43 08/01/21 10:55 N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 0.20 0.035 ug/Kg © 07/30/21 11:43 08/01/21 10:55 e-1-sulfonic acid ND 0.20 0.041 ug/Kg © 07/30/21 11:43 08/01/21 10:55 Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)

0.20

0.20

0.031 ug/Kg

0.039 ug/Kg

(ADONA)					
Isotope Dilution	%Recovery Qu	ualifier Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA		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
1802 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

ND

ND

Method: EPA 537(Mod) - PFA	AS 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	<del></del>	07/30/21 11:43	08/02/21 22:04	5
Isotope Dilution 13C4 PFOS		Qualifier	Limits 50 - 150				<b>Prepared</b> 07/30/21 11:43	Analyzed 08/02/21 22:04	Dil Fac

General Chemistry Analyte	Result Qualifier	RL	MDL U	Init	D	Prepared	Analyzed	Dil Fac
Percent Moisture	4.3	0.1	0.1 %	<b>6</b>		•	07/29/21 14:17	1
Percent Solids	95.7	0.1	0.1 %	6			07/29/21 14:17	1

Eurofins TestAmerica, Sacramento

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1

Project/Site: DLG-PFAS

**Percent Solids** 

**Client Sample ID: SB13-10.9-11.4** 

Lab Sample ID: 320-76864-2 Date Collected: 07/22/21 11:15 **Matrix: Solid** Date Received: 07/28/21 15:23

Percent Solids: 60.0

Analyte	Result Qu	ualifier	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	
Perfluoroheptanoic acid (PFHpA)	1.5		0.33	0.063	ug/Kg	₩	07/30/21 11:43	08/02/21 22:13	•
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		ug/Kg	₩	07/30/21 11:43	08/02/21 22:13	1
Perfluorohexanesulfonic acid (PFHxS)	25		0.33		ug/Kg	₩		08/02/21 22:13	1
Perfluorooctanesulfonic acid (PFOS)	1.6 I		0.33		ug/Kg			08/02/21 22:13	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.33		ug/Kg			08/02/21 22:13	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.33		ug/Kg			08/02/21 22:13	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.33		ug/Kg			08/02/21 22:13	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.33		ug/Kg			08/02/21 22:13	,
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.33		ug/Kg			08/02/21 22:13	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.33	0.065	ug/Kg	₩	07/30/21 11:43	08/02/21 22:13	•
Isotope Dilution	%Recovery Qu		Limits				Prepared	Analyzed	Dil Fa
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	7
13C4 PFOA	81		50 - 150				07/30/21 11:43	08/02/21 22:13	
13C5 PFNA	58		50 - 150				07/30/21 11:43	08/02/21 22:13	
13C2 PFDA	86		50 - 150				07/30/21 11:43	08/02/21 22:13	
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	
13C2 PFTeDA	71		50 - 150				07/30/21 11:43	08/02/21 22:13	
13C3 PFBS	116		50 - 150				07/30/21 11:43	08/02/21 22:13	
1802 PFHxS	88		50 - 150				07/30/21 11:43	08/02/21 22:13	
13C4 PFOS	73		50 - 150					08/02/21 22:13	
d3-NMeFOSAA	59		50 - 150					08/02/21 22:13	
d5-NEtFOSAA	55		50 - 150				07/30/21 11:43	08/02/21 22:13	
13C3 HFPO-DA	89		50 - 150					08/02/21 22:13	
General Chemistry	B # 6				1124	_	<b>D</b>	A mod .	D.: -
Analyte	Result Qu	ualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	40.0		0.1	0.1	%			07/29/21 14:17	1

Eurofins TestAmerica, Sacramento

0.1

0.1 %

60.0

07/29/21 14:17

Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

Client Sample ID: SB13-35-37.5

Lab Sample ID: 320-76864-3 Date Collected: 07/22/21 11:20 **Matrix: Solid** Date Received: 07/28/21 15:23

Percent Solids: 92.2

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	0.042	J	0.21	0.033	ug/Kg	☆	07/30/21 11:43	08/01/21 11:14	
Perfluoroheptanoic acid (PFHpA)	ND		0.21	0.040	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	
Perfluorooctanoic acid (PFOA)	ND		0.21	0.056	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	
Perfluorononanoic acid (PFNA)	ND		0.21	0.023	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	
Perfluorodecanoic acid (PFDA)	ND		0.21	0.051	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	
Perfluoroundecanoic acid (PFUnA)	ND		0.21	0.044	ug/Kg	₩	07/30/21 11:43	08/01/21 11:14	•
Perfluorododecanoic acid (PFDoA)	ND		0.21	0.032	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	
Perfluorotridecanoic acid (PFTriA)	ND		0.21	0.022	ug/Kg	₩	07/30/21 11:43	08/01/21 11:14	•
Perfluorotetradecanoic acid (PFTeA)	ND		0.21	0.039	ug/Kg	₩	07/30/21 11:43	08/01/21 11:14	•
Perfluorobutanesulfonic acid (PFBS)	ND		0.21	0.040	ug/Kg	₩	07/30/21 11:43	08/01/21 11:14	
Perfluorohexanesulfonic acid (PFHxS)	0.15	J	0.21	0.031	ug/Kg	☼	07/30/21 11:43	08/01/21 11:14	
Perfluorooctanesulfonic acid (PFOS)	0.38		0.21	0.045	ug/Kg	₩	07/30/21 11:43	08/01/21 11:14	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.21		ug/Kg	₩		08/01/21 11:14	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.21		ug/Kg	₩		08/01/21 11:14	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.21		ug/Kg			08/01/21 11:14	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.21		ug/Kg	☼		08/01/21 11:14	•
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.21		ug/Kg	☼		08/01/21 11:14	•
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
lsotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	95		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C4 PFHpA	76		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C4 PFOA	80		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C5 PFNA	83		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C2 PFDA	100		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C2 PFUnA	98		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C2 PFDoA	84		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C2 PFTeDA	83		50 <sub>-</sub> 150				07/30/21 11:43	08/01/21 11:14	
13C3 PFBS	80		50 <sub>-</sub> 150				07/30/21 11:43	08/01/21 11:14	
18O2 PFHxS	85		50 - 150				07/30/21 11:43	08/01/21 11:14	
13C4 PFOS	93		50 <sub>-</sub> 150					08/01/21 11:14	
d3-NMeFOSAA	79		50 - 150					08/01/21 11:14	
d5-NEtFOSAA	86		50 - 150					08/01/21 11:14	
13C3 HFPO-DA	72		50 - 150					08/01/21 11:14	•
General Chemistry				<b>.</b> :		_	_		
Analyte		Qualifier	RL	MDL		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

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1

Project/Site: DLG-PFAS

**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

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 0.21 0.033 ug/Kg 07/30/21 11:43 08/01/21 11:23 ND Perfluoroheptanoic acid (PFHpA) 0.21 0.040 ug/Kg 07/30/21 11:43 08/01/21 11:23 Perfluorooctanoic acid (PFOA) ND 0.21 0.056 ug/Kg 07/30/21 11:43 08/01/21 11:23 Perfluorononanoic acid (PFNA) ND 0.21 0.023 ug/Kg Perfluorodecanoic acid (PFDA) ND 0.21 0.051 ug/Kg 07/30/21 11:43 08/01/21 11:23 Perfluoroundecanoic acid (PFUnA) ND 0.21 0.045 ug/Kg Perfluorododecanoic acid (PFDoA) ND 0.21 0.032 ug/Kg Perfluorotridecanoic acid (PFTriA) ND 0.21 0.022 ug/Kg Perfluorotetradecanoic acid (PFTeA) ND 0.21 0.039 ug/Kg 07/30/21 11:43 08/01/21 11:23 0.040 ug/Kg Perfluorobutanesulfonic acid (PFBS) ND 0.21 07/30/21 11:43 08/01/21 11:23 Perfluorohexanesulfonic acid 0.21 0.031 ug/Kg 0.16 J (PFHxS) © 07/30/21 11:43 08/01/21 11:23 Perfluorooctanesulfonic acid 0.21 0.046 ug/Kg 0.35 (PFOS) N-methylperfluorooctanesulfonamidoa ND 0.21 07/30/21 11:43 08/01/21 11:23 0.024 ug/Kg cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac ND 0.21 0.051 ug/Kg etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 0.21 0.037 ug/Kg e-1-sulfonic acid ND 0.21 Hexafluoropropylene Oxide Dimer 0.043 ug/Kg Acid (HFPO-DA) ND 0.21 0.033 ug/Kg 11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid ND 07/30/21 11:43 08/01/21 11:23 4,8-Dioxa-3H-perfluorononanoic acid 0.21 0.041 ug/Kg (ADONA) Isotope Dilution %Recovery Limits Qualifier Prepared Analyzed Dil Fac 13C2 PFHxA 94 50 - 150 13C4 PFHpA 79 50 - 150 13C4 PFOA 84 50 - 150 86 13C5 PFNA 50 - 150 13C2 PFDA 99 50 - 150 13C2 PFUnA 98 50 - 150 85 13C2 PFDoA 50 - 150 13C2 PFTeDA 89 50 - 150 07/30/21 11:43 08/01/21 11:23 13C3 PFBS 85 50 - 150 1802 PFHxS 86 50 - 150 50 - 150 13C4 PFOS 99 d3-NMeFOSAA 89 50 - 150 d5-NEtFOSAA 94 50 - 150 50 - 150 13C3 HFPO-DA 66 

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

8/8/2021

6

Client: Shannon & Wilson, Inc Job ID: 320-76864-1

Project/Site: DLG-PFAS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	0.037	J	0.19	0.030	ug/Kg	☆	07/30/21 11:43	08/01/21 11:33	
Perfluoroheptanoic acid (PFHpA)	ND		0.19	0.037	ug/Kg	₽	07/30/21 11:43	08/01/21 11:33	
Perfluorooctanoic acid (PFOA)	ND		0.19	0.052	ug/Kg	₽	07/30/21 11:43	08/01/21 11:33	
Perfluorononanoic acid (PFNA)	ND		0.19	0.021	ug/Kg	₩	07/30/21 11:43	08/01/21 11:33	
Perfluorodecanoic acid (PFDA)	ND		0.19	0.047	ug/Kg	≎	07/30/21 11:43	08/01/21 11:33	
Perfluoroundecanoic acid (PFUnA)	ND		0.19	0.041	ug/Kg	₽	07/30/21 11:43	08/01/21 11:33	•
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.19	0.022	ug/Kg	₽	07/30/21 11:43	08/01/21 11:33	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.19	0.047	ug/Kg	₩	07/30/21 11:43	08/01/21 11:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		0.19		ug/Kg	<b>.</b>	07/30/21 11:43	08/01/21 11:33	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		0.19		ug/Kg	₩	07/30/21 11:43	08/01/21 11:33	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		0.19		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
lsotope 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 <sub>-</sub> 150				07/30/21 11:43	08/01/21 11:33	1
13C3 PFBS	77		50 <sub>-</sub> 150				07/30/21 11:43	08/01/21 11:33	1
1802 PFHxS	73		50 - 150				07/30/21 11:43	08/01/21 11:33	
13C4 PFOS	85		50 <sub>-</sub> 150					08/01/21 11:33	1
d3-NMeFOSAA	90		50 - 150					08/01/21 11:33	1
d5-NEtFOSAA	87		50 - 150					08/01/21 11:33	
13C3 HFPO-DA	68		50 - 150					08/01/21 11:33	1
General Chemistry							_		
Analyte		Qualifier	RL		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

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1

Project/Site: DLG-PFAS

13C3 HFPO-DA

Analyte

**General Chemistry** 

**Percent Moisture** 

**Percent Solids** 

**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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.25	0.039	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.25	0.029	ug/Kg	₽	07/30/21 11:43	08/01/21 11:42	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.25	0.061	ug/Kg	₽	07/30/21 11:43	08/01/21 11:42	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 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	
13C2 PFTeDA	82		50 <sub>-</sub> 150					08/01/21 11:42	1
13C3 PFBS	85		50 <sub>-</sub> 150					08/01/21 11:42	1
1802 PFHxS	90		50 - 150					08/01/21 11:42	1
13C4 PFOS	107		50 <sub>-</sub> 150					08/01/21 11:42	1
d3-NMeFOSAA	93		50 <sub>-</sub> 150					08/01/21 11:42	1
d5-NEtFOSAA	91		50 - 150					08/01/21 11:42	

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Analyzed

07/29/21 14:17

07/29/21 14:17

50 - 150

RL

0.1

0.1

Result Qualifier

22.6

77.4

MDL Unit

0.1 %

0.1 %

D

Prepared

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

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

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 Analyte Result Qualifier **MDL** Unit Dil Fac RL D Prepared Analyzed Perfluorohexanoic acid (PFHxA) ND 0.24 0.038 ug/Kg Perfluoroheptanoic acid (PFHpA) ND 0.24 0.046 ug/Kg 07/30/21 11:43 08/01/21 11:52 Perfluorooctanoic acid (PFOA) ND 0.24 0.065 ug/Kg Perfluorononanoic acid (PFNA) ND 0.24 0.027 ug/Kg Perfluorodecanoic acid (PFDA) ND 0.24 0.059 ug/Kg Perfluoroundecanoic acid (PFUnA) ND 0.24 0.051 ug/Kg ☼ 07/30/21 11:43 08/01/21 11:52 Perfluorododecanoic acid (PFDoA) ND 0.24 0.037 ug/Kg © 07/30/21 11:43 08/01/21 11:52 Perfluorotridecanoic acid (PFTriA) ND 0.24 0.026 ug/Kg ☼ 07/30/21 11:43 08/01/21 11:52 © 07/30/21 11:43 08/01/21 11:52 Perfluorotetradecanoic acid (PFTeA) ND 0.24 0.045 ug/Kg Perfluorobutanesulfonic acid (PFBS) ND 0.24 0.046 ug/Kg © 07/30/21 11:43 08/01/21 11:52 Perfluorohexanesulfonic acid (PFHxS) ND 0.24 0.035 ug/Kg 07/30/21 11:43 08/01/21 11:52 Perfluorooctanesulfonic acid (PFOS) ND 0.24 0.053 ug/Kg ☼ 07/30/21 11:43 08/01/21 11:52 N-methylperfluorooctanesulfonamidoa ND 0.24 0.028 ug/Kg 07/30/21 11:43 08/01/21 11:52 cetic acid (NMeFOSAA) © 07/30/21 11:43 08/01/21 11:52 ND N-ethylperfluorooctanesulfonamidoac 0.24 0.059 ug/Kg etic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxanonan ND 0.24 0.043 ug/Kg © 07/30/21 11:43 08/01/21 11:52 e-1-sulfonic acid ND 0.24 0.050 ug/Kg © 07/30/21 11:43 08/01/21 11:52 Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaundecan ND 0.24 0.038 ug/Kg 07/30/21 11:43 08/01/21 11:52 e-1-sulfonic acid © 07/30/21 11:43 08/01/21 11:52 ND 0.24 4,8-Dioxa-3H-perfluorononanoic acid 0.048 ug/Kg (ADONA)

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 U	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	22.3	0.1	0.1 9	%			07/29/21 14:17	1
Percent Solids	77.7	0.1	0.1 %	%			07/29/21 14:17	1

Eurofins TestAmerica, Sacramento

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

**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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		0.21	0.033	ug/Kg	<u></u>	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.21	0.024	ug/Kg	₩	07/30/21 11:43	08/02/21 22:22	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.21	0.051	ug/Kg	₩	07/30/21 11:43	08/02/21 22:22	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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					08/02/21 22:22	1
General Chemistry							_		
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Percent Moisture Percent Solids	9.7 90.3		0.1 0.1	0.1 0.1				07/29/21 14:17 07/29/21 14:17	1 1

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Job ID: 320-76864-1

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

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

_									
		DELLA		-	Dilution Re		-	•	PFTDA
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)	(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	117	70	34	74	113	30	74	, ,
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	70 79	84	86	99	98	85	89
320-76864-5	SB14-0-0.8	91	73 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	SB14-140.0-141.0 SB14-21.2-21.7	96	80	79	95 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	76 94	87	97	92	99	95	95
MB 320-511701/1-A	Method Blank	89	78	83	85	94	88	86	85 85
WID 320-311701/1-A	Wethod Blank	09							00
				-	Dilution Re		-	imits)	
		C3PFBS	PFHxS	PFOS		d5NEFOS			
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

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

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** 

7									• • • • • •
	MB	MB							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		0.20	0.023	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		0.20	0.048	ug/Kg		07/30/21 11:43	08/01/21 10:27	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
	MB	MB							

	MB	MB				
Isotope Dilution	%Recovery	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
1802 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** 

	<b>Spike</b>	LUS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

### 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** 

Analysis Baton: 012447	Spike	LCS LCS			%Rec.
Analyte	Added	Result Quali	fier Unit	D %Rec	Limits
Perfluorodecanoic acid (PFDA)	2.00	1.70	ug/Kg	85	69 - 133
Perfluoroundecanoic acid	2.00	2.03	ug/Kg	102	64 - 136
(PFUnA)					
Perfluorododecanoic acid	2.00	1.93	ug/Kg	97	69 - 135
(PFDoA)					
Perfluorotridecanoic acid	2.00	1.89	ug/Kg	95	66 - 139
(PFTriA)					
Perfluorotetradecanoic acid	2.00	1.83	ug/Kg	92	69 - 133
(PFTeA)					
Perfluorobutanesulfonic acid	1.77	1.72	ug/Kg	97	72 - 128
(PFBS)					
Perfluorohexanesulfonic acid	1.82	1.74	ug/Kg	95	67 - 130
(PFHxS)					
Perfluorooctanesulfonic acid	1.86	1.72	ug/Kg	93	68 - 136
(PFOS)					
N-methylperfluorooctanesulfona	2.00	1.90	ug/Kg	95	63 - 144
midoacetic acid (NMeFOSAA)	0.00	0.00	/1/	400	04 400
N-ethylperfluorooctanesulfonami	2.00	2.06	ug/Kg	103	61 - 139
doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan	1.86	1.71	ua/Ka	92	75 - 135
onane-1-sulfonic acid	1.00	1.7 1	ug/Kg	92	75 - 155
Hexafluoropropylene Oxide	2.00	1.95	ug/Kg	97	77 - 137
Dimer Acid (HFPO-DA)	2.00	1.55	ug/itg	31	77 - 137
11-Chloroeicosafluoro-3-oxaund	1.88	1.92	ug/Kg	102	76 - 136
ecane-1-sulfonic acid	1.00	1.02	49/1 <b>1</b> 9	102	70-100
4,8-Dioxa-3H-perfluorononanoic	1.88	1.67	ug/Kg	88	79 - 139
acid (ADONA)			-3/19		
v := -· ·· · · · · · · · · · · · · · · · ·					

LCS LCS

200	200	
%Recovery	Qualifier	Limits
100		50 - 150
94		50 - 150
87		50 - 150
97		50 - 150
99		50 - 150
99		50 - 150
95		50 - 150
95		50 - 150
88		50 - 150
88		50 - 150
97		50 - 150
96		50 - 150
87		50 <sub>-</sub> 150
78		50 - 150
	100 94 87 97 99 99 95 88 88 97 96	94 87 97 99 99 95 95 88 88 97 96

Lab Sample ID: 320-76864-8 MS

**Matrix: Solid** 

Client Sample ID: SB14-21.2-21.7

Prep Type: Total/NA

Prep Batch: 511701

Analysis Batch: 512447									Prep Ba	tch: 51170
	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorohexanoic acid (PFHxA)	ND		2.17	1.94		ug/Kg	<u></u>	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	

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Job ID: 320-76864-1

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76864-8 MS **Client Sample ID: SB14-21.2-21.7 Matrix: Solid Prep Type: Total/NA Analysis Batch: 512447 Prep Batch: 511701** 

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorononanoic acid (PFNA)	ND		2.17	2.02		ug/Kg	<del>-</del>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.17	2.51		ug/Kg	₽	116	63 - 144	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.17	2.01		ug/Kg	☼	93	61 - 139	
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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	

MS MS

IVIS	IVIS	
%Recovery	Qualifier	Limits
62		50 - 150
53		50 - 150
55		50 - 150
58		50 - 150
59		50 - 150
61		50 - 150
58		50 - 150
51		50 - 150
57		50 - 150
58		50 - 150
65		50 - 150
49	*5-	50 - 150
60		50 - 150
49	*5-	50 - 150
	%Recovery 62 53 55 58 59 61 58 51 57 58 65 49	53 55 58 59 61 58 51 57 58 65 49 *5-

Lab Sample ID: 320-76864-8 MSD

Matrix: Solid									Prep Ty	pe: Tot	al/NA
Analysis Batch: 512447									Prep Ba	atch: 5	11701
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorohexanoic acid (PFHxA)	ND		2.18	1.95		ug/Kg	<u></u>	89	70 - 132	0	30
Perfluoroheptanoic acid (PFHpA)	ND		2.18	2.16		ug/Kg	₩	99	71 - 131	4	30

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**Client Sample ID: SB14-21.2-21.7** 

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## **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

## Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: 320-76864-8 MSD

**Matrix: Solid** 

acid (ADONA)

Client Sample ID: SB14-21.2-21.7
Prep Type: Total/NA

Prep Batch: 511701

Analysis Batch: 512447									Prep Batch: 511			
Allalysis Batch. 312447	Sample	Sample	Spike	MSD	MSD				%Rec.	atem. 5	RPD	
Analyte	•	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Perfluorooctanoic acid (PFOA)	ND		2.18	2.08		ug/Kg	— <u></u>	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	ND		2.18	2.36		ug/Kg	₩	109	63 - 144	6	30	
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	ND		2.18	2.12		ug/Kg	₩	97	61 - 139	5	30	
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-1-sulfonic acid	ND		2.05	2.00		ug/Kg	₩	98	76 - 136	12	30	
4,8-Dioxa-3H-perfluorononanoic	ND	F1	2.05	1.66		ug/Kg	₽	81	79 - 139	4	30	

Isotope Dilution	%Recovery Qu	ıalifier 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
1802 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 Job ID: 320-76864-1 Project/Site: DLG-PFAS

Method: D 2216 - Percent Moisture

Lab Sample ID: 320-76864-1 DU Client Sample ID: SB13-0-0.5

Matrix: Solid Analysis Batch: 511355

Analysis batch: 511355								
	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Percent Moisture	4.3		4.9		%		 12	20
Percent Solids	95.7		95.1		%		0.6	20

**Prep Type: Total/NA** 

## **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76864-1 Project/Site: DLG-PFAS

## 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	<u> </u>
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	

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Job ID: 320-76864-1

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Batch Batch Dil Initial Final Batch Prepared Prep Type Method Amount Number or Analyzed Analyst Type Run **Factor Amount** Lab Total/NA Analysis D 2216 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** 

Lab Sample ID: 320-76864-3

Percent Solids: 60.0

**Matrix: Solid** 

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

_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-76864-3 Matrix: Solid Date Received: 07/28/21 15:23 Percent Solids: 92.2

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Eurofins TestAmerica, Sacramento

Job ID: 320-76864-1

Client: Shannon & Wilson, Inc Project/Site: DLG-PFAS

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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

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

Date Collected: 07/22/21 12:10 Date Received: 07/28/21 15:23

Lab Sample ID: 320-76864-5

Lab Sample ID: 320-76864-5

Lab Sample ID: 320-76864-6

Lab Sample ID: 320-76864-6

Lab Sample ID: 320-76864-7

08/01/21 11:42 GWO

512078

**Matrix: Solid** 

**Matrix: Solid** 

**Matrix: Solid** 

Matrix: Solid

TAL SAC

Matrix: Solid

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/22/21 12:10

Date Received: 07/28/21 15:23 Percent Solids: 94.2

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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** 

Date Collected: 07/22/21 16:25

Date Received: 07/28/21 15:23

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	<del></del>		511355	07/29/21 14:17	TCS	TAL SAC

**Client Sample ID: SB14-40.6-41.8** 

Date Collected: 07/22/21 16:25

Date Received: 07/28/21 15:23

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			511355	07/29/21 14:17	TCS	TAL SAC

Percent Solids: 77.4 Dil Batch Batch Initial Final Batch Prepared **Prep Type** Type Method Run Factor Amount Amount Number or Analyzed Analyst 07/30/21 11:43 RAC Total/NA Prep SHAKE 5.10 g 10.0 mL 511701 TAL SAC

1

Analysis Client Sample ID: SB14-140.6-141.8

EPA 537(Mod)

Date Collected: 07/22/21 16:15

Total/NA

Date Received: 07/28/21 15:23

_										
	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1			511355	07/29/21 14:17	TCS	TAL SAC

Eurofins TestAmerica, Sacramento

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8/8/2021

#### **Lab Chronicle**

Client: Shannon & Wilson, Inc Job ID: 320-76864-1

Project/Site: DLG-PFAS

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

Batch Batch Dil Initial Batch Final Prepared Method **Factor** Number or Analyzed **Prep Type** Type Run **Amount Amount** Analyst Total/NA SHAKE 5.26 g 10.0 mL 511701 07/30/21 11:43 RAC TAL SAC Prep 512078 08/01/21 11:52 GWO Total/NA Analysis EPA 537(Mod) TAL SAC 1

**Client Sample ID: SB14-21.2-21.7** 

Lab Sample ID: 320-76864-8

**Matrix: Solid** 

Date Collected: 07/22/21 16:45 Date Received: 07/28/21 15:23

Date Collected: 07/22/21 16:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

**Matrix: Solid** 

Date Received: 07/28/21 15:23 Percent Solids: 90.3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-76864-1 Project/Site: DLG-PFAS

## **Laboratory: Eurofins TestAmerica, Sacramento**

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

Authority	Pro	ogram	Identification Number	Expiration Date
Alaska (UST)	Sta	ate	17-020	02-20-24
The following englyter	are included in this repo	ort but the laboratory is r	act cortified by the governing outhority	This list may include analytes for
the agency does not o	•	it, but the laboratory is i	not certified by the governing authority.	This list may include analytes for
	•	Matrix	Analyte	This list may include analytes for
the agency does not o	offer certification.			This list may include analytes for

## **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

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SHANNON & WILSO GEOTECHNICAL AND ENVIRONMENTAL ( 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600  www.shannonwilson.com		N-OF-CUST	ODY RECO		oratory Test Auerican  David Acchier  ve if used)
Turn Around Time:  Normal Rush	Quote No:				Remarks/Matrix Composition/Grab? Sample Containers
Please Specify Sample Identity		Date mpled			Remarks/Matrix Composition/Grab? Sample Containers
SB13-0-0.5 SB13-10,9-11.4		त्यया । । । । । । । । । । । । । । । । । ।		1	Soil
5B13-35-375 5B13-135-1375	1120				
5B 14-40.6-41.8 5B 14-40.6-141.8	1210 1625 1615				
5814-21.2-21.7	1645		320-76864 Chain of Custody	1	
Project Information	Sample Receipt	Reliquished By	: 1. Reliqui	shed By: 2.	Reliquished By: 3.
Number: 102581-009 Name: DLG-PFA5	Total No. of Containers:	Signature	Time: Apple Signature:	Time:	Signature: Time:
Contact: Horey Ibole Ongoing Project? Yes No	Received Good Cond./Cold Temp:	Printed Name.	Date: 4/254 Printed Name:	Date:	Printed Name: Date:
	Delivery Method: goldstrege	Company:	Slannon Company:		Company:
Not	es: V	deceived By:	1. Recei	ved By: 2.	Received By: 3.
	_	Signature:	Time:Signature:	Time:	Signature: Time:
	•	Eginted Name:	Date: Printed Name:	Date:	Printed Name: Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for cons Pink - Shannon & Wilson - job	signee files	Company:	Company:		Company:
					No.









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Client: Shannon & Wilson, Inc

Job Number: 320-76864-1

Login Number: 76864

List Source: Eurofins TestAmerica, Sacramento

List Number: 1 Creator: Her, David A

orcator. Her, Buria A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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**

Con	pleted By:
J	ustin Risley
Title	:
]	Engineering Staff
Date	:
1	August 11, 2021
Con	sultant Firm:
	Shannon & Wilson, Inc.
Labo	pratory Name:
]	Eurofins Environment Testing
Labo	oratory Report Number:
3	320-76864-1
Labo	oratory Report Date:
	August 8, 2021
CS S	Site Name:
]	Dillingham DOT&PF
ADI	EC File Number:
2	2540.38.023
Haza	ard 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. <u>Laboratory</u>
1. <u>Laboratory</u>
a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?
$Yes \boxtimes No \square N/A \square$ 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?
$Yes \square No \square N/A \boxtimes Comments:$
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
b. Correct analyses requested?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

320-76864-1		
Laboratory Report Date:		
August 8, 2021		
CS Site Name:		
Dillingham DOT&PF		
c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?		
$Yes \boxtimes No \square N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:		
No discrepancies were noted.		
e. Data quality or usability affected?		
Comments:		
Data quality and/or usability are not affected; see above.		
4. <u>Case Narrative</u>		
a. Present and understandable?		
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:		

320-768	54-1	
Laboratory	Report Date:	
August	, 2021	
CS Site Na	e:	
Dillingh	am DOT&PF	
The	iscrepancies, errors, or QC failures identified by the lab?  Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:  PFAS results for sample SB13-0-0.5 were reported from the analysis of a diluted extraction of the latest statement of the late	
extr	le was diluted due to the high concentration of one or more target analytes in the undil- ct. The dilution factor was applied to the labeled internal standard area counts and these its were within acceptance limits.	
elev with	ow-level continuing calibration verification (CCVL) associated with batch 320-512078 ted recovery for Hexafluoropropylene Oxide Dimer Acid (HFPO-DA). The samples as this CCVL did not contain detectable concentrations of the affected analytes; therefore been reported.	ssociated
	ransition mass ratio for perfluorooctanesulfonic acid (PFOS) was outside of the establi in sample <i>SB13-10.9-11.4</i> .	shed ratio
and	od EPA 537(Mod): The matrix spike (MS) recovery for DONA preparation batch 320-nalytical batch 320-512447 was outside control limits. Sample matrix interference is suse the associated laboratory control sample (LCS) recovery was within acceptance limits.	uspected
sam not	od EPA 537(Mod): The Isotope Dilution Analyte (IDA) recovery associated with the fle is below the method recommended limit: (320-76864-A-8-B MS). Generally, data quantification of the IDA signal-to-noise ratio is greater than 10:1, which is achieved in the sample.	uality is
c.	Vere all corrective actions documented?	
Cor	Yes□ No□ N/A⊠ Comments:  ective actions were not documented.	
	That is the effect on data quality/usability according to the case narrative?	
a.	That is the effect of and quality associating to the case nationive.	

#### 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.

	32	0-76	6864-1			
La	bora	atory	y Report Da	ite:		
	Αυ	ıgus	t 8, 2021			
CS	Sit	e Na	ame:			
	Di	lling	gham DOT&	&PF		
5.	Sa	mpl	es Results			
	a. Correct analyses performed/reported as requested on COC?					
			Yes⊠	No□	N/A□	Comments:
		b.	All applica	ible hold	ding time	es met?
			Yes⊠	No□	N/A□	Comments:
		c.				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?					
	ı		Yes⊠	No□	N/A□	Comments:
		e.	Data qualit	ty or usa	ability af	ffected?
		Th	e data quali	ty/usabi	ility is no	ot affected; see above.
6.						
		a.	Method Bl	onk		
		a.			olank ren	ported per matrix, analysis and 20 samples?
			Yes⊠	No□	N/A□	Comments:
			<del>_</del>		<u>·</u>	
			ii. All me	ethod bl	lank resu	alts less than limit of quantitation (LOQ) or project specified objectives?
					N/A□	Comments:
		_			· · · · · · · · · · · · · · · · · · ·	

320-76864-1
Laboratory Report Date:
August 8, 2021
CS Site Name:
Dillingham DOT&PF
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 $\square$ No $\square$ N/A $\boxtimes$ 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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
$Yes \boxtimes No \square N/A \square$ 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?
$Yes \square No \square N/A \boxtimes Comments:$
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 $\boxtimes$ No $\square$ N/A $\square$ Comments:

320-76864-1						
oratory Report Date:						
August 8, 2021						
Site Name:						
Dillingham DOT&PF						
limits and project speci	e percent differences (RPD) reported and less than method or laboratory affied objectives, if applicable? RPD reported from LCS/LCSD, and or te. (AK Petroleum methods 20%; all other analyses see the laboratory					
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 no	t affected.					
c. Matrix Spike/Matrix Spike  Note: Leave blank if not r  i. Organics – One MS/M  Yes⊠ No□ N/A□	-					
_	e MS and one MSD reported per matrix, analysis and 20 samples?					
Yes□ No□ N/A⊠  Metals and/or inorganics were	Comments: not analyzed as a part of this work order.					

320-76864-1
Laboratory Report Date:
August 8, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>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)</li> <li>Yes□ No⊠ N/A□ Comments:</li> </ul>
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 <i>SB14-21.2-21.7</i> . 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
Due to the MS recovery failure, the ADONA result for parent sample <i>SB14-21.2-21.7</i> 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
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
$Yes \boxtimes No \square N/A \square$ Comments:

320-76864-1
Laboratory Report Date:
August 8, 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)
$Yes \square No \boxtimes N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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
<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)</li> </ul>
Yes $\square$ No $\square$ N/A $\boxtimes$ 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)
$Yes \square No \square N/A \boxtimes Comments:$
See above.
iii. All results less than LOQ and project specified objectives?
Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:
See above.
iv. If above LOQ or project specified objectives, what samples are affected?  Comments:
No samples were affected.

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poratory Report Date:	
August 8, 2021	
Site Name:	
Dillingham DOT&PF	
v. Data quality o	or usability affected?  Comments:
The data quality/usabi	lity is not affected.
f. Field Duplicate	
-	icate submitted per matrix, analysis and 10 project samples?
Yes⊠ No□	N/A Comments:
ii. Submitted blir  Yes⊠ No□  The field duplicate pai  were submitted with th	N/A $\square$ Comments: rs $SB13-35-37.5 / SB13-135-137.5$ and $SB14-40.6-41.8 / SB14-140.6-141.8$
iii. Precision – Al (Recommende	I relative percent differences (RPD) less than specified project objectives? ed: 30% water, 50% soil) PD (%) = 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
-	N/A Comments:  demonstrated between the detected results of the field duplicate samples was ed DQO of 50% for all analytes, where calculable.
iv. Data quality o	r usability affected? (Use the comment box to explain why or why not.)  Comments:
Data quality and/or usa	ability are not affected; see above.
g. Decontamination o below)?	r Equipment Blank (If not applicable, a comment stating why must be entered
Yes No	
	et are not collected with reusable equipment, therefore a practical potential for e-contamination does not exist.

320-76864-1
Laboratory Report Date:
August 8, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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 <i>SB13-10.9-11.4</i> was affected by a transition mass ratio failure. This result has been flagged 'J' to identify the uncertainty.

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# **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

Qui Kellmann

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS Laboratory Job ID: 320-76865-1

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#### **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

#### **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

Listed under the Dicolumn 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

Eurofins TestAmerica, Sacramento

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#### **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 4.6° 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-MW11-34 (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.

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

Client	Sample	D: D	LG-MW10	-55
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## 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

Ar	nalyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Pe	erfluorohexanoic acid (PFHxA)	0.93	J	1.9	0.56	ng/L	1	_	EPA 537(Mod)	Total/NA
Pe	erfluorooctanoic acid (PFOA)	0.83	J	1.9	0.82	ng/L	1		EPA 537(Mod)	Total/NA
Pe	erfluorobutanesulfonic acid (PFBS)	0.37	J	1.9	0.19	ng/L	1		EPA 537(Mod)	Total/NA
Pe	erfluorohexanesulfonic 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 [	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	21		1.9	0.55	ng/L		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		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

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

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#### 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		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		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.

Eurofins TestAmerica, Sacramento

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# **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

## 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

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	0.72	J	1.9	0.55	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluoroheptanoic acid (PFHpA)	0.32	J	1.9	0.24	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorooctanoic acid (PFOA)	ND		1.9	0.81	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 06:24	
Perfluorobutanesulfonic acid (PFBS)	0.32	J	1.9	0.19			07/30/21 04:28	07/31/21 06:24	
Perfluorohexanesulfonic acid (PFHxS)	0.81	J	1.9	0.54	-		07/30/21 04:28	07/31/21 06:24	
Perfluorooctanesulfonic acid (PFOS)	0.90	<b>J</b>	1.9	0.51			07/30/21 04:28		
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8		ng/L		07/30/21 04:28		
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8		ng/L		07/30/21 04:28		
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23			07/30/21 04:28		
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.30	-		07/30/21 04:28	07/31/21 06:24	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 06:24	
lsotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	104		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C4 PFHpA	83		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C4 PFOA	97		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C5 PFNA	91		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C2 PFDA	104		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C2 PFUnA	93		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C2 PFDoA	80		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C2 PFTeDA	84		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C3 PFBS	88		50 - 150				07/30/21 04:28	07/31/21 06:24	
1802 PFHxS	89		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C4 PFOS	98		50 - 150				07/30/21 04:28	07/31/21 06:24	
d3-NMeFOSAA	90		50 - 150				07/30/21 04:28	07/31/21 06:24	
d5-NEtFOSAA	87		50 - 150				07/30/21 04:28	07/31/21 06:24	
13C3 HFPO-DA	82		50 - 150				07/30/21 04:28	07/31/21 06:24	
Method: EPA 537(Mod) - PFAS Analyte		.3, Table B Qualifier	-15 - RA RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8		ng/L	=		07/31/21 22:13	
	0/5							A I	57.5
Isotope Dilution	%Recovery	Qualitier	Limits				Prepared	Analyzed	Dil Fa

Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

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

Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	0.93	J	1.9	0.56	-		07/30/21 04:28	07/31/21 06:33	
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorooctanoic acid (PFOA)	0.83	J	1.9	0.82	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorobutanesulfonic acid (PFBS)	0.37	J	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 06:33	
Perfluorohexanesulfonic acid (PFHxS)	1.0	J	1.9	0.55	•			07/31/21 06:33	
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 06:33	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8		ng/L			07/31/21 06:33	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8		ng/L			07/31/21 06:33	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23				07/31/21 06:33	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.31	-			07/31/21 06:33	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.39	ng/L		07/30/21 04:28	07/31/21 06:33	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	106		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C4 PFHpA	89		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C4 PFOA	90		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C5 PFNA	91		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C2 PFDA	105		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C2 PFUnA	107		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C2 PFDoA	94		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C2 PFTeDA	97		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C3 PFBS	89		50 - 150				07/30/21 04:28	07/31/21 06:33	
18O2 PFHxS	91		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C4 PFOS	107		50 - 150				07/30/21 04:28	07/31/21 06:33	
d3-NMeFOSAA	94		50 - 150				07/30/21 04:28	07/31/21 06:33	
d5-NEtFOSAA	94		50 - 150				07/30/21 04:28	07/31/21 06:33	
13C3 HFPO-DA	82		50 - 150				07/30/21 04:28	07/31/21 06:33	
Method: EPA 537(Mod) - PFAS		•		MD	I I mid		Dramarad	Amalumad	Dil F-
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9	1.4	ng/L		07/30/21 04:28	07/31/21 22:23	
lsotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C3 HFPO-DA	84		50 - 150				07/30/21 04:28	07/31/21 22:23	

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

1802 PFHxS

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Client Sample ID: DLG-MW11-34

Lab Sample ID: 320-76865-3 Date Collected: 07/22/21 18:10 Date Received: 07/28/21 15:23

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		07/30/21 04:28	07/31/21 06:43	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 06:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 06:43	1
11-Chloroeicosafluoro-3-oxaundecan e-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 <sub>-</sub> 150				07/30/21 04:28	07/31/21 06:43	1

Method: EPA 537(Mod) - PFA	S for QSM 5.3,	Table B-	15 - RA						
Analyte	Result Qu	ualifier	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 Qu	ualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	82		50 - 150				07/30/21 04:28	07/31/21 22:32	1

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

100

121

108

100

93

Eurofins TestAmerica, Sacramento

07/30/21 04:28 07/31/21 06:43

07/30/21 04:28 07/31/21 06:43

07/30/21 04:28 07/31/21 06:43

07/30/21 04:28 07/31/21 06:43

07/30/21 04:28 07/31/21 06:43

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

Date Received: 07/28/21 15:23

Acid (HFPO-DA) Isotope Dilution

13C3 HFPO-DA

Client Sample ID: DLG-MW111-34

Lab Sample ID: 320-76865-4 Date Collected: 07/22/21 18:00

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.8	1.2	ng/L		07/30/21 04:28	07/31/21 06:52	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.8	1.3	ng/L		07/30/21 04:28	07/31/21 06:52	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.9	0.23	ng/L		07/30/21 04:28	07/31/21 06:52	1
11-Chloroeicosafluoro-3-oxaundecan e-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
1802 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			<b>.</b>		_			
Analyte	Result Qualifier	RL	MADI	Unit	D	Prepared	Analyzed	Dil Fac

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07/30/21 04:28 07/31/21 22:42

Analyzed

Prepared

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Limits

50 - 150

%Recovery Qualifier

87

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

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

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	
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorooctanoic acid (PFOA)	ND		1.9	0.81	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19	ng/L		07/30/21 04:28	07/31/21 07:01	
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	_		07/30/21 04:28	07/31/21 07:01	
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	•		07/30/21 04:28	07/31/21 07:01	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7		ng/L		07/30/21 04:28	07/31/21 07:01	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 07:01	•
9-Chlorohexadecafluoro-3-oxanonan	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 07:01	•
e-1-sulfonic acid									
11-Chloroeicosafluoro-3-oxaundecan	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 07:01	•
e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 07:01	,
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	105		50 - 150				07/30/21 04:28	07/31/21 07:01	
13C4 PFHpA	82		50 - 150				07/30/21 04:28	07/31/21 07:01	
13C4 PFOA	91		50 - 150				07/30/21 04:28	07/31/21 07:01	
13C5 PFNA	93		50 - 150				07/30/21 04:28	07/31/21 07:01	
13C2 PFDA	113		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:01	
13C2 PFUnA	109		50 - 150				07/30/21 04:28	07/31/21 07:01	
13C2 PFDoA	91		50 - 150				07/30/21 04:28	07/31/21 07:01	
13C2 PFTeDA	84		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:01	
13C3 PFBS	90		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:01	
1802 PFHxS	85		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:01	
13C4 PFOS	110		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:01	
d3-NMeFOSAA	94		50 - 150					07/31/21 07:01	
d5-NEtFOSAA	92		50 <sub>-</sub> 150					07/31/21 07:01	
13C3 HFPO-DA	83		50 - 150					07/31/21 07:01	•
Method: EPA 537(Mod) - PFAS				·		_			
Analyte		Qualifier	RL	MDL		<u>D</u>	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	•
lootono Dilution	%Recovery	Ouglifion	Limits				Prepared	Analyzed	Dil Fa
Isotope Dilution	70Kecovery	Quanner	LIIIII				riepaieu	Allalyzeu	Diria

8/11/2021

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

**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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.59	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorooctanoic acid (PFOA)	ND		2.0	0.87	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorononanoic acid (PFNA)	ND		2.0	0.28	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorodecanoic acid (PFDA)	ND		2.0	0.32	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.56	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.74	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.58	ng/L		07/30/21 04:28	07/31/21 07:11	
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	0.55	-		07/30/21 04:28	07/31/21 07:11	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.1	1.2	ng/L		07/30/21 04:28	07/31/21 07:11	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.1		ng/L		07/30/21 04:28	07/31/21 07:11	
9-Chlorohexadecafluoro-3-oxanonan	ND		2.0	0.24	ng/L		07/30/21 04:28	07/31/21 07:11	
e-1-sulfonic acid									
11-Chloroeicosafluoro-3-oxaundecan	ND		2.0	0.33	ng/L		07/30/21 04:28	07/31/21 07:11	
e-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.41	ng/L		07/30/21 04:28	07/31/21 07:11	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	111		50 - 150				07/30/21 04:28		
13C4 PFHpA	95		50 - 150				07/30/21 04:28	07/31/21 07:11	
13C4 PFOA	93		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
13C5 PFNA	98		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
13C2 PFDA	106		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
13C2 PFUnA	109		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
13C2 PFDoA	106		50 - 150				07/30/21 04:28	07/31/21 07:11	
13C2 PFTeDA	105		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
13C3 PFBS	95		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
1802 PFHxS	93		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:11	
13C4 PFOS	106		50 <sub>-</sub> 150				07/30/21 04:28		
d3-NMeFOSAA	94		50 - 150				07/30/21 04:28		
d5-NEtFOSAA	103		50 - 150				07/30/21 04:28		
13C3 HFPO-DA	86		50 - 150				07/30/21 04:28		
: Method: EPA 537(Mod) - PFAS	for QSM 5.	3, Table B	-15 - RA						
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		4.1	1.5	ng/L		07/30/21 04:28	07/31/21 23:00	
	0/5	O !!!!	1 : : 4				Duamanad	A	D:/ F-
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

**Client Sample ID: FB13** Lab Sample ID: 320-76865-7

**Matrix: Water** 

Date Collected: 07/22/21 11:45 Date Received: 07/28/21 15:23

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.55	ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluoroheptanoic acid (PFHpA)	ND		1.9	0.24	ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluorooctanoic acid (PFOA)	ND		1.9	0.80	ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluorononanoic acid (PFNA)	ND		1.9	0.25	ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.29	ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.0	ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.52			07/30/21 04:28	07/31/21 07:20	
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		07/30/21 04:28	07/31/21 07:20	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.69	-		07/30/21 04:28	07/31/21 07:20	
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.19			07/30/21 04:28	07/31/21 07:20	
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9	0.54	U			07/31/21 07:20	
Perfluorooctanesulfonic acid (PFOS)	ND		1.9	0.51	•			07/31/21 07:20	
N-methylperfluorooctanesulfonamidoa	ND		4.7		ng/L			07/31/21 07:20	
cetic acid (NMeFOSAA)	.40		7.1	1.1	9/ =		577007E1 04.20	37701721 07.20	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		07/30/21 04:28	07/31/21 07:20	
9-Chlorohexadecafluoro-3-oxanonan	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 07:20	
e-1-sulfonic acid									
11-Chloroeicosafluoro-3-oxaundecan	ND		1.9	0.30	ng/L		07/30/21 04:28	07/31/21 07:20	
e-1-sulfonic acid									
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.38	ng/L		07/30/21 04:28	07/31/21 07:20	
lsotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	102		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C4 PFHpA	92		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C4 PFOA	96		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C5 PFNA	96		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C2 PFDA	100		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C2 PFUnA	102		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C2 PFDoA	97		50 - 150				07/30/21 04:28	07/31/21 07:20	
13C2 PFTeDA	104		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:20	
13C3 PFBS	90		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:20	
1802 PFHxS	93		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:20	
13C4 PFOS	109		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 07:20	
d3-NMeFOSAA	93		50 - 150					07/31/21 07:20	
d5-NEtFOSAA	97		50 <sub>-</sub> 150					07/31/21 07:20	
13C3 HFPO-DA	85		50 - 150					07/31/21 07:20	
			00 = 700				0.7.00727 0 1120	0.7.0.7.2.	
Method: EPA 537(Mod) - PFAS	for QSM 5	.3, Table B	-15 - RA						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		07/30/21 04:28	07/31/21 23:10	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

13C3 HFPO-DA

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** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6		ng/L			07/31/21 07:48	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L			07/31/21 07:48	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22				07/31/21 07:48	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.8		ng/L			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
1802 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		•							
Analyte		Qualifier	RL		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
Acid (HIFFO-DA)									

07/30/21 04:28 07/31/21 23:29

50 - 150

Client: Shannon & Wilson, Inc

Project/Site: DLG PFAS

Isotope Dilution

13C3 HFPO-DA

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** 

Analyte	Result Q	ualifier 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	
Perfluoroheptanoic acid (PFHpA)	9.4	1.9	0.24	ng/L		07/30/21 04:28	07/31/21 07:58	•
Perfluorooctanoic acid (PFOA)	5.5	1.9	0.80	ng/L		07/30/21 04:28	07/31/21 07:58	•
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		ng/L		07/30/21 04:28	07/31/21 07:58	1
Perfluorohexanesulfonic acid (PFHxS)	110	1.9	0.54	-			07/31/21 07:58	1
Perfluorooctanesulfonic acid (PFOS)	ND	1.9		ng/L		07/30/21 04:28	07/31/21 07:58	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.7		ng/L		07/30/21 04:28	07/31/21 07:58	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.7		ng/L			07/31/21 07:58	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.9	0.23				07/31/21 07:58	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.9		ng/L			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 Q	ualifier 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
1802 PFHxS	94	50 - 150				07/30/21 04:28	07/31/21 07:58	
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	
13C3 HFPO-DA	76	50 - 150					07/31/21 07:58	1
Method: EPA 537(Mod) - PFAS								
Analyte	Result Q			Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer	ND	3.8	1 4	ng/L		07/30/21 04:28	07/31/21 23:38	1

Analyzed

Prepared

Limits

50 - 150

%Recovery Qualifier

77

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

13C2 PFUnA

13C2 PFDoA

13C2 PFTeDA

13C3 PFBS

1802 PFHxS

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

Date Received: 07/28/21 15:23

Client Sample ID: DLG-MW02-50 Lab Sample ID: 320-76865-10 Date Collected: 07/24/21 18:20

**Matrix: Water** 

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 **MDL** Unit Analyte Result Qualifier RL Prepared Analyzed Dil Fac Perfluorohexanoic acid (PFHxA) 1.9 0.55 ng/L 07/30/21 04:28 07/31/21 08:07 2.8 ND 1.9 Perfluoroheptanoic acid (PFHpA) 0.24 ng/L 07/30/21 04:28 07/31/21 08:07 Perfluorooctanoic acid (PFOA) ND 1.9 0.80 ng/L 07/30/21 04:28 07/31/21 08:07 Perfluorononanoic acid (PFNA) ND 1.9 0.25 ng/L 07/30/21 04:28 07/31/21 08:07 Perfluorodecanoic acid (PFDA) ND 0.29 ng/L 07/30/21 04:28 07/31/21 08:07 1.9 Perfluoroundecanoic acid (PFUnA) ND 1.9 1.0 ng/L 07/30/21 04:28 07/31/21 08:07 Perfluorododecanoic acid (PFDoA) ND 1.9 0.52 ng/L 07/30/21 04:28 07/31/21 08:07 Perfluorotridecanoic acid (PFTriA) ND 07/30/21 04:28 07/31/21 08:07 19 1.2 ng/L Perfluorotetradecanoic acid (PFTeA) ND 1.9 0.69 ng/L 07/30/21 04:28 07/31/21 08:07 Perfluorobutanesulfonic acid 1.9 0.19 ng/L 07/30/21 04:28 07/31/21 08:07 7.3 (PFBS) 07/30/21 04:28 07/31/21 08:07 Perfluorohexanesulfonic acid 1.9 0.54 ng/L 4.7 (PFHxS) Perfluorooctanesulfonic acid (PFOS) ND 1.9 0.51 ng/L 07/30/21 04:28 07/31/21 08:07 N-methylperfluorooctanesulfonamidoa ND 07/30/21 04:28 07/31/21 08:07 4.7 1.1 ng/L cetic acid (NMeFOSAA) 07/30/21 04:28 07/31/21 08:07 N-ethylperfluorooctanesulfonamidoac ND 4.7 1.2 ng/L etic acid (NEtFOSAA) ND 1.9 0.23 ng/L 07/30/21 04:28 07/31/21 08:07 9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid 07/30/21 04:28 07/31/21 08:07 11-Chloroeicosafluoro-3-oxaundecan ND 1.9 0.30 ng/L e-1-sulfonic acid ND 1.9 0.38 ng/L 07/30/21 04:28 07/31/21 08:07 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) Isotope Dilution %Recovery Qualifier Limits Prepared Dil Fac Analyzed 13C2 PFHxA 107 50 - 150 07/30/21 04:28 07/31/21 08:07 13C4 PFHpA 89 50 - 150 07/30/21 04:28 07/31/21 08:07 13C4 PFOA 95 50 - 150 07/30/21 04:28 07/31/21 08:07 13C5 PFNA 95 50 - 150 07/30/21 04:28 07/31/21 08:07 13C2 PFDA 109 50 - 150 07/30/21 04:28 07/31/21 08:07

13C3 HFPO-DA	76		50 - 150				07/30/21 04:28	07/31/21 08:07	1
Method: EPA 537(Mod) - PFA	S 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

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

105

94

93

94

93

107

98

96

Eurofins TestAmerica, Sacramento

07/30/21 04:28 07/31/21 08:07

07/30/21 04:28 07/31/21 08:07

07/30/21 04:28 07/31/21 08:07

07/30/21 04:28 07/31/21 08:07 07/30/21 04:28 07/31/21 08:07

07/30/21 04:28 07/31/21 08:07

07/30/21 04:28 07/31/21 08:07

07/30/21 04:28 07/31/21 08:07

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8/11/2021

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

Acid (HFPO-DA) Isotope Dilution

13C3 HFPO-DA

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

Analyte	Result Q	ualifier 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	
Perfluoroheptanoic acid (PFHpA)	120	1.9	0.24	ng/L		07/30/21 04:28	07/31/21 08:17	
Perfluorooctanoic acid (PFOA)	39	1.9	0.82	ng/L		07/30/21 04:28	07/31/21 08:17	
Perfluorononanoic acid (PFNA)	ND	1.9	0.26	ng/L		07/30/21 04:28	07/31/21 08:17	
Perfluorodecanoic acid (PFDA)	ND	1.9	0.30	ng/L		07/30/21 04:28	07/31/21 08:17	•
Perfluoroundecanoic acid (PFUnA)	ND	1.9	1.1	ng/L		07/30/21 04:28	07/31/21 08:17	•
Perfluorododecanoic acid (PFDoA)	ND	1.9	0.53	ng/L		07/30/21 04:28	07/31/21 08:17	
Perfluorotridecanoic acid (PFTriA)	ND	1.9	1.2	ng/L		07/30/21 04:28	07/31/21 08:17	•
Perfluorotetradecanoic acid (PFTeA)	ND	1.9	0.70	ng/L		07/30/21 04:28	07/31/21 08:17	
Perfluorobutanesulfonic acid (PFBS)	34	1.9	0.19	ng/L		07/30/21 04:28	07/31/21 08:17	
Perfluorohexanesulfonic acid (PFHxS)	160	1.9	0.55	ng/L		07/30/21 04:28	07/31/21 08:17	•
Perfluorooctanesulfonic acid (PFOS)	8.5	1.9		ng/L			07/31/21 08:17	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.8		ng/L			07/31/21 08:17	,
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.8		ng/L			07/31/21 08:17	•
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND	1.9	0.23	ng/L		07/30/21 04:28	07/31/21 08:17	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND	1.9	0.31	ng/L		07/30/21 04:28	07/31/21 08:17	•
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	1.9	0.38	ng/L		07/30/21 04:28	07/31/21 08:17	•
lsotope Dilution	%Recovery Q	ualifier Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	111	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C4 PFHpA	91	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C4 PFOA	103	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C5 PFNA	103	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C2 PFDA	118	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C2 PFUnA	116	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C2 PFDoA	108	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C2 PFTeDA	112	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C3 PFBS	95	50 - 150				07/30/21 04:28	07/31/21 08:17	
1802 PFHxS	105	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C4 PFOS	116	50 - 150				07/30/21 04:28	07/31/21 08:17	
d3-NMeFOSAA	108	50 - 150				07/30/21 04:28	07/31/21 08:17	
d5-NEtFOSAA	105	50 - 150				07/30/21 04:28	07/31/21 08:17	
13C3 HFPO-DA	84	50 - 150				07/30/21 04:28	07/31/21 08:17	
Method: EPA 537(Mod) - PFAS	for QSM 5.3.	Table B-15 - RA						
Analyte	Result Q			Unit	D	Prepared	Analyzed	Dil Fac

07/30/21 04:28 07/31/21 23:57

Prepared

Limits

50 - 150

%Recovery Qualifier

87

Analyzed

Dil Fac

Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

Client Sample ID: DLG-MW103-28

Lab Sample ID: 320-76865-12 Date Collected: 07/25/21 09:50

**Matrix: Water** 

Method: EPA 537(Mod) - PFAS Analyte		.3, Table B Qualifier	-15 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.6	1.1	ng/L		07/30/21 04:28	07/31/21 08:26	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.6	1.2	ng/L		07/30/21 04:28	07/31/21 08:26	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.8	0.22	ng/L		07/30/21 04:28	07/31/21 08:26	1
11-Chloroeicosafluoro-3-oxaundecan e-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

(ADONA)					
Isotope Dilution	%Recovery Qual	ifier 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 <sub>-</sub> 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 <sub>-</sub> 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 <sub>-</sub> 150	07/30/21 04:28	07/31/21 08:26	1
1802 PFHxS	97	50 - 150	07/30/21 04:28	07/31/21 08:26	1
13C4 PFOS	115	50 <sub>-</sub> 150	07/30/21 04:28	07/31/21 08:26	1
d3-NMeFOSAA	117	50 <sub>-</sub> 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 <sub>-</sub> 150	07/30/21 04:28	07/31/21 08:26	1

Method: EPA 537(Mod) - PFA	S 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

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

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** 

Analyte	Result	Qualifier	RL		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8		ng/L		07/30/21 04:28	07/31/21 08:35	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		07/30/21 04:28	07/31/21 08:35	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9	0.23	ng/L		07/30/21 04:28	07/31/21 08:35	1
11-Chloroeicosafluoro-3-oxaundecan e-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	
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	
13C2 PFDA	109		50 - 150				07/30/21 04:28	07/31/21 08:35	1
13C2 PFUnA	109		50 <sub>-</sub> 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
1802 PFHxS	85		50 - 150				07/30/21 04:28	07/31/21 08:35	1
13C4 PFOS	102		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 08:35	
d3-NMeFOSAA	97		50 - 150				07/30/21 04:28	07/31/21 08:35	
d5-NEtFOSAA	95		50 - 150				07/30/21 04:28	07/31/21 08:35	
13C3 HFPO-DA	75		50 <sub>-</sub> 150				07/30/21 04:28	07/31/21 08:35	1

Hexafluoropropylene Oxide Dimer ND 3.9 1.5 ng/L 07/30/21 04:28 08/01/21 00:16 Acid (HFPO-DA) Isotope Dilution %Recovery Qualifier Limits Prepared Analyzed Dil Fac 13C3 HFPO-DA 50 - 150 07/30/21 04:28 08/01/21 00:16 83

RL

MDL Unit

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA

Result Qualifier

Analyte

Eurofins TestAmerica, Sacramento

Analyzed

Prepared

Dil Fac

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

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 Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 Analyte Result Qualifier Dil Fac RL **MDL** Unit Prepared Analyzed Perfluorohexanoic acid (PFHxA) 1.9 0.56 ng/L 07/30/21 04:28 07/31/21 08:45 7.9 Perfluoroheptanoic acid (PFHpA) 3.9 1.9 0.24 ng/L 07/30/21 04:28 07/31/21 08:45 Perfluorooctanoic acid (PFOA) 6.5 1.9 0.81 ng/L 07/30/21 04:28 07/31/21 08:45 Perfluorononanoic acid (PFNA) 07/30/21 04:28 07/31/21 08:45 ND 1.9 0.26 ng/L Perfluorodecanoic acid (PFDA) ND 1.9 0.30 ng/L 07/30/21 04:28 07/31/21 08:45 Perfluoroundecanoic acid (PFUnA) ND 1.9 1.1 ng/L 07/30/21 04:28 07/31/21 08:45 Perfluorododecanoic acid (PFDoA) ND 1.9 0.53 ng/L 07/30/21 04:28 07/31/21 08:45 Perfluorotridecanoic acid (PFTriA) ND 1.9 07/30/21 04:28 07/31/21 08:45 1.2 ng/L Perfluorotetradecanoic acid (PFTeA) ND 1.9 0.70 ng/L 07/30/21 04:28 07/31/21 08:45 Perfluorobutanesulfonic acid 1.0 J 1.9 0.19 ng/L 07/30/21 04:28 07/31/21 08:45 (PFBS) 1.9 07/30/21 04:28 07/31/21 08:45 Perfluorohexanesulfonic acid 5.0 0.55 ng/L (PFHxS) Perfluorooctanesulfonic acid 10 1.9 0.52 ng/L 07/30/21 04:28 07/31/21 08:45 (PFOS) ND 1.1 ng/L 07/30/21 04:28 07/31/21 08:45 N-methylperfluorooctanesulfonamidoa 4.8 cetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonamidoac ND 4.8 1.2 ng/L 07/30/21 04:28 07/31/21 08:45 etic acid (NEtFOSAA) ND 07/30/21 04:28 07/31/21 08:45 9-Chlorohexadecafluoro-3-oxanonan 1.9 0.23 ng/L e-1-sulfonic acid 11-Chloroeicosafluoro-3-oxaundecan ND 1.9 0.31 ng/L 07/30/21 04:28 07/31/21 08:45 e-1-sulfonic acid ND 1.9 0.38 ng/L 07/30/21 04:28 07/31/21 08:45 4,8-Dioxa-3H-perfluorononanoic acid (ADONA)

(ADONA)						
Isotope Dilution	%Recovery Q	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
1802 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 ND		3.8	1.4	ng/L		07/30/21 04:28	08/01/21 00:25	1		
Isotope Dilution 13C3 HFPO-DA	%Recovery 82	Qualifier	Limits 50 - 150				<b>Prepared</b> 07/30/21 04:28	Analyzed 08/01/21 00:25	Dil Fac		

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## **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

320-76865-1	Client Sample ID  DLG-MW10-55  DLG-MW10-35  DLG-MW10-38  DLG-MW10-38  DLG-MW11-34  DLG-MW11-34	PFHxA (50-150) 104	<b>C4PFHA</b> (50-150) 83	<b>PFOA</b> (50-150) 97	PFNA (50-150)	PFDA (50-150)	PFUnA (50-150)	PFDoA (50-150)	PFTD/ (50-15)
320-76865-1	DLG-MW10-55 DLG-MW10-55 DLG-MW10-38 DLG-MW10-38 DLG-MW11-34	104	<u> </u>		(50-150)	(50-150)	(50-150)	(50-150)	(50-15)
320-76865-1 - RA	DLG-MW10-55 DLG-MW10-38 DLG-MW10-38 DLG-MW11-34		83	07				(55.55)	(
320-76865-2 [ 320-76865-2 - RA	DLG-MW10-38 DLG-MW10-38 DLG-MW11-34	106		91	91	104	93	80	84
320-76865-2 - RA	DLG-MW10-38 DLG-MW11-34	106							
320-76865-3 [ 320-76865-3 - RA [ 320-76865-4 [	DLG-MW11-34		89	90	91	105	107	94	97
320-76865-3 - RA [ 320-76865-4 [									
320-76865-4	DI G-MW11-34	115	84	99	90	125	116	111	114
320-76865-4 - RA	DLG-MW111-34	120	80	101	97	128	127	118	123
	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 E	EB-MW11	111	95	93	98	106	109	106	105
320-76865-6 - RA	EB-MW11								
320-76865-7 F	FB13	102	92	96	96	100	102	97	104
320-76865-7 - RA F	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 E	DLG-MW02-50	107	89	95	95	109	105	94	93
320-76865-10 - RA	DLG-MW02-50								
	DLG-MW03-28	111	91	103	103	118	116	108	112
	DLG-MW03-28								
	DLG-MW103-28	111	79	103	92	119	119	105	120
320-76865-12 - RA	DLG-MW103-28								
	DLG-MW03-75	104	76	85	88	109	109	96	98
	DLG-MW03-75								
	DLG-MW03-45	111	89	94	101	122	116	114	119
	DLG-MW03-45								
	Lab Control Sample	102	90	87	91	97	97	93	98
	Lab Control Sample	.02		•	0.	٠.	0.		
	Lab Control Sample Dup	115	98	98	107	105	110	100	106
	Lab Control Sample Dup	110	00	00	101	100	110	100	100
	Method Blank	103	96	93	92	103	100	98	94
	Method Blank								
	Wiotilog Blank		B		Dilatian Da		4	· · · · · · · · · · · · · · · · · · ·	
		C3PFBS	PERCE	PFOS		d5NEFOS	ceptance Li	imits)	
Lab Camaria ID	Olient Commis ID	(50-150)		(50-150)	(50-150)	(50-150)	(50-150)		
	Client Sample ID DLG-MW10-55	88	( <b>50-150</b> )	98	90	87	82		
	DLG-MW10-55 DLG-MW10-55	00	09	90	90	01	74		
	DLG-MW10-35 DLG-MW10-38	89	91	107	94	94	74 82		
	DLG-MW10-38		<i>3</i> I	107	J4 	J <del>4</del>	84		
	DLG-MW11-34	100	100	121	108	100	93		
	DLG-MW11-34 DLG-MW11-34	100	100	141	100	100	93 82		
		98	101	117	117	109			
	DLG-MW111-34 DLG-MW111-34	90	101	117	117	109	93 87		
		90	85	110	94	92	87 83		
	DLG-MW11-79	90	00	110	94	92			
	DLG-MW11-79	05	02	400	0.4	400	85 86		
	EB-MW11 EB-MW11	95	93	106	94	103	86 87		

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## **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

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

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance 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)
320-76865-7	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

Eurofins TestAmerica, Sacramento

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

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 Batch: 511473** 

**Prep Type: Total/NA** 

	MB	MB							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		07/30/21 04:28	07/31/21 05:56	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		07/30/21 04:28	07/31/21 05:56	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		2.0	0.24	ng/L		07/30/21 04:28	07/31/21 05:56	1
11-Chloroeicosafluoro-3-oxaundecan e-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

	MB MB				
Isotope Dilution	%Recovery Qualit	fier 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 <sub>-</sub> 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 <sub>-</sub> 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 <sub>-</sub> 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 <sub>-</sub> 150	07/30/21 04:28	07/31/21 05:56	1
1802 PFHxS	92	50 - 150	07/30/21 04:28	07/31/21 05:56	1
13C4 PFOS	103	50 <sub>-</sub> 150	07/30/21 04:28	07/31/21 05:56	1
d3-NMeFOSAA	93	50 <sub>-</sub> 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	e ID:	Lab	Contro	Sample

**Prep Type: Total/NA Prep Batch: 511473** 

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	40.0	42.0		ng/L		105	69 - 133	
(PFUnA)								

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

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** 

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Perfluorododecanoic acid	40.0	42.0		ng/L		105	72 - 134	
(PFDoA)								
Perfluorotridecanoic acid	40.0	40.6		ng/L		101	65 - 144	
(PFTriA)								
Perfluorotetradecanoic acid	40.0	38.0		ng/L		95	71 - 132	
(PFTeA)								
Perfluorobutanesulfonic acid	35.4	37.9		ng/L		107	72 - 130	
(PFBS)								
Perfluorohexanesulfonic acid	36.4	36.9		ng/L		101	68 - 131	
(PFHxS)	07.4	00.4				00	05 440	
Perfluorooctanesulfonic acid	37.1	36.4		ng/L		98	65 - 140	
(PFOS)	40.0	38.6		na/l		96	65 - 136	
N-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	30.0		ng/L		90	05 - 130	
N-ethylperfluorooctanesulfonami	40.0	40.2		ng/L		100	61 - 135	
doacetic acid (NEtFOSAA)	40.0	70.2		ng/L		100	01-100	
9-Chlorohexadecafluoro-3-oxan	37.3	34.6		ng/L		93	77 - 137	
onane-1-sulfonic acid	5.15	0				•		
11-Chloroeicosafluoro-3-oxaund	37.7	37.8		ng/L		100	76 - 136	
ecane-1-sulfonic acid				3				
4,8-Dioxa-3H-perfluorononanoic	37.7	35.0		ng/L		93	81 - 141	
acid (ADONA)				-				

	LCS	LCS	
Isotope Dilution	%Recovery	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
1802 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** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA

Analysis Batch: 511868							Prep Ba	atcn: 51	114/3
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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	40.0	42.5		ng/L		106	69 - 133	1	30
(PFUnA)									
Perfluorododecanoic acid	40.0	41.5		ng/L		104	72 - 134	1	30
(PFDoA)									

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Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

#### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sai	mple ID:	LCSD	320-511	1473/3-A
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**Matrix: Water** 

**Analysis Batch: 511868** 

**Client Sample ID: Lab Control Sample Dup** 

**Prep Type: Total/NA Prep Batch: 511473** 

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorotridecanoic acid	40.0	42.3		ng/L		106	65 - 144	4	30
(PFTriA)									
Perfluorotetradecanoic acid	40.0	40.2		ng/L		101	71 - 132	6	30
(PFTeA)									
Perfluorobutanesulfonic acid	35.4	34.3		ng/L		97	72 - 130	10	30
(PFBS)									
Perfluorohexanesulfonic acid	36.4	32.1		ng/L		88	68 - 131	14	30
(PFHxS)									
Perfluorooctanesulfonic acid	37.1	34.1		ng/L		92	65 - 140	6	30
(PFOS)									
N-methylperfluorooctanesulfona	40.0	41.7		ng/L		104	65 - 136	8	30
midoacetic acid (NMeFOSAA)									
N-ethylperfluorooctanesulfonami	40.0	42.6		ng/L		107	61 - 135	6	30
doacetic acid (NEtFOSAA)								_	
9-Chlorohexadecafluoro-3-oxan	37.3	33.6		ng/L		90	77 - 137	3	30
onane-1-sulfonic acid	<u>-</u>			<u>-</u>					
11-Chloroeicosafluoro-3-oxaund	37.7	38.2		ng/L		101	76 - 136	1	30
ecane-1-sulfonic acid	07.7	04.0				0.4	04 444	•	00
4,8-Dioxa-3H-perfluorononanoic	37.7	31.8		ng/L		84	81 - 141	9	30
acid (ADONA)									

LCSD LCSD

LCSD	LUSD	
%Recovery	Qualifier	Limits
115		50 - 150
98		50 - 150
98		50 - 150
107		50 - 150
105		50 - 150
110		50 - 150
100		50 - 150
106		50 - 150
99		50 - 150
105		50 - 150
109		50 - 150
100		50 - 150
95		50 - 150
	%Recovery 115 98 98 107 105 110 100 106 99 105 109	98 98 107 105 110 100 106 99 105 109

#### 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 Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac 07/30/21 04:28 07/31/21 21:45 Hexafluoropropylene Oxide Dimer ND 4.0 1.5 ng/L Acid (HFPO-DA) - RA

MB MB

MB MB

Isotope Dilution %Recovery Qualifier Limits Prepared Analyzed Dil Fac 13C3 HFPO-DA - RA 50 - 150 07/30/21 04:28 07/31/21 21:45 91

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## **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-76865-1 Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 - RA (Continued)

Lab Sample ID: LCS 320-511473/2-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA **Analysis Batch: 512068 Prep Batch: 511473** 

LCS LCS Spike %Rec. Result Qualifier Analyte Added Unit D %Rec Limits Hexafluoropropylene Oxide 40.0 39.4 ng/L 98 72 - 132

Dimer Acid (HFPO-DA) - RA

LCS LCS Isotope Dilution %Recovery Qualifier

Limits 13C3 HFPO-DA - RA 50 - 150 82

**Client Sample ID: Lab Control Sample Dup** Lab Sample ID: LCSD 320-511473/3-A Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 512068 Prep Batch: 511473** LCSD LCSD %Rec. **RPD** Spike

Added Result Qualifier Limits RPD Limit Analyte Unit D %Rec 40.0 30 Hexafluoropropylene Oxide 41.9 ng/L 105 72 - 132 6

Dimer Acid (HFPO-DA) - RA

LCSD LCSD Isotope Dilution %Recovery Qualifier

Limits 13C3 HFPO-DA - RA 90 50 - 150

# **QC Association Summary**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

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

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# **QC Association Summary**

Client: Shannon & Wilson, Inc
Project/Site: DLG PFAS

Job ID: 320-76865-1

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

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/22/21 11:45 Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-2

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/22/21 18:10

Date Received: 07/28/21 15:23

Lab Sample ID: 320-76865-3 **Matrix: Water** 

Lab Sample ID: 320-76865-4

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Type Method **Factor Amount** Amount Number or Analyzed Analyst Run Lab Total/NA Prep 3535 265.8 mL 10.0 mL 511473 07/30/21 04:28 EG TAL SAC Total/NA TAL SAC Analysis EPA 537(Mod) 511868 07/31/21 06:43 K1S 1 Total/NA Prep 3535 RA 265.8 mL 10.0 mL 511473 07/30/21 04:28 EG TAL SAC Total/NA Analysis 512068 07/31/21 22:32 K1S TAL SAC EPA 537(Mod) RA 1

Client Sample ID: DLG-MW111-34

Date Collected: 07/22/21 18:00

Date Received: 07/28/21 15:23

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Iotal/NA	Analysis	EPA 537(Mod)	RA	1	512068 07/31/21 22:42	K1S	TAL SAC
Client Sam	ple ID: DLO	G-MW11-79			Lab Sample	ID: 32	0-76865-5
<b>Date Collecte</b>	d: 07/22/21 2	2:05				Ma	atrix: Water
<b>Date Received</b>	d: <mark>07/28/21 1</mark>	5:23					

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Eurofins TestAmerica, Sacramento

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10

**Matrix: Water** 

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

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

Lab Sample ID: 320-76865-8

Lab Sample ID: 320-76865-9

Lab Sample ID: 320-76865-10

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Total/NA	Batch Type Prep	Batch Method 3535	Run	Dil Factor	Initial Amount 265.6 mL	Amount 10.0 mL	Batch Number 511473	Prepared or Analyzed 07/30/21 04:28		Lab TAL SAC
Total/NA Total/NA Total/NA	Analysis Prep Analysis	EPA 537(Mod) 3535 EPA 537(Mod)	RA RA	1	265.6 mL	10.0 mL	511868 511473 512068	07/31/21 07:20 07/30/21 04:28 07/31/21 23:10	EG	TAL SAC TAL SAC TAL SAC

Client Sample ID: DLG-MW02-40

Date Collected: 07/24/21 16:10

Date Received: 07/28/21 15:23

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/24/21 16:00

Date Received: 07/28/21 15:23

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/24/21 18:20

Date Received: 07/28/21 15:23

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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Client: Shannon & Wilson, Inc

Project/Site: DLG PFAS

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/25/21 09:50 Date Received: 07/28/21 15:23 Lab Sample ID: 320-76865-12

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Total/NA	Prep Analysis	3535 EPA 537(Mod)	RA RA	1	272.5 mL	10.0 mL	511473 512068	07/30/21 04:28 08/01/21 00:06		TAL SAC TAL SAC

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** 

Lab Sample ID: 320-76865-14

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Date Collected: 07/25/21 18:27

Date Received: 07/28/21 15:23

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

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# **Accreditation/Certification Summary**

Client: Shannon & Wilson, Inc Job ID: 320-76865-1

Project/Site: DLG PFAS

## **Laboratory: Eurofins TestAmerica, Sacramento**

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	<b>Expiration Date</b>
Alaska (UST)	State	17-020	02-20-24

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## **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

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# **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

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SHANNON & WILSO  GEOTECHNICAL AND ENVIRONMENTAL ( 2355 Hill Road Fairbanks, AK 99709 (907) 479-0600  www.shannonwilson.com		N-OF-CUSTODY	_	aboratory Test America ttn: David Acchicles
Turn Around Time:  Normal Rush  Please Specify	Quote No:  MSA Number: TBD  J-Flags: Yes No	ate npled		Remarks/Matrix Composition/Grab? Sample Containers
Sample Identity  DLG-HWLO-55  DLG-HWLO-38	Lab No. Time Sar  1015 71  1145	22/11 ×		Composition/Grab? Sample Containers
DLG-HW11-34 DLG-HW11-34 DLG-HW11-73 EB-LW11 FB13	1810 1800 2205 2230 1145			
DLG-HW02-40 DLG-HW02-40 DLG-HW02-50	1610 716 1600 1820 V	24/24 × 320-76865 Cr	nain of Custody	
Project Information  Number: 102581-009  Name: DLG PFAS	Total No. of Containers: 28  COC Seals/Intact? Y/N/NA	Reliquished By: 1. Signature: Time: (660)	Reliquished By: 2.  Signature: Time:	Reliquished By: 3.  Signature: Time:
· · · · · · · · · · · · · · · · · · ·	Received Good Cond./Cold  Temp:  Delivery Method:	Printed Name: Date: 18404 Vegelong Jackhovs Company: Shannon & Wilson	Printed Name: Date: Company:	Printed Name: Date:
Not	es:	Received By: 1.	Received By: 2.  Signature: Time:	Received By: 3.  Signature: Time:
- I		Frinted Name Date:	Printed Name: Date:	Printed Name: Date:
Distribution: White - w/shipment - returned Yellow - w/shipment - for cons Pink - Shannon & Wilson - job	signee files	Company: BMS	Company:	Company:

SHANNON & WILSON, INC.  2355 Hill Road Fairbanks, AK 99709 (907) 479-0600	CHAII	N-OF-CUS		RECORI	Attn:	Page 2 of 2 pratory Test Avences  Dourd Actueles  ve if used)
Normal Rush  Please Specify  Sample Identity  Www.shannonwilson.com  Quote N  MSA Nu  J-Flags:	Yes No	Date mpled				Remarks/Matrix Composition/Grab? Sample Containers
DLG-MW03-28 DLG-MW03-75 DLG-MW03-75 DLG-MW03-45	1000 71. 0350 1603 1827 V	25121 X 				groundwater
Project Information Sam	ple Receipt	Reliquished B	y: 1.	Reliquished	By: 2.	Reliquished By: 3.
Number: 102581-009 Total No. of C  Name: DIG PFAS COC Seals/Int  Contact: Varcy Vale Received Good  Ongoing Project? Seal No Temp:	act? Y/N/NA d Cond./Cold	Printed Name:  Vesebrua Ya  Company:	Grund	ignature: rinted Name:	Time:	Signature: Time:  Printed Name: Date:
Sampler: My MLF, WWW Delivery Methodology Motes:	od: gold strenk	Slannen (1) Received By	Ulson 1.	Received I	Ву: 2.	Received By: 3.
		Signature:	7/28/20	ignature: rinted Name:	Time:	Signature: Time:  Printed Name: Date:
Distribution: White - w/shipment - returned to Shannon & Yellow - w/shipment - for consignee files Pink - Shannon & Wilson - job file		Company	c	ompany:		Company:
1012 Comboners date 74	25121 712	1125 5712	शय			No.









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Client: Shannon & Wilson, Inc

Job Number: 320-76865-1

Login Number: 76865

List Source: Eurofins TestAmerica, Sacramento

List Number: 1 Creator: Her, David A

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey neter.</td <td>True</td> <td></td>	True	
Γhe 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 ampered 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	
s 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 <a href="final-right">66mm (1/4").</a>	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
La	boratory Report Date:
	August 11, 2021
CS	S 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 <u>perform</u> all of the submitted sample analyses?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b. Correct analyses requested?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
3.	Laboratory Sample Receipt Documentation
	a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

	20-76865-1
Lab	ratory Report Date:
	august 11, 2021
CS S	ite Name:
]	Pillingham DOT&PF
(	Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?  Yes⊠ No□ N/A□ Comments:
,	he sample receipt form notes that the samples arrived in good condition.
(	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:
	he container label for the following sample did not match the information listed on the Chain-of-ustody (COC): Sample DLG-MW03-45, one of the two containers has a date of 7/21/25, however, the OC and 2nd container has a date of 7/25/21. Sample was logged in and labeled according to date on OC (7/25/21). This is the correct date and the results are not affected.
(	Data quality or usability affected?
	Comments:
]	ata quality and/or usability are not affected; see above.
4.	Case Narrative
	a. Present and understandable?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	TODES THE COMMENS.
L	b. Discrepancies, errors, or QC failures identified by the lab?
	$Yes \boxtimes No \square N/A \square$ 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-MW11-34, 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.

	320-76865-1			
Lal	boratory Report Date:			
	August 11, 2021			
CS	S Site Name:			
	Dillingham DOT&PF			
	c. Were all corrective a	actions do	ocumented?	
	Yes□ No□ N	√A⊠	Comments:	
	Corrective actions were	not neces	ssary.	
	d. What is the effect or	n data qua	ality/usability according to the case narrative?	
			Comments:	
	Data quality/usability is	unaffecte	ed.	
5.	Samples Results			
	a. Correct analyses per	rformed/re	eported as requested on COC?	
	Yes⊠ No□ N	N/A□	Comments:	
	b. All applicable holding	ng times n	met?	
	Yes⊠ No□ N	N/A□	Comments:	
	c. All soils reported on	a dry we	eight basis?	
	Yes□ No□ N	N/A⊠	Comments:	
	Soils were not submitted	d with this	s work order.	
	d. Are the reported LO project?	Qs less th	nan the Cleanup Level or the minimum required detection level for the	;
	Yes⊠ No□ N	N/A 🗆	Comments:	
	e. Data quality or usab	ility affec	eted?	
	Data quality or usability	is not aff	feeted	

	320-76865-1
Lał	poratory Report Date:
	August 11, 2021
CS	Site Name:
	Dillingham DOT&PF
6.	QC Samples
	a. Method Blank
	<ol> <li>One method blank reported per matrix, analysis and 20 samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ol>
	Tes No No NA Comments.
	ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
	$Yes \boxtimes No \square N/A \square$ 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?
	$Yes \square No \square N/A \boxtimes Comments:$
	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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	Metals and/or inorganics were not analyzed as part of this work order.

320-76865-1	
Laboratory Report Date:	
August 11, 2021	
CS Site Name:	
Dillingham DOT&PF	
project specified objectives, if applicab	er analyses see the laboratory QC pages)
$Yes \boxtimes No \square N/A \square$ Comments:	
limits and project specified objectives,	ices (RPD) reported and less than method or laboratory if applicable? RPD reported from LCS/LCSD, and or m methods 20%; all other analyses see the laboratory QC
Yes⊠ No□ N/A□ Comments:	
v. If %R or RPD is outside of acceptable Comments	•
No samples are affected. Method accuracy and	precision were demonstrated to meet acceptance criteria.
vi. Do the affected sample(s) have data fla  Yes□ No□ N/A⊠ Comments:	gs? If so, are the data flags clearly defined?
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/I	
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.

320-76865-1
Laboratory Report Date:
August 11, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A☒ Comments:</li> </ul>
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)
$Yes \square No \square N/A \square$ 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?
$Yes \square No \square N/A \boxtimes Comments:$
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?
$Yes \boxtimes No \square N/A \square$ Comments:

	320-76865-1
Lał	poratory Report Date:
	August 11, 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
	iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?
	$Yes \square No \square N/A \boxtimes Comments:$
	See above.
	iv. Data quality or usability affected?  Comments:
	The data quality/usability is not affected; see above.
	e. Trip Blanks
	<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)</li> </ul>
	$Yes \square No \square N/A \boxtimes Comments:$
	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)
	$Yes \square No \square N/A \boxtimes Comments:$
	See above.
	iii. All results less than LOQ and project specified objectives?
	$Yes \boxtimes No \square N/A \square$ 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.

	320-76865-1
Lab	oratory Report Date:
Γ	August 11, 2021
	August 11, 2021
CS	Site Name:
	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?
Г	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\boxtimes$ N/A $\square$ 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)?
Γ	Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:	
No other data flags or qualifiers.	



# **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

Qui Kellmann

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

LINKS

Review your project results through

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**Have a Question?** 



Visit us at: www.eurofinsus.com/Env The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: Dillingham Airport Laboratory Job ID: 320-77044-1

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#### **Definitions/Glossary**

Client: Shannon & Wilson, Inc
Project/Site: Dillingham Airport

Job ID: 320-77044-1

**Qualifiers** 

**LCMS** 

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

Eurofins TestAmerica, Sacramento

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8/11/2021

#### **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 5.6° 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.

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Client: Shannon & Wilson, Inc Job ID: 320-77044-1

Project/Site: Dillingham Airport

Client Sample ID: DLG-MW01-30	<b>Client Sam</b>	ole ID:	DLG-	MW01-3	0
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#### 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	O Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.85	J	1.9	0.56	ng/L		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		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 Qu	ualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	64		1.8	0.51	ng/L		_	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 Qua	alifier 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

8/11/2021

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Client: Shannon & Wilson, Inc Job ID: 320-77044-1

Project/Site: Dillingham Airport

<b>Client Sample</b>	ID: DL	.G-MW12-40
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Lab	Sample	D:	320-7	7044-7
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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 Q	ualifier	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 [	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	36	1.8	0.52	ng/L		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		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

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Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW01-30

Date Received: 08/02/21 14:40

13C3 HFPO-DA

Lab Sample ID: 320-77044-1 Date Collected: 07/26/21 11:12

**Matrix: Water** 

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	11		1.9	0.19	ng/L		08/04/21 04:42	08/06/21 08:44	1
(PFBS)					-				
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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.7	1.1	ng/L		08/04/21 04:42	08/06/21 08:44	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.7	1.2	ng/L		08/04/21 04:42	08/06/21 08:44	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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					08/06/21 08:44	
13C4 PFHpA	94		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 08:44	1
13C4 PFOA	89		50 <sub>-</sub> 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 <sub>-</sub> 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 <sub>-</sub> 150					08/06/21 08:44	
13C2 PFTeDA	80		50 <sub>-</sub> 150					08/06/21 08:44	1
13C3 PFBS	84		50 <sub>-</sub> 150					08/06/21 08:44	1
1802 PFHxS	90		50 - 150					08/06/21 08:44	
13C4 PFOS	85		50 - 150					08/06/21 08:44	. 1
d3-NMeFOSAA	69		50 - 150 50 - 150					08/06/21 08:44	1
d5-NEtFOSAA	88		50 - 150					08/06/21 08:44	
UO-IVEII OOAA	00		50 - 150				00/07/21 07.42	00,00,2100.44	,

08/04/21 04:42 08/06/21 08:44

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Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW01-45

13C3 HFPO-DA

Lab Sample ID: 320-77044-2 Date Collected: 07/26/21 12:18

**Matrix: Water** Date Received: 08/02/21 14:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	0.85	J	1.9	0.56	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluoroheptanoic acid (PFHpA)	0.43	J	1.9	0.24	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorooctanoic acid (PFOA)	1.4	J	1.9	0.81	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorodecanoic acid (PFDA)	ND		1.9	0.30	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.2	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorobutanesulfonic acid PFBS)	0.46	J	1.9	0.19	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorohexanesulfonic acid PFHxS)	4.8		1.9	0.55	ng/L		08/04/21 04:42	08/06/21 08:53	
Perfluorooctanesulfonic acid (PFOS)	1.8	J	1.9		ng/L		08/04/21 04:42	08/06/21 08:53	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8		ng/L			08/06/21 08:53	
I-ethylperfluorooctanesulfonamidoac tic acid (NEtFOSAA)	ND		4.8		ng/L			08/06/21 08:53	
-Chlorohexadecafluoro-3-oxanonan -1-sulfonic acid	ND		1.9		ng/L			08/06/21 08:53	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.8	1.4	ng/L		08/04/21 04:42	08/06/21 08:53	
1-Chloroeicosafluoro-3-oxaundecan -1-sulfonic acid	ND		1.9	0.31	ng/L		08/04/21 04:42	08/06/21 08:53	
1,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		1.9	0.38	ng/L		08/04/21 04:42	08/06/21 08:53	
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
3C2 PFHxA	87		50 - 150				08/04/21 04:42	08/06/21 08:53	
3C4 PFHpA	95		50 - 150				08/04/21 04:42	08/06/21 08:53	
3C4 PFOA	84		50 - 150				08/04/21 04:42	08/06/21 08:53	
3C5 PFNA	84		50 - 150				08/04/21 04:42	08/06/21 08:53	
3C2 PFDA	79		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 08:53	
3C2 PFUnA	77		50 - 150				08/04/21 04:42	08/06/21 08:53	
3C2 PFDoA	72		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 08:53	
3C2 PFTeDA	69		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 08:53	
13C3 PFBS	77		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 08:53	
1802 PFHxS	85		50 <sub>-</sub> 150					08/06/21 08:53	
13C4 PFOS	78		50 - 150					08/06/21 08:53	
d3-NMeFOSAA	61		50 <sub>-</sub> 150					08/06/21 08:53	
d5-NEtFOSAA	77		50 - 150					08/06/21 08:53	
1000 1/500 DA	90		50 450					00/06/21 00:50	

08/04/21 04:42 08/06/21 08:53

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW14-50

Lab Sample ID: 320-77044-3 Date Collected: 07/26/21 18:57

**Matrix: Water** 

Date Received: 08/02/21 14:40

Analyte	Result	Qualifier	RL	MDL		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9		ng/L		08/04/21 04:42	08/06/21 09:02	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		08/04/21 04:42	08/06/21 09:02	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9		ng/L			08/06/21 09:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9		ng/L		08/04/21 04:42	08/06/21 09:02	1
11-Chloroeicosafluoro-3-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:02	1
13C2 PFUnA	88		50 <sub>-</sub> 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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:02	1
13C3 PFBS	83		50 <sub>-</sub> 150					08/06/21 09:02	1
1802 PFHxS	92		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:02	1
13C4 PFOS	85		50 <sub>-</sub> 150					08/06/21 09:02	1
	68							08/06/21 09:02	1
d3-NMeFOSAA	0.0		50 - 150				00/07/21 07.72	00/00/21 03.02	
d3-NMeFOSAA d5-NEtFOSAA	80		50 - 150 50 - 150					08/06/21 09:02	

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Date Received: 08/02/21 14:40

13C2 PFTeDA

13C3 PFBS

1802 PFHxS

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-77044-4 Client Sample ID: DLG-MW14-150 Date Collected: 07/26/21 18:47

**Matrix: Water** 

Analyte	Result Qua	alifier 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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.4	1.1	ng/L		08/04/21 04:42	08/06/21 09:11	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.4	1.1	ng/L		08/04/21 04:42	08/06/21 09:11	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 Qu	alifier 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

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

75

82

89

86

73

82

85

08/04/21 04:42 08/06/21 09:11

08/04/21 04:42 08/06/21 09:11 08/04/21 04:42 08/06/21 09:11

08/04/21 04:42 08/06/21 09:11

08/04/21 04:42 08/06/21 09:11

08/04/21 04:42 08/06/21 09:11

08/04/21 04:42 08/06/21 09:11

8/11/2021

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Date Received: 08/02/21 14:40

Client Sample ID: EB-MW14-50 Lab Sample ID: 320-77044-5 Date Collected: 07/26/21 19:40

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.2	1.2	ng/L		08/04/21 04:42	08/06/21 09:20	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.2	1.3	ng/L		08/04/21 04:42	08/06/21 09:20	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:20	1
13C3 PFBS	92		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:20	1
1802 PFHxS	98		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:20	1
13C4 PFOS	95		50 <sub>-</sub> 150					08/06/21 09:20	1
d3-NMeFOSAA	88		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:20	1
d5-NEtFOSAA	103		50 - 150					08/06/21 09:20	1
13C3 HFPO-DA	91		50 - 150					08/06/21 09:20	1

Client: Shannon & Wilson, Inc Job ID: 320-77044-1

Project/Site: Dillingham Airport

Client Sample ID: 2006-MW08-20

Lab Sample ID: 320-77044-6 Date Collected: 07/27/21 11:03 **Matrix: Water** 

Date Received: 08/02/21 14:40

Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	58		1.7	0.50	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluoroheptanoic acid (PFHpA)	21		1.7	0.22	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorooctanoic acid (PFOA)	59		1.7	0.74	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorononanoic acid (PFNA)	4.8		1.7	0.23	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorodecanoic acid (PFDA)	0.75	J	1.7	0.27	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluoroundecanoic acid (PFUnA)	ND		1.7	0.95	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorododecanoic acid (PFDoA)	ND		1.7	0.48	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorotridecanoic acid (PFTriA)	ND		1.7	1.1	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorotetradecanoic acid (PFTeA)	ND		1.7	0.63	ng/L		08/04/21 04:42	08/06/21 09:29	
Perfluorobutanesulfonic acid	9.0		1.7	0.17	ng/L		08/04/21 04:42	08/06/21 09:29	
(PFBS)									
Perfluorohexanesulfonic acid (PFHxS)	260		1.7	0.49	ng/L		08/04/21 04:42	08/06/21 09:29	
N-methylperfluorooctanesulfonamidoa	ND		4.3	1.0	ng/L		08/04/21 04:42	08/06/21 09:29	
cetic acid (NMeFOSAA)	ND		4.3	1.0	rig/L		00/04/21 04.42	00/00/21 09.29	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		08/04/21 04:42	08/06/21 09:29	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.7	0.21	ng/L		08/04/21 04:42	08/06/21 09:29	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.5	1.3	ng/L		08/04/21 04:42	08/06/21 09:29	
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7	0.28	ng/L		08/04/21 04:42	08/06/21 09:29	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.7	0.35	ng/L		08/04/21 04:42	08/06/21 09:29	
lsotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C2 PFHxA	93		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C4 PFHpA	90		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C4 PFOA	97		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C5 PFNA	75		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C2 PFDA	97		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C2 PFUnA	81		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C2 PFDoA	75		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C2 PFTeDA	73		50 - 150				08/04/21 04:42	08/06/21 09:29	
13C3 PFBS	91		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:29	
1802 PFHxS	88		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:29	
13C4 PFOS	82		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 09:29	
d3-NMeFOSAA	65		50 - 150				08/04/21 04:42	08/06/21 09:29	
d5-NEtFOSAA	73		50 - 150					08/06/21 09:29	
13C3 HFPO-DA	80		50 - 150					08/06/21 09:29	
Method: EPA 537(Mod) - PFAS	for QSM 5	.3, Table B	-15 - DL						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorooctanesulfonic acid (PFOS)	1100		17	4.7	ng/L			08/08/21 15:44	
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
13C4 PFOS	82		50 - 150					08/08/21 15:44	

Eurofins TestAmerica, Sacramento

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Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW12-40

Date Received: 08/02/21 14:40

13C3 HFPO-DA

Lab Sample ID: 320-77044-7 Date Collected: 07/28/21 18:52

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		08/04/21 04:42	08/06/21 09:38	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3	1.1	ng/L		08/04/21 04:42	08/06/21 09:38	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
1802 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

08/04/21 04:42 08/06/21 09:38

50 - 150

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW12-80

13C3 HFPO-DA

Lab Sample ID: 320-77044-8 Date Collected: 07/28/21 20:16

**Matrix: Water** Date Received: 08/02/21 14:40

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Perfluorohexanoic acid (PFHxA)	11		1.9	0.56	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluoroheptanoic acid (PFHpA)	5.6		1.9	0.24	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorooctanoic acid (PFOA)	11		1.9	0.82	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorononanoic acid (PFNA)	ND		1.9	0.26	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorodecanoic acid (PFDA)	0.33	J	1.9	0.30	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluoroundecanoic acid (PFUnA)	ND		1.9	1.1	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorododecanoic acid (PFDoA)	ND		1.9	0.53	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorotridecanoic acid (PFTriA)	ND		1.9	1.3	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorotetradecanoic acid (PFTeA)	ND		1.9	0.70	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorobutanesulfonic acid (PFBS)	0.74	J	1.9	0.19	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorohexanesulfonic acid (PFHxS)	7.9		1.9	0.55	ng/L		08/04/21 04:42	08/06/21 10:06	
Perfluorooctanesulfonic acid (PFOS)	4.8		1.9		ng/L		08/04/21 04:42	08/06/21 10:06	
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8		ng/L			08/06/21 10:06	
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8		ng/L			08/06/21 10:06	
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid	ND		1.9		ng/L			08/06/21 10:06	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		3.9		ng/L			08/06/21 10:06	
1-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.9	0.31	ng/L		08/04/21 04:42	08/06/21 10:06	
1,8-Dioxa-3H-perfluorononanoic acid ADONA)	ND		1.9	0.39	ng/L		08/04/21 04:42	08/06/21 10:06	
sotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil I
13C2 PFHxA	84		50 - 150				08/04/21 04:42	08/06/21 10:06	
13C4 PFHpA	94		50 - 150				08/04/21 04:42	08/06/21 10:06	
13C4 PFOA	86		50 - 150				08/04/21 04:42	08/06/21 10:06	
3C5 PFNA	87		50 - 150				08/04/21 04:42	08/06/21 10:06	
13C2 PFDA	90		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:06	
I3C2 PFUnA	78		50 - 150				08/04/21 04:42	08/06/21 10:06	
I3C2 PFDoA	74		50 - 150					08/06/21 10:06	
13C2 PFTeDA	67		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:06	
I3C3 PFBS	76		50 <sub>-</sub> 150					08/06/21 10:06	
1802 PFHxS	82		50 <sub>-</sub> 150					08/06/21 10:06	
13C4 PFOS	74		50 - 150					08/06/21 10:06	
d3-NMeFOSAA	67		50 - 150					08/06/21 10:06	
d5-NEtFOSAA	79		50 - 150					08/06/21 10:06	
4000 UEDO DA	7.9		50 - 150					00/00/21 10:00	

50 - 150

08/04/21 04:42 08/06/21 10:06

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: EVENTS-MW1-25

Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-9 Date Collected: 07/29/21 14:16

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.9	1.2	ng/L		08/04/21 04:42	08/06/21 10:15	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.9	1.3	ng/L		08/04/21 04:42	08/06/21 10:15	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:15	1
13C4 PFOA	73		50 <sub>-</sub> 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 <sub>-</sub> 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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:15	1
13C2 PFTeDA	41	*5-	50 <sub>-</sub> 150					08/06/21 10:15	1
13C3 PFBS	63		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:15	1
1802 PFHxS	62		50 - 150					08/06/21 10:15	1
13C4 PFOS	51		50 - 150					08/06/21 10:15	1
d3-NMeFOSAA	54		50 <sub>-</sub> 150					08/06/21 10:15	1
d5-NEtFOSAA	60		50 - 150					08/06/21 10:15	
13C3 HFPO-DA	69		50 - 150 50 - 150				08/04/21 04:42		1

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW14-80

Date Received: 08/02/21 14:40

13C3 PFBS

1802 PFHxS

13C4 PFOS

d3-NMeFOSAA

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-77044-10 Date Collected: 07/30/21 09:37

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND	4.5	1.1	ng/L		08/04/21 04:42	08/06/21 10:24	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND	4.5	1.2	ng/L		08/04/21 04:42	08/06/21 10:24	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:24	1

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

50 - 150

75

80

81

82

80

81

08/04/21 04:42 08/06/21 10:24

08/04/21 04:42 08/06/21 10:24

08/04/21 04:42 08/06/21 10:24

08/04/21 04:42 08/06/21 10:24

08/04/21 04:42 08/06/21 10:24

08/04/21 04:42 08/06/21 10:24

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW14-180

Lab Sample ID: 320-77044-11 Date Collected: 07/30/21 00:00

**Matrix: Water** 

Method: EPA 537(Mod) - PFAS						_			
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	40		2.2		ng/L		08/04/21 04:42		1
Perfluoroheptanoic acid (PFHpA)	3.7		2.2		ng/L			08/06/21 10:33	1
Perfluorooctanoic acid (PFOA)	3.3		2.2		ng/L			08/06/21 10:33	
Perfluorononanoic acid (PFNA)	ND		2.2		ng/L			08/06/21 10:33	1
Perfluorodecanoic acid (PFDA)	ND		2.2		ng/L			08/06/21 10:33	1
Perfluoroundecanoic acid (PFUnA)	ND		2.2		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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.4	1.3	ng/L		08/04/21 04:42	08/06/21 10:33	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.4	1.4	ng/L		08/04/21 04:42	08/06/21 10:33	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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	

(ADONA)					
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
1802 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

8/11/2021

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: 2006-MW11-30

Date Received: 08/02/21 14:40

Lab Sample ID: 320-77044-12 Date Collected: 07/30/21 00:00

**Matrix: Water** 

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.8	1.2	ng/L		08/04/21 04:42	08/06/21 10:42	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.8	1.3	ng/L		08/04/21 04:42	08/06/21 10:42	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:42	1
13C3 PFBS	82		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:42	1
1802 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					08/06/21 10:42	1
d5-NEtFOSAA	91		50 - 150					08/06/21 10:42	1
13C3 HFPO-DA	81		50 <sub>-</sub> 150					08/06/21 10:42	1

Client: Shannon & Wilson, Inc Job ID: 320-77044-1

Project/Site: Dillingham Airport

Lab Sample ID: 320-77044-13 **Client Sample ID: GAC-POST** 

Date Collected: 07/30/21 20:56 **Matrix: Water** Date Received: 08/02/21 14:40

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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.2	1.0	ng/L		08/04/21 04:42	08/06/21 10:51	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.2	1.1	ng/L		08/04/21 04:42	08/06/21 10:51	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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 <sub>-</sub> 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	
13C2 PFTeDA	76		50 <sub>-</sub> 150					08/06/21 10:51	1
13C3 PFBS	88		50 <sub>-</sub> 150				08/04/21 04:42	08/06/21 10:51	1
1802 PFHxS	98		50 - 150				08/04/21 04:42	08/06/21 10:51	
13C4 PFOS	86		50 - 150					08/06/21 10:51	1
d3-NMeFOSAA	69		50 - 150					08/06/21 10:51	1
d5-NEtFOSAA	84		50 - 150					08/06/21 10:51	
13C3 HFPO-DA	86		50 - 150					08/06/21 10:51	1

8/11/2021

Job ID: 320-77044-1

Client: Shannon & Wilson, Inc Project/Site: Dillingham Airport

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

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

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		PFHxA	C4PFHA	PFOA	PFNA	PFDA	<b>PFUnA</b>	PFDoA	PFTDA
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150
320-77044-1	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
			Perce	ent Isotone	Dilution Re	covery (Ac	centance I	imits)	
		C3PFBS	PFHxS	PFOS		d5NEFOS	•		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(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		
			<del></del>						
320-77044-9	EVENTS-MW1-25	63	62	51	54	60	69		
320-77044-9 320-77044-10	EVENTS-MW1-25 DLG-MW14-80	63 75	62 80	51 81	54 82	60 80	69 81		
320-77044-10	DLG-MW14-80	75	80	81	82	80	81		
320-77044-10 320-77044-11	DLG-MW14-80 DLG-MW14-180	75 87	80 93	81 90	82 90	80 91	81 92		
320-77044-10 320-77044-11 320-77044-12	DLG-MW14-80 DLG-MW14-180 2006-MW11-30	75 87 82	80 93 83	81 90 84	82 90 80	80 91 91	81 92 81		
320-77044-10 320-77044-11 320-77044-12 320-77044-13	DLG-MW14-80 DLG-MW14-180 2006-MW11-30 GAC-POST	75 87 82 88	80 93 83 98	81 90 84 86	82 90 80 69	80 91 91 84	81 92 81 86		
320-77044-10 320-77044-11 320-77044-12	DLG-MW14-80 DLG-MW14-180 2006-MW11-30	75 87 82	80 93 83	81 90 84	82 90 80	80 91 91	81 92 81		

#### **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

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# **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Project/Site: Dillingham Airport d3NMFOS = d3-NMeFOSAA d5NEFOS = d5-NEtFOSAA HFPODA = 13C3 HFPO-DA Job ID: 320-77044-1

3

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11

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14

Client: Shannon & Wilson, Inc Job ID: 320-77044-1

Project/Site: Dillingham Airport

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** 

									•
	MB	MB							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		08/04/21 04:42	08/06/21 08:16	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		08/04/21 04:42	08/06/21 08:16	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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
,	MB	MB							

	IVIB	IVIB				
Isotope Dilution	%Recovery	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
1802 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:	<b>Lab Control Sample</b>
	Prep Type: Total/NA
	<b>Prep Batch: 512846</b>

-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

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LCS LCS

46.1

Result Qualifier Unit

Job ID: 320-77044-1

Client: Shannon & Wilson, Inc Project/Site: Dillingham Airport

#### Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCS 320-512846/2-A

**Matrix: Water** 

Analyte

Analysis Batch: 513686

midoacetic acid (NMeFOSAA) N-ethylperfluorooctanesulfonami **Client Sample ID: Lab Control Sample** 

D %Rec

115

61 - 135

Prep Type: Total/NA

rep Ba	tch: 5	12846
Rec.		
imits		

Perfluorodecanoic acid (PFDA)	40.0	40.9	ng/L	102	71 - 129	
Perfluoroundecanoic acid	40.0	47.1	ng/L	118	69 - 133	
(PFUnA)						
Perfluorododecanoic acid	40.0	47.0	ng/L	117	72 - 134	
(PFDoA)						
Perfluorotridecanoic acid	40.0	48.9	ng/L	122	65 - 144	
(PFTriA)						
Perfluorotetradecanoic acid	40.0	41.0	ng/L	102	71 - 132	
(PFTeA)						
Perfluorobutanesulfonic acid	35.4	39.9	ng/L	113	72 - 130	
(PFBS)						
Perfluorohexanesulfonic acid	36.4	38.2	ng/L	105	68 - 131	
(PFHxS)						
Perfluorooctanesulfonic acid	37.1	42.1	ng/L	113	65 - 140	
(PFOS)						
N-methylperfluorooctanesulfona	40.0	51.4	ng/L	129	65 - 136	

Spike

Added

ng/L doacetic acid (NEtFOSAA) 37.3 41.1 77 - 137 9-Chlorohexadecafluoro-3-oxan ng/L 110 onane-1-sulfonic acid Hexafluoropropylene Oxide 40.0 42.6 ng/L 106 72 - 132 Dimer Acid (HFPO-DA) 11-Chloroeicosafluoro-3-oxaund 37.7 38.2 ng/L 101 76 - 136 ecane-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic 43.7 37.7 ng/L 116 81 - 141

40.0

acid (ADONA)

LCS LCS

%Recovery	Qualifier	Limits			
89		50 - 150			
99		50 <sub>-</sub> 150			
88		50 - 150			
93		50 - 150			
99		50 - 150			
91		50 - 150			
84		50 - 150			
84		50 <sub>-</sub> 150			
87		50 - 150			
94		50 - 150			
91		50 - 150			
80		50 - 150			
85		50 - 150			
87		50 - 150			
	89 99 88 93 99 91 84 84 87 94 91 80 85	99 88 93 99 91 84 84 87 94 91 80 85			

Lab Sample ID: LCSD 320-512846/3-A

**Client Sample ID: Lab Control Sample Dup** 

						Prep Type: To		tal/NA	
						Prep Batch: 51284			
Spike	LCSD	LCSD				%Rec.		RPD	
Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
40.0	44.8		ng/L		112	72 - 129	3	30	
40.0	44.2		ng/L		110	72 - 130	6	30	
40.0	46.5		ng/L		116	71 - 133	9	30	
	40.0 40.0	Added Result 40.0 44.8 40.0 44.2	Added         Result 40.0         Qualifier 44.8           40.0         44.2	Added         Result 40.0         Qualifier 44.8         Unit ng/L ng/L ng/L           40.0         44.2         ng/L	Added         Result 40.0         Qualifier 44.8         Unit ng/L ng/L         D           40.0         44.2         ng/L         ng/L	Added         Result 40.0         Qualifier 44.8         Unit ng/L         D mg/L         %Rec 112           40.0         44.2         ng/L         110	Spike         LCSD         LCSD         %Rec.           Added         Result         Qualifier         Unit         D         %Rec         Limits           40.0         44.8         ng/L         112         72 - 129           40.0         44.2         ng/L         110         72 - 130	Spike         LCSD         LCSD         %Rec.           Added         Result         Qualifier         Unit         D         %Rec         Limits         RPD           40.0         44.8         ng/L         112         72 - 129         3           40.0         44.2         ng/L         110         72 - 130         6	

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# **QC Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15 (Continued)

Lab Sample ID: LCSD 320-512846/3-A **Matrix: Water** 

acid (ADONA)

**Analysis Batch: 513686** 

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA Prep Batch: 512846

LCSD LCSD **RPD** Spike %Rec. Added Result Qualifier Unit %Rec Limits 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 30 Perfluoroundecanoic acid 40.0 69 - 133 30 42.4 ng/L 106 10 (PFUnA) 40.0 106 30 Perfluorododecanoic acid 42.5 ng/L 72 - 13410 (PFDoA) 40.0 48.9 122 65 - 144 0 30 Perfluorotridecanoic acid ng/L (PFTriA) 40.0 42.9 Perfluorotetradecanoic acid ng/L 107 71 - 132 5 30 (PFTeA) Perfluorobutanesulfonic acid 35.4 38.4 109 72 - 130 30 ng/L (PFBS) 36.4 38.7 106 Perfluorohexanesulfonic acid ng/L 68 - 131 1 30 (PFHxS) 37.1 43.4 65 - 140 3 30 Perfluorooctanesulfonic acid ng/L 117 (PFOS) N-methylperfluorooctanesulfona 40.0 50.5 126 65 - 136 30 ng/L midoacetic acid (NMeFOSAA) 40.0 104 30 N-ethylperfluorooctanesulfonami 41.5 ng/L 61 - 135 11 doacetic acid (NEtFOSAA) 9-Chlorohexadecafluoro-3-oxan 37.3 44.5 ng/L 119 77 - 1378 30 onane-1-sulfonic acid 40.0 43.4 ng/L 108 72 - 132 2 Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) 40.0 11-Chloroeicosafluoro-3-oxaund 37.7 106 76 - 136 5 30 ng/L ecane-1-sulfonic acid 4,8-Dioxa-3H-perfluorononanoic 37.7 46.5 ng/L 123 81 - 141 30

LCSD LCSD

	LCJD	LUJD	
Isotope Dilution	%Recovery	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
1802 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

# **QC Association Summary**

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

## 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

Client: Shannon & Wilson, Inc Job ID: 320-77044-1 Project/Site: Dillingham Airport

Client Sample ID: DLG-MW01-30

Date Collected: 07/26/21 11:12

Lab Sample ID: 320-77044-1 **Matrix: Water** 

Date Received: 08/02/21 14:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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-
---------------------------

Lab Sample ID: 320-77044-5

Lab Sample ID: 320-77044-6

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

_	Batch	Batch	_	Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Bron Tuno	Batch	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Prep Type	Type		_ Kuii	Factor						
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

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Client: Shannon & Wilson, Inc Project/Site: Dillingham Airport

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** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-77044-10

Lab Sample ID: 320-77044-11

Lab Sample ID: 320-77044-12

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Lab Sample ID: 320-77044-9 **Matrix: Water** 

Date Received: 08/02/21 14:40

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

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

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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	FPA 537(Mod)		1			513686	08/06/21 10:42	S1M	TAL SAC

Eurofins TestAmerica, Sacramento

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#### **Lab Chronicle**

Client: Shannon & Wilson, Inc Job ID: 320-77044-1

Project/Site: Dillingham Airport

**Client Sample ID: GAC-POST** Lab Sample ID: 320-77044-13 Date Collected: 07/30/21 20:56

**Matrix: Water** 

Date Received: 08/02/21 14:40

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	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 Job ID: 320-77044-1

# Project/Site: Dillingham Airport

## **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

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# **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

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# **Sample Summary**

Client: Shannon & Wilson, Inc Project/Site: Dillingham Airport

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

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Job ID: 320-77044-1

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8/11/2021

Time 1412 2/2

SHANNON & WILS  QEOTECHNICAL AND ENTIRONMENT  2355 Hill Road Fairbanks, AK 9970 (907) 479-0600  www.shannonwilson.com	9	AIN-OF-CUSTOD	Y RECORD  Analytical Methods (include preserv	
Turn Around Time:  Normal Rush  Please Specify	Quote No:  MSA Number: TBT  J-Flags: Yes	No Date		Remarks/Matrix Composition/Grab? Sample Containers
Sample Identity  DLG - MW14-180  2006- MW11-30  GAC- POST		Sampled 7130/21		2 Grondwater 2 Date
Project Information  Number:  Name:  Contact:  Ongoing Project?	Sample Receipt  Total No. of Containers:  COC Seals Intact Y/N/NA  Received Good Cond./Cold  Temp	Marcy Wadel	Printed Name: Date:	Reliquished By: 3.  Signature: Time:  Printed Name: Date:
Sampler.	Delivery Method:	Swanna Wilson  Received By: 1.  Signature Time 14.4	/	Received By: 3.  Signature: Time:
Distribution: White - w/shipment - return Yellow - w/shipment - for of Pink - Shannon & Wilson -	consignee files	Printed Name: Date: X/2/	7/ Printed Name: Date:  Company:	Printed Name: Date:  Company:
· Time 1416 O Time 940	The Ton		5.6°C	No.

**Δ 4 4** 

Client: Shannon & Wilson, Inc Job Number: 320-77044-1

Login Number: 77044 List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Nelson, Kym D

Creator. Neison, Ryni D		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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	

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8/11/2021

# **Laboratory Data Review Checklist**

Comp	eted By:
Ju	stin Risley
Title:	
Er	gineering Staff
Date:	
Au	gust 31, 2021
Consu	ltant Firm:
Sh	annon & Wilson, Inc.
Labor	atory Name:
Ευ	rofins Environment Testing
Labor	atory Report Number:
32	0-77044-1
Labor	atory Report Date:
Αι	gust 11, 2021
CS Sit	e Name:
Di	llingham DOT&PF
ADEC	File Number:
25	40.38.023
Hazar	I Identification Number:
26	971

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. <u>Laboratory</u>
a. Did an ADEC CS approved laboratory receive and <u>perform</u> all of the submitted sample analyses?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
b. Correct analyses requested?
Yes⊠ No□ N/A□ Comments:
3. <u>Laboratory Sample Receipt Documentation</u>
a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
Analysis of per- and poly-fluoroalkyl substances (PFAS) in soil does not require preservation other than temperature control.

320-77044-1
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.?
$Yes \boxtimes No \square N/A \square$ Comments:
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Sample <i>DLG-MW14-180</i> and <i>2006-MW11-30</i> 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): <i>EVENTS-MW1-25</i> , <i>DLG-MW14-180</i> , and <i>2006-MW11-30</i> .
Sample <i>EVENTS-MW1-25</i> - 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 <i>DLG-MW14-180</i> - 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. <u>Case Narrative</u>
a. Present and understandable?
Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:

320-77044-1
Laboratory Report Date:
August 11, 2021
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): 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: <i>EVENTS-MW1-25</i> . 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: <i>DLG-MW01-45</i> , <i>EVENTS-MW1-25</i> , and <i>DLG-MW14-80</i> . Preparation batch 320-512846
Method 3535: The following samples were observed to be dark orange in color prior to extraction: <i>DLG-MW12-80</i> and <i>2006-MW11-30</i> . Preparation batch 320-512846
c. Were all corrective actions documented?
Yes $\boxtimes$ No $\square$ N/A $\square$ 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. <u>Samples Results</u>
a. Correct analyses performed/reported as requested on COC?
Yes⊠ No□ N/A□ Comments:

320-77044-1						
Laboratory Report Date:						
August 11, 2021						
CS Site Name:						
Dillingham DOT&PF						
b. All applicable holding times met?						
$Yes \boxtimes No \square N/A \square$ 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?						
$Yes \boxtimes No \square N/A \square$ Comments:						
e. Data quality or usability affected?						
Data quality and usability are not affected.						
6. QC Samples						
. M.d 1 D11.						
a. Method Blank  i. One method blank remented men metrix, analysis and 20 semales?						
<ul> <li>i. One method blank reported per matrix, analysis and 20 samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>						
$Yes \boxtimes No \square N/A \square$ Comments:						
ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?						
$Yes \boxtimes No \square N/A \square$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
Yes⊠ No□ N/A□ Comments:
<ul> <li>ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
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)
$Yes \boxtimes No \square N/A \square$ 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)
$Yes \boxtimes No \square N/A \square$ Comments:

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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 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.				
<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> </ul>				
Yes $\square$ No $\square$ N/A $\boxtimes$ Comments:				
There was insufficient volume to perform a MS/MSD; see 4.b.				
<ul> <li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>				
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 $\square$ No $\square$ N/A $\boxtimes$ 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
	<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
į	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 $\square$ No $\boxtimes$ N/A $\square$ Comments:
	Percent recovery for 13C2 PFTeDA in project sample <i>EVENTS-MW1-25</i> 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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CS Site Name:				
Dillingham DOT&PF				
iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the da flags clearly defined?	ta			
$Yes \boxtimes No \square N/A \square$ Comments:				
See above.				
iv. Data quality or usability affected?  Comments:				
The data quality/usability is affected; see above.				
e. Trip Blanks				
<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples (If not, enter explanation below.)</li> </ul>	?			
Yes $\square$ No $\square$ N/A $\boxtimes$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:				
See above.				
iii. All results less than LOQ and project specified objectives?				
Yes $\square$ No $\square$ N/A $\boxtimes$ 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 <i>DLG-MW14-50/DLG-MW14-150</i> and <i>DLG-MW14-80/DLG-MW14-180</i> 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 $\boxtimes$ No $\square$ N/A $\square$ 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?
$Yes \boxtimes No \square N/A \square$ Comments:
No analytes were detected in the sample.

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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 $\square$ No $\square$ N/A $\boxtimes$ Comments:	
No other data flags or qualifiers.	



# **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

Jamil Oltima

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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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Shannon & Wilson, Inc Project/Site: DLG PFAS Laboratory Job ID: 320-79756-1

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# **Definitions/Glossary**

Client: Shannon & Wilson, Inc Job ID: 320-79756-1

Project/Site: DLG PFAS

#### **Qualifiers**

	_		
L	U	IV	3

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)

PRES QC

NEG

POS

PQL

Presumptive Quality Control

QC Quality Contr

RER Relative Error Ratio (Radiochemistry)

Negative / Absent

Positive / Present

**Practical Quantitation Limit** 

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 4.7° 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.

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# **Detection Summary**

Client: Shannon & Wilson, Inc Job ID: 320-79756-1

Project/Site: DLG PFAS

**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	JI	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	na/L	1		EPA 537(Mod)	Total/NA

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# **Client Sample Results**

Client: Shannon & Wilson, Inc Job ID: 320-79756-1 Project/Site: DLG PFAS

**Client Sample ID: SW-10** 

Date Received: 10/01/21 14:05

d5-NEtFOSAA

13C3 HFPO-DA

Lab Sample ID: 320-79756-1 Date Collected: 09/30/21 16:20

**Matrix: Water** 

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	JI	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		4.3	1.0	ng/L		10/04/21 12:03	10/06/21 09:18	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		4.3		ng/L		10/04/21 12:03	10/06/21 09:18	1
9-Chlorohexadecafluoro-3-oxanonan e-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		ng/L		10/04/21 12:03	10/06/21 09:18	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid	ND		1.7		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 <sub>-</sub> 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 <sub>-</sub> 150				10/04/21 12:03	10/06/21 09:18	1
13C2 PFUnA	80		50 <sub>-</sub> 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 <sub>-</sub> 150				10/04/21 12:03	10/06/21 09:18	1
13C3 PFBS	50		50 <sub>-</sub> 150				10/04/21 12:03	10/06/21 09:18	1
1802 PFHxS	77		50 <sub>-</sub> 150				10/04/21 12:03	10/06/21 09:18	1
13C4 PFOS	74		50 <sub>-</sub> 150					10/06/21 09:18	1
d3-NMeFOSAA	72		50 - 150					10/06/21 09:18	1
	<u></u>								

10/04/21 12:03 10/06/21 09:18

10/04/21 12:03 10/06/21 09:18

50 - 150

50 - 150

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# **Isotope Dilution Summary**

Client: Shannon & Wilson, Inc Job ID: 320-79756-1

Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

Matrix: Water Prep Type: Total/NA

			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		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
320-79756-1	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
			Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	imits)	
		C3PFBS	PFHxS	PFOS	d3NMFOS	d5NEFOS	HFPODA		
Lab Sample ID	Client Sample ID	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)	(50-150)		
320-79756-1	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 = 1802 PFHxS

PFOS = 13C4 PFOS

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

HFPODA = 13C3 HFPO-DA

10/14/2021

Client: Shannon & Wilson, Inc Job ID: 320-79756-1 Project/Site: DLG PFAS

Method: EPA 537(Mod) - PFAS for QSM 5.3, Table B-15

MD MD

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** 

	MR	MR							
Analyte	Result	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-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	ND		5.0	1.2	ng/L		10/04/21 12:03	10/06/21 08:47	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	ND		5.0	1.3	ng/L		10/04/21 12:03	10/06/21 08:47	1
9-Chlorohexadecafluoro-3-oxanonan e-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-oxaundecan e-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

MB	MB	
----	----	--

Isotope Dilution	%Recovery Qua	lifier 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 <sub>-</sub> 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
1802 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 <sub>-</sub> 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
	<b>Prep Type: Total/NA</b>

**Prep Batch: 530949** %Rec

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	

Eurofins TestAmerica, Sacramento

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Client: Shannon & Wilson, Inc Job ID: 320-79756-1 Project/Site: DLG PFAS

#### 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** %Rec.

7 manyono Batom oo 11 oz	Spike	LCS LCS			%Rec.	
Analyte	Added	Result Qualifi	er Unit	D %Rec	Limits	
Perfluorodecanoic acid (PFDA)	40.0	38.3	ng/L	96	71 - 129	
Perfluoroundecanoic acid	40.0	39.0	ng/L	98	69 - 133	
(PFUnA)						
Perfluorododecanoic acid	40.0	43.5	ng/L	109	72 - 134	
(PFDoA)						
Perfluorotridecanoic acid	40.0	42.0	ng/L	105	65 - 144	
(PFTriA)						
Perfluorotetradecanoic acid	40.0	44.6	ng/L	111	71 - 132	
(PFTeA)						
Perfluorobutanesulfonic acid	35.4	35.6	ng/L	101	72 - 130	
(PFBS)						
Perfluorohexanesulfonic acid	36.4	35.7	ng/L	98	68 - 131	
(PFHxS)						
Perfluorooctanesulfonic acid	37.1	36.6	ng/L	99	65 - 140	
(PFOS)						
N-methylperfluorooctanesulfona	40.0	36.7	ng/L	92	65 - 136	
midoacetic acid (NMeFOSAA)						
N-ethylperfluorooctanesulfonami	40.0	36.8	ng/L	92	61 - 135	
doacetic acid (NEtFOSAA)						
9-Chlorohexadecafluoro-3-oxan	37.3	38.1	ng/L	102	77 - 137	
onane-1-sulfonic acid						
Hexafluoropropylene Oxide	40.0	38.2	ng/L	96	72 - 132	
Dimer Acid (HFPO-DA)						
11-Chloroeicosafluoro-3-oxaund	37.7	42.9	ng/L	114	76 - 136	
ecane-1-sulfonic acid						
4,8-Dioxa-3H-perfluorononanoic	37.7	40.5	ng/L	107	81 - 141	
acid (ADONA)						

LCS LCS

	LCS	LUS	
Isotope Dilution	%Recovery	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
1802 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** 

Prep Type: Total/NA **Prep Batch: 530949** 

**Client Sample ID: Lab Control Sample Dup** 

and the state of t									
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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

Eurofins TestAmerica, Sacramento

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# **QC Sample Results**

Job ID: 320-79756-1 Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

# 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

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	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-methylperfluorooctanesulfona midoacetic acid (NMeFOSAA)	40.0	37.3		ng/L		93	65 - 136	2	30
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	40.0	43.0		ng/L		108	61 - 135	16	30
9-Chlorohexadecafluoro-3-oxan onane-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-oxaund ecane-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

LCSD LCSD

	LCJD	LUJD	
Isotope Dilution	%Recovery	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
1802 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

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#### **Lab Chronicle**

Client: Shannon & Wilson, Inc Job ID: 320-79756-1

Project/Site: DLG PFAS

**Client Sample ID: SW-10** Lab Sample ID: 320-79756-1 Date Collected: 09/30/21 16:20

**Matrix: Water** 

Date Received: 10/01/21 14:05

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	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

Job ID: 320-79756-1

Project/Site: DLG PFAS

# **Laboratory: Eurofins TestAmerica, Sacramento**

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	<b>Expiration Date</b>	
Alaska (UST)	State	17-020	02-20-24	

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# **Method Summary**

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

 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

Job ID: 320-79756-1

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## **Sample Summary**

09/30/21 16:20 10/01/21 14:05

Water

Client: Shannon & Wilson, Inc Project/Site: DLG PFAS

SW-10

320-79756-1

Lab Sample ID Client Sample ID Matrix Collected Received

Job ID: 320-79756-1

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SHANNON & WILS  GEOTECHNICAL AND BENVIROMBENTA  2355 Hill Road Fairbanks, AK 99708 (907) 479-0600	L CONSULTANTS	CHA	IN-O	F-CU	STODY			boratory Test Aure n: David Aecturative if used)	of 1
Turn Around Time:  Normal Rush	Quote No:	Yes	No	A ST	180			Remarks/Ma Composition/G Sample Conta	
Please Specify		_		12	/ /	/ /	/ /	Remarks/Ma	ıtrix
Sample Identity	⊒ Lab No.	Time	Date Sampled	2	/ /			Composition/G Sample Conta	Grab?
SW-10			3130	×				) ( done wal	
							320-79756 Cha		
Project Information		Receipt		Reliquished			ished By: 2.	Reliquished By:	
Number: 102581-009	Total No. of Contain		Signatu	Te.	Time: 1701	2 Signature:	Time:	Signature: T	īme:
Name: DLG PFAS  Contact: Name: Nadel  Ongoing Project? Vest No	COC Seals/Intact?  Received Good Con  Temp:		Printed	Name:	Date: 9/39	Printed Name:	Date:	Printed Name: D	Date:
Sampler: VTY	Delivery Method: O		Compa	annon &	Wilson	Company:		Company:	
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Distribution: White - w/shipment - returned Yellow - w/shipment - for co Pink - Shannon & Wilson - jo	nsignee files	w/ laboratory r	eport Compa	MAS	an	Company:		Company:	
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Client: Shannon & Wilson, Inc

Job Number: 320-79756-1

Login Number: 79756

List Source: Eurofins TestAmerica, Sacramento

List Number: 1 Creator: Her, David A

Creator. Her, David A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	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		
Titl	le:		
	Environmental Scientist		
Dat	te:		
	October 29, 2021		
Coı	nsultant Firm:		
	Shannon & Wilson, Inc.		
Lał	poratory Name:		
	Eurofins Environment Testing		
Lat	poratory Report Number:		
	320-79756-1		
Lał	poratory Report Date:		
	October 14, 2021		
CS	Site Name:		
	Dillingham DOT&PF		
ΑD	EC File Number:		
	2540.38.023		
Haz	zard Identification Number:		
	26971		

320	0-79756-1
Labora	atory Report Date:
Oc	tober 14, 2021
CS Site	e Name:
Dil	llingham DOT&PF
No	te: Any N/A or No box checked must have an explanation in the comments box.
1. <u>La</u> l	<u>boratory</u>
;	a. Did an ADEC CS approved laboratory receive and <u>perform</u> 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
	Samples were not transferred or sub-contracted to an alternate laboratory.
2. <u>Ch</u>	ain of Custody (CoC)
i	a. CoC information completed, signed, and dated (including released/received by)?
	Yes $\boxtimes$ No $\square$ N/A $\square$ Comments:
	b. Correct analyses requested?
_	$Yes \boxtimes No \square N/A \square$ Comments:
3. <u>La</u>	boratory Sample Receipt Documentation
;	a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
	$Yes \boxtimes No \square N/A \square$ Comments:
	Samples were received at 4.7°C.
Ī	b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
F	$Yes \boxtimes No \square N/A \square$ Comments:

320-79756-1
Laboratory Report Date:
October 14, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
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. <u>Case Narrative</u>
a. Present and understandable?
$Yes \boxtimes No \square N/A \square$ Comments:

320-79756-1	
Laboratory Report Date:	
October 14, 2021	
October 14, 2021	
CS Site Name:	
Dillingham DOT&PF	
b. Discrepancies, errors, or QC failures identified by the lab?	
Yes $\boxtimes$ No $\square$ N/A $\square$ 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 <i>SW-10</i> 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 <i>SW-10</i> 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 <i>SW-10</i> 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?	
$Yes \boxtimes No \square N/A \square$ 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. <u>Samples Results</u>	
a. Correct analyses performed/reported as requested on COC?	
Yes⊠ No□ N/A□ Comments:	

320-79756-1	
Laboratory Report Date:	
October 14, 2021	
CS Site Name:	
Dillingham DOT&PF	
b. All applicable holding times met?	
$Yes \boxtimes No \square N/A \square$ Comments:	
c. All soils reported on a dry weight basis?	
$Yes \square No \square N/A \boxtimes Comments:$	
Soils were not submitted with this work order.	
d. Are the reported LOQs less than the Cleanup Level or the minimum required detection let the project?	evel for
$Yes \boxtimes No \square N/A \square$ Comments:	
e. Data quality or usability affected?	
Data quality and usability are not affected.	
6. QC Samples	
a. Method Blank	
<ul><li>a. Method Blank</li><li>i. One method blank reported per matrix, analysis and 20 samples?</li></ul>	
Yes No N/A Comments:	
Tese Not IVAL Comments.	
ii. All method blank results less than limit of quantitation (LOQ) or project specified of	bjectives?
$Yes \boxtimes No \square N/A \square$ 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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Laboratory Report Date:
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CS Site Name:
Dillingham DOT&PF
iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined? Yes $\square$ No $\square$ N/A $\boxtimes$ 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)
<ul> <li>i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)</li> </ul>
$Yes \boxtimes No \square N/A \square$ Comments:
ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
$Yes \square No \square N/A \boxtimes Comments:$
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)
$Yes \boxtimes No \square N/A \square$ 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)
$Yes \boxtimes No \square N/A \square$ Comments:

320-79756-1
Laboratory Report Date:
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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:
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 $\square$ No $\square$ N/A $\boxtimes$ 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.
<ul> <li>c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)</li> <li>Note: Leave blank if not required for project</li> <li>i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
There was insufficient volume to perform a MS/MSD. Refer to Section 6.b for assessment of laboratory accuracy and precision.
<ul><li>ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?</li><li>Yes□ No□ N/A⊠ Comments:</li></ul>
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.

320-79756-1
Laboratory Report Date:
October 14, 2021
CS Site Name:
Dillingham DOT&PF
<ul> <li>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)</li> </ul>
Yes $\square$ No $\square$ N/A $\boxtimes$ 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 $\square$ No $\square$ N/A $\boxtimes$ 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
<ul> <li>i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?</li> </ul>
Yes⊠ No□ N/A□ Comments:
<ul> <li>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)</li> </ul>
Yes□ No⊠ N/A□ Comments:
The surrogate 13C3 HFPO-DA exhibited low recovery in sample <i>SW-10</i> .

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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 $\boxtimes$ No $\square$ N/A $\square$ Comments:
The analyte HFPO-DA is associated with the surrogate 13C-HFPO-DA. The HFPO-DA sample result for <i>SW-10</i> 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
<ul> <li>i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?</li> <li>(If not, enter explanation below.)</li> </ul>
Yes $\square$ No $\square$ N/A $\boxtimes$ 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 $\square$ No $\square$ N/A $\boxtimes$ Comments:
See above.
iii. All results less than LOQ and project specified objectives?
Yes $\square$ No $\square$ N/A $\boxtimes$ 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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<ul> <li>f. Field Duplicate</li> <li>i. One field duplicate submitted per matrix, analysis and 10 project samples?</li> <li>Yes⊠ No□ N/A□ Comments:</li> </ul>
Field duplicates were submitted at the required project frequency. However, a field duplicate was not submitted with this work order.
<ul><li>ii. Submitted blind to lab?</li><li>Yes□ No□ N/A⊠ Comments:</li></ul>
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)
Yes $\square$ No $\square$ N/A $\boxtimes$ 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.
<ul> <li>g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
Yes No N/A⊠ Comments:  Samples were not collected with reusable sampling equipment. An equipment blank was not required for this project.
<ul> <li>i. All results less than LOQ and project specified objectives?</li> <li>Yes□ No□ N/A⊠ Comments:</li> </ul>
An equipment blank was not required for this project.

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Laboratory Report Date:
October 14, 2021
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?
$Yes \square No \square N/A \boxtimes Comments:$
No other data flags or qualifiers.

#### 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? Check the appropriate box.

Yes – Describe 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.

feet for small animals or 6 feet for large animals), or groom.

Τ	errestrial	l Ex	posure	R	loutes
---	------------	------	--------	---	--------

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

	innalation 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 <i>Policy Guidance on Developing Conceptual Site Models</i> ).
	Other site-specific exposure pathways.
Aqu	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 <i>Policy Guidance on Developing Conceptual Site Models</i> ) taken up by sediment invertebrates, which are in turn eaten by higher food chain organisms.  Other site-specific exposure pathways.
-	ny of the above boxes are checked, go on to the next section. If none are checked, end evaluation and check the box below.
	OFF-RAMP: NO FURTHER ECOLOGICAL EVALUATION NECESSARY
Cor	mments:
_	Habitat eck all that may apply. See Ecoscoping Guidance for additional help.
	centul may apply. See Leoscoping Guadance for additional neigh.
	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:
<b>4. Contaminant Quantity</b> 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:
F. Taviaity Detaymination
5. Toxicity Determination  Check all that apply.
Bioaccumulative chemicals are present (see <i>Policy Guidance on Developing Conceptual Site Models</i> ).
Contaminants exceed benchmark levels (see the Ecological Benchmark Tool in RAIS, available at: http://rais.ornl.gov/tools/eco_search.php).

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:	
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.		
about which exposummary text ab	osure pathways should be further inv	vestigated du g exposure pa	partment of Environmental Conservation (DEC) uring site characterization. From this information athways should be submitted with the site
General Instruct	tions: Follow the italicized instruct	ions in each	section below.
1. General In Sources (check	nformation: potential sources at the site)		
USTs		☐ Vehicle	es
☐ ASTs		☐ Landfill	ls
☐ Dispensers/fu	el loading racks	☐ Transfo	ormers
Drums			AFFF discharge for testing, training, and emergency response
Release Mechan	nisms (check potential release mech	anisms at the	e site)
⊠ Spills		⊠ Direct d	discharge
⊠ Leaks		☐ Burning	9
		☐ Other:	
Impacted Media	a (check potentially-impacted media	at the site)	
Surface soil (	0-2 feet bgs*)	⊠ Ground	lwater
⊠ Subsurface so	oil (>2 feet bgs)	⊠ Surface	water
☐ Air		⊠ Biota	
⊠ Sediment		☐ Other:	
Receptors (chec	k receptors that could be affected by	<sup>,</sup> contaminati	ion at the site)
⊠ Residents (ad	ult or child)	⊠ Site visi	itor
	or industrial worker	⊠ Trespas	sser
▼ Construction	worker	⊠ Recreat	tional user
⊠ Subsistence h	arvester (i.e. gathers wild foods)	☐ Farmer	
⊠ Subsistence c	onsumer (i.e. eats wild foods)	$\Box$ Other:	

<sup>\*</sup> bgs - below ground surface

2.	<b>Exposure Pathways:</b> (The answers to the following questions will identify compares exposure pathways at the site. Check each box where the answer to the question is								
a)	Direct Contact - 1. Incidental Soil Ingestion								
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on	the ground surface?							
	If the box is checked, label this pathway complete:		Complete						
	Comments:								
	PFOS and/or PFOA were identified above soil-cleanup levels at the so (SB13, SB14, and SS-Grid samples), south of the apron (SB3), and sour boring SB3 is near long-term airport parking. The other locations are								
	2. Dermal Absorption of Contaminants from Soil								
	Are contaminants present or potentially present in surface so (Contamination at deeper depths may require evaluation on	the ground surface?							
	Can the soil contaminants permeate the skin (see Appendix	X							
	If both boxes are checked, label this pathway complete:		Complete						
	Comments:								
	PFOA and PFOS were identified in Dillingham Airport surface soil. Ac of Health and Social Services, PFOS and PFOA are not appreciably ab Appendix B of the DEC 2017 Guidance on Developing CSMs includes dermal exposure to these compounds to be insignificant for the purpose.								
b)	Ingestion - 1. Ingestion of Groundwater								
	Have contaminants been detected or are they expected to be or are contaminants expected to migrate to groundwater in t	$\overline{\times}$							
	Could the potentially affected groundwater be used as a curresource? Please note, only leave the box unchecked if DEC has water is not a currently or reasonably expected future source to 18 AAC 75.350.								
	If both boxes are checked, label this pathway complete:								
	Comments:								
	PFOS and PFOA have been detected at concentrations exceeding the in onsite and offsite residential and commercial drinking water wells exceedances of drinking water standards are being supplied bottled	. Propertie:							

## 2. Ingestion of Surface Water Have contaminants been detected or are they expected to be detected in surface water, $\overline{X}$ 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 $\overline{X}$ harvesting of wild or farmed foods? Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance $\overline{\times}$ document)? Are site contaminants located where they would have the potential to be taken up into $\overline{X}$ 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 $\overline{X}$ 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. Innalation of Indoor Air		
Are occupied buildings on the site or reasonably expected to be the site in an area that could be affected by contaminant vapors or vertical feet of petroleum contaminated soil or groundwater; non-petroleum contaminted soil or groundwater; or subject to " which promote easy airflow like utility conduits or rock fracture	? (within 30 horizontal within 100 feet of 'preferential pathways,"	
Are volatile compounds present in soil or groundwater (see Apdocument)?	pendix D in the guidance	
If both boxes are checked, label this pathway complete:	Incomplete	
Comments:		
Initial site characterization activities did not identify petroleum soil conta areas. PFAS contaminants are not volatile.	amination at former fire training	

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.
- O Climate permits exposure to groundwater during activities, such as construction.
- o 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:

#### $\overline{\times}$

#### 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.
- O Dust particles are less than 10 micrometers (Particulate Matter PM<sub>10</sub>). 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:

#### $\overline{X}$

#### 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 contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- O 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.

#### HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Dillin	gnam Airport			instructions: Follow the numbered consider contaminant concentrations:							
•	ву: Shannon & Wilson, Inc.			use controls when describing path			jiiiee				_
Date Compl	eted: 12/7/2021								(5)		
(1)	(2)	(3)		(4)	expo "F" f	sure por futu	oathwa ire rece	y: Ente	er "C" for cu "C/F" for bo	ffected by ea urrent recept oth current a	ors and
Check the media		Check all exposure		Check all pathways that could be complete.						ant exposure	
could be directly by the release.		media identified in (		The pathways identified in this column <b>must</b> agree with Sections 2 and 3 of the Human Health CSM Scoping Form.	C					ecepto	rs
Media	Transport Mechanisms	Exposure M	edia	Exposure Pathway/Route		ldren)	or rkers	al users	workers ubsisten	Consum	/
	Direct release to surface soil check soil				ري	cis Chi	NO STO	ation f:	10 s	μ <sub>Ce</sub> /	/
Surface Soil (0-2 ft bgs)	✓ Migration to subsurface     check soil       ✓ Migration to groundwater     check groundwater       Volatilization     check air				Residents (adun-	Commer	Site visitors	Construction and users	Farmers or subsistence	Other	
	Runoff or erosion check surface water		✓ Incid	ental Soil Ingestion	C/F	C/F	C/F	C/F	C/F		
	✓ Uptake by plants or animals check biota	soil	✓ Derm	nal Absorption of Contaminants from Soil	ı	I	ı	I	I		
	Other (list): runoff to sediment		✓ Inhal	ation of Fugitive Dust		C/F	1	C/F			
	Direct release to subsurface soil check soil			<u> </u>			1	1			
Subsurface	Migration to groundwater check groundwater		√ Inges	stion of Groundwater	F	F	F	F			
Soil (2-15 ft bgs)	Volatilization   check air   Uptake by plants or animals   check biota			nal Absorption of Contaminants in Groundwater	'	1	<u>'</u>	<u> </u>		+	
(= 10 11 29 2)	Uptake by plants or animals check biota Other (list):	groundwater		·	<u>'</u>		<u>'</u>	<u> </u>			
			Inhal	ation of Volatile Compounds in Tap Water							
	Direct release to groundwater check groundwater					T		,			
Ground-	Volatilization check air		Inhal	ation of Outdoor Air							
water	Flow to surface water body check surface water  Flow to sediment check sediment	air	Inhal	ation of Indoor Air							
	Uptake by plants or animals check biota		Inhal	ation of Fugitive Dust							
	Other (list):						-				
	Direct release to surface water check surface water		Inges	stion of Surface Water							
Surface	Volatilization check air	surface water		nal Absorption of Contaminants in Surface Water	1	ı	1	1			
Water	Sedimentation check sediment	Carrace water	/ = -	ation of Volatile Compounds in Tap Water	-	•		'			
	Uptake by plants or animals check biota			ation of volatile Compounds in Tap Water							
	Other (list):		\				_				
	Direct release to sediment check sediment	✓ sediment	✓ Direc	t Contact with Sediment	C/F	F	C/F	F	C/F		
Sediment	Resuspension, runoff, or erosion check surface water		,								
Seuiment	Uptake by plants or animals check biota	☑ biota	V Inges	stion of Wild or Farmed Foods	C/F		C/F		C/F C/I	F	
	Other (list):		/ [	2	0/1		0,1		3/1 3/1		
											_

# Important Information

About Your Environmental Report

# 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

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.

#### 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